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NAS WHITING FIELD
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FEASIBILITY STUDY FOR SITE 17 CRASH CREW TRAINING AREA NAS WHITING FIELD FL
3/1/1999
HARDING LAWSON ASSOCIATES



FEASIBILITY STUDY

SITE 17, CRASH CREW TRAINING AREA

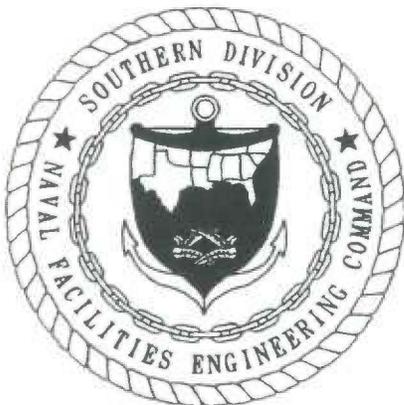
**NAVAL AIR STATION WHITING FIELD
MILTON, FLORIDA**

USEPA ID NO.: FL2170023244

UNIT IDENTIFICATION CODE: N60508

CONTRACT NO.: N62467-89-D-0317/116

MARCH 2001



**SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA 29418**



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**FEASIBILITY STUDY
FOR
SURFACE AND SUBSURFACE SOILS
SITE 17, CRASH CREW TRAINING AREA

NAVAL AIR STATION WHITING FIELD
MILTON, FLORIDA**

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March 2001



CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, Harding Lawson Associates, hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/116 are complete and accurate and comply with all requirements of this contract.

DATE: March 29, 2001

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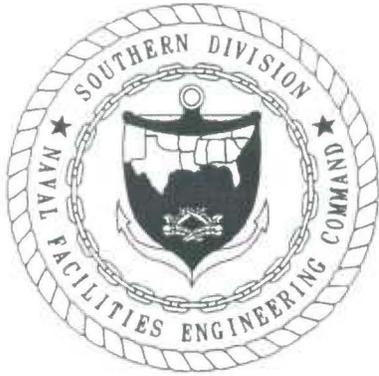
(DFAR 252.227-7036)



The evaluations and professional opinions rendered in this planning document describing the feasibility study for Site 17, Naval Air Station Whiting Field, Milton, Florida, were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards of practice. This document is not intended to be used for construction of the selected alternative.

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FOREWORD

To meet its mission objectives, the U.S. Navy performs a variety of operations, some requiring the use, handling, storage, and/or disposal of hazardous materials. Through accidental spills or leaks or as a result of and conventional methods of past disposal, hazardous materials may have entered the environment in ways unacceptable by current standards. With growing knowledge of the long-term effects of hazardous materials on the environment, the Department of Defense initiated various programs to investigate and remediate conditions related to suspected past releases of hazardous materials at their facilities.

One of these programs is the Installation Restoration (IR) program. This program complies with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), the Resource Conservation and Recovery Act, and the Hazardous and Solid Waste Amendments of 1984. These acts establish the means to assess and clean up hazardous waste sites for both private-sector and Federal facilities. The CERCLA and SARA acts form the basis for what is commonly known as the Superfund program.

Originally, the Navy's part of this program was called the Naval Assessment and Control of Installation Pollutants (NACIP) program. Early reports reflect the NACIP process and terminology. The Navy eventually adopted the program structure and terminology of the standard IR program.

The IR program is conducted in several stages as follows:

- preliminary assessment (PA),
- site inspection (SI) (formerly the PA and SI steps were called the initial assessment study under the NACIP program),
- remedial investigation and feasibility study, and
- remedial design and remedial action.

The Southern Division, Naval Facilities Engineering Command manages and the U.S. Environmental Protection Agency and the Florida Department of Environmental Protection oversee the Navy environmental program at Naval Air Station (NAS) Whiting Field. All aspects of the program are conducted in compliance with State and Federal regulations, as ensured by the participation of these regulatory agencies.

Questions regarding the CERCLA program at NAS Whiting Field should be addressed to Ms. Linda Martin, Code 1859, at (843) 820-5574.

TABLE OF CONTENTS

Feasibility Study
Site 17, Crash Crew Training Area
Naval Air Station Whiting Field
Milton, Florida

<u>CHAPTER</u>	<u>TITLE</u>	<u>PAGE NO.</u>
1.0	INTRODUCTION	1-1
1.1	THE CERCLA FS PROCESS	1-3
1.2	PURPOSE	1-4
1.3	ENVIRONMENTAL CONDITIONS	1-5
1.4	INTERIM ACTIONS	1-7
1.5	RI SUMMARY	1-7
2.0	REMEDIAL ACTION OBJECTIVES	2-1
2.1	APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS	2-1
2.1.1	Chemical-Specific ARARs	2-2
2.1.2	Location-Specific ARARs	2-2
2.1.3	Action-Specific ARARs	2-2
2.1.4	To Be Considered Criteria	2-5
2.2	IDENTIFICATION OF RAOs	2-5
2.3	VOLUME OF CONTAMINATED MEDIA	2-9
2.4	IDENTIFICATION OF GENERAL RESPONSE ACTIONS	2-9
3.0	REMEDIAL ACTION ALTERNATIVES	3-1
3.1	IDENTIFICATION AND SCREENING OF REMEDIAL TECHNOLOGIES	3-1
3.2	REMEDIAL ALTERNATIVES	3-4
3.2.1	Alternative 1: No Action	3-4
3.2.2	Alternative 2: Land-Use Controls	3-4
3.2.3	Alternative 3: Soil Removal and Disposal	3-4
4.0	DETAILED ANALYSIS OF ALTERNATIVES	4-1
4.1	DETAILED ANALYSIS FOR ALTERNATIVE 1: NO ACTION	4-1
4.1.1	Detailed Description of Alternative 1	4-1
4.1.2	Technical Criteria Assessment of Alternative 1	4-2
4.2	DETAILED ANALYSIS FOR ALTERNATIVE 2: LAND-USE CONTROLS	4-3
4.2.1	Detailed Description of Alternative 2	4-4
4.2.2	Technical Criteria Assessment of Alternative 2	4-5
4.3	DETAILED ANALYSIS FOR ALTERNATIVE 3: SOIL REMOVAL AND DISPOSAL	4-6
4.3.1	Detailed Description of Alternative 3	4-6
4.3.2	Technical Criteria Assessment of Alternative 3	4-7
5.0	COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES	5-1
5.1	OVERALL APPROACH TO COMPARATIVE ANALYSIS	5-1
5.1.1	Threshold Criteria	5-1
5.1.2	Primary Balancing Criteria	5-1
5.1.3	Modifying Criteria	5-1

TABLE OF CONTENTS (Continued)

Feasibility Study
Site 17, Crash Crew Training Area
Naval Air Station Whiting Field
Milton, Florida

CHAPTER	TITLE	PAGE NO.
5.2	COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES.....	5-2
5.2.1	Comparison of Threshold Criteria.....	5-2
5.2.2	Comparison of Primary Balancing Criteria.....	5-2
5.2.3	Modifying Criteria.....	5-3

REFERENCES

APPENDICES

- Appendix A: Response to Agency Comments
- Appendix B: Volume Estimates for Contaminated Media
- Appendix C: Cost Calculations for Remedial Alternatives

LIST OF FIGURES

Feasibility Study
Site 17, Crash Crew Training Area
Naval Air Station Whiting Field
Milton, Florida

<u>Figure</u>	<u>Title</u>	<u>Page No.</u>
1-1	Location of RI/FS Sites at NAS Whiting Field.....	1-2
1-2	General Features Prior to Interim Remedial Action	1-6
1-3	Boundary of IRA Soil Cover and Sample Locations	1-8

LIST OF TABLES

<u>Table</u>	<u>Title</u>	<u>Page No.</u>
2-1	Synopsis of Federal and State ARARs and Guidance	2-3
2-2	Summary of Chemicals Exceeding ARARs and TBCs in Surface Soil	2-6
2-3	Recalculated Cadmium and Chromium Concentrations.....	2-7
2-4	Summary of Hazard Indices (HIs) for Representative Wildlife.....	2-8
2-5	Summary of Remedial Action Objectives for Site	2-9
3-1	Identification and Screening of Remedial Technologies	3-2
3-2	Development of Remedial Alternatives.....	3-5
4-1	Criteria for Evaluation of Remedial Action Alternatives	4-2
4-2	Cost Summary Table, Alternative 1: No Action	4-4
4-3	Cost Summary Table, Alternative 2: Land-Use Controls	4-6
4-4	Cost Summary Table, Alternative 3: Soil Removal and Disposal	4-9

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AFFF	aqueous film-forming foam
ARAR	applicable or relevant and appropriate requirement
BEI	Bechtel Environmental Inc.
BRA	baseline risk assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cm/s	centimeters per second
CT	central tendency
COPC	chemicals of potential concern
ELCR	excess lifetime cancer risk
ERA	ecological risk assessment
FDEP	Florida Department of Environmental Protection
FGGC	Florida Groundwater Guidance Concentration
FS	feasibility study
FSCG	Florida Soil Cleanup Goal
GCTL	groundwater cleanup target level
GIR	General Information Report
HHRA	human health risk assessment
HI	hazard index
HLA	Harding Lawson Associates
IR	Installation Restoration
IRA	interim remedial action
JP-5	jet propellant
LUCAP	Land-Use Control Assurance Plan
LUCIP	Land-Use Control Implementation Plan
MCL	maximum contaminant level
NAS	Naval Air Station
NCP	National Oil and Hazardous Substances Contingency Plan
PCB	polychlorinated biphenyls
RA	remedial action
RAO	remedial action objective
RBC	risk based concentration
RCRA	Resource Conservation and Recovery Act
RI	remedial investigation

GLOSSARY (Continued)

RME	reasonable maximum exposure
ROD	record of decision
SARA	Superfund Amendments and Reauthorization Act
SOUTHNAV- FACENCOM	Southern Division, Naval Facilities Engineering Command
SCTL	soil cleanup target level
SVOC	semivolatile organic compound
TBC	to be considered
TCL	target compound list
TRPH	total petroleum recoverable hydrocarbon
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound
yd ³	cubic yard

1.0 INTRODUCTION

Harding Lawson Associates (formerly ABB Environmental Services, Inc. [ABB-ES]), has been contracted by the Department of the Navy, Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to complete a feasibility study (FS) for Site 17, Crash Crew Training Area, at Naval Air Station (NAS) Whiting Field, Milton, Florida. The FS is being completed under contract number N62467-89-D-0317-116. The FS report for Site 17 is one in a series of site-specific reports being completed in conjunction with the NAS Whiting Field General Information Report (GIR) (ABB-ES, 1998a) and Remedial Investigation (RI) report (ABB-ES, 1998b), and the Remedial Action Completion Report (BEI, 2000) to present the results of the overall RI/FS for the site (Figure 1-1). This FS report includes the development, screening, and evaluation of potential remedial alternatives that address contaminated media at Site 17.

Investigations at NAS Whiting Field, a facility listed on the National Priorities List, are being conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations [CFR], Part 300). The investigations at the facility are being conducted under the Navy's Installation Restoration (IR) program, which is designed to identify and abate or control contaminant migration resulting from past operations at naval installations while working within the aforementioned regulatory framework. SOUTHNAVFACENGCOM is the agency responsible for the Navy's IR program in the southeastern United States. Therefore, SOUTHNAVFACENGCOM has the responsibility to process NAS Whiting Field through preliminary assessment, site inspection, RI/FS, and remedial response selection.

The goals of the RI/FS for Site 17 at NAS Whiting Field were (1) to assess the extent, magnitude, and impact of contamination at the sites, (2) to qualitatively and quantitatively assess the risk posed to human health and the environment by site-related contamination, and (3) to develop remedial alternatives that address threats to human health and/or the environment. The first two elements have been discussed in the GIR and RI reports; the remaining element will be presented and discussed in this FS Report.

The GIR provides information common to all sites at NAS Whiting Field, such as

- facility information and history,
- description of physical characteristics of the facility (climatology, hydrology, soil, geology, and hydrogeology),
- summary of previous investigations,
- summary of the field investigations activities conducted during the RI,
- baseline risk assessment (BRA) methodology for both human health and ecological receptors, and
- a summary of the facility-wide background evaluation.

The RI serves as the mechanism for collecting data to identify the source of contamination and migration pathway characteristics, for conducting a BRA, and for collecting physical measurements and chemical analytical data necessary for remedial alternative evaluation in the FS. The RI provides the basis for determining whether or not remedial action is necessary. The RI Report for Site 17 at NAS Whiting Field provides the following information:

- a site description and a summary of previous investigations for Site 17;

Figure 1-1 Location of RI/FS Sites at NAS Whiting Field

- a summary of the interim remedial action conducted to reduce exposure risk due to arsenic and total recoverable petroleum hydrocarbons (TRPH)
- a summary of the field investigation methods used during the RI at the sites;
- a site-specific data quality assessment;
- an assessment of the extent, magnitude, and impact of contamination at the sites; and
- a qualitative and quantitative assessment of risks to human health and the environment.

The FS, described in more detail later in this chapter, uses the results of the RI and the information presented in the GIR to identify remedial action objectives (RAOs) and to develop, screen, and evaluate potential remedial alternatives. The FS is prepared in accordance with the following regulations and guidance documents: CERCLA, as amended by SARA (references made to CERCLA in this report should be interpreted as "CERCLA, as amended by SARA"); the NCP (40 CFR, Part 300); and *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (RI/FS Guidance)* (USEPA, 1988).

The remaining sections in this chapter describe the FS process for CERCLA sites, present how this process is applied to NAS Whiting Field sites, provide a conceptual understanding of Site 17 environmental conditions, provide a brief description of the interim removal action completed at Site 17, and provide a summary of the RI conclusions.

1.1 THE CERCLA FS PROCESS.

The development of remedial alternatives for CERCLA sites consists of developing RAOs and then identifying applicable technologies and developing those technologies into remedial alternatives to meet the RAOs. The NCP requires that a range of alternatives be presented in the FS to the maximum extent practicable.

The first step in the FS process is to develop RAOs that specify the contaminants, media of interest, exposure pathways, and preliminary remedial goals that permit a range of alternatives to be developed. The preliminary remedial goals are developed based on chemical-specific applicable or relevant and appropriate requirements (ARARs), when available, site-specific risk-based factors, or other available information.

Once RAOs are identified, general response actions for each medium of interest are developed. General response actions typically fall into the following categories: no action, containment, excavation, extraction, treatment, disposal, or other actions, singular or in combination, that may be taken to satisfy the RAOs for the site.

The next step in the FS process is to identify and screen applicable technologies for each general response action. This step eliminates those technologies that cannot be implemented technically. Those technologies that pass the screening phase are then assembled into remedial alternatives. Remedial alternatives are then described and analyzed in detail using seven criteria described in the NCP, including

- overall protection of human health and the environment;
- reduction of toxicity, mobility, or volume of contaminants through treatment;
- compliance with ARARs;
- long-term effectiveness and permanence;
- short-term effectiveness;
- implementability; and
- economics (i.e., cost).

Alternatives are evaluated against two additional factors after State participation and the public comment period for the FS:

- State acceptance, and
- community acceptance.

The results of the detailed analyses (for the first seven criteria) are summarized and compared in a comparative analysis. The alternatives are compared with each other against several criteria, including the following:

Threshold criteria:

- protection of human health and the environment; and
- attainment of Federal and State human health and environmental requirements identified for the site.

Primary Balancing criteria:

- cost effectiveness;
- use of permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable; and
- preference for treatment that reduces toxicity, mobility, or volume of contaminants as a principal element.

These criteria are used because SARA requires them to be considered during remedy selection. Modifying criteria, which include State and community acceptance, are also evaluated. State acceptance is evaluated when the State reviews and comments on the draft FS report and a proposed plan is then prepared in consideration of the State's comments. Community acceptance is evaluated based on comments received on the FS and proposed plan during a public comment period. This evaluation is described in a responsiveness summary in the Record of Decision (ROD).

The entire FS process provides the technical information and analyses that form the basis for a proposed remedial action plan (proposed plan) and subsequent ROD that documents the identification and selection of the remedy.

1.2 PURPOSE.

The purpose of the FS report for Site 17 at NAS Whiting Field is to document the results of the study that includes developing RAOs to address contaminated media at the site and developing, screening, and evaluating potential remedial alternatives to meet these objectives. The FS was based on the results and conclusions of the RI completed for the site, and the information presented in the GIR. Information presented in these reports will not be repeated in this FS Report.

The FS report for Site 17 was developed in accordance with the NCP. The NCP states that the U.S. Environmental Protection Agency (USEPA) expects containment technologies will generally be appropriate for waste (e.g., landfills) that pose a relatively low long-term threat or where treatment is impractical (Section 300.430[a][1][iii][B]). Additionally, the USEPA expects physical and/or thermal treatment to be considered for identifiable areas of highly toxic and/or mobile material that constitute the principal threat(s) posed by the site (Section 300.430[a][1][iii][A]).

Therefore, the purpose of the FS report for Site 17 is not to present all the possible variations and combinations of remedial actions that could be taken at the site, but to present distinctly different alternatives representing a range of opportunities for meeting the RAOs. It is expected that these different alternatives can be adjusted during the proposed plan and decision process, and to a lesser extent during detailed design, to accomplish RAOs in a manner similar to the initially proposed alternative. The FS report also does not present information on alternatives that fail to meet the RAOs, except for a no action alternative, which provides a baseline for comparison of all alternatives.

The following components are considered in identifying appropriate remedial action for Site 17:

- **Remedial Action Objectives.** RAOs are developed to specify the contaminants, media of interest, exposure pathways, and remedial action goals for the site.
- **Applicable Technologies.** Technologies applicable for addressing contaminated media at the site are identified and screened. Technologies that cannot be implemented are eliminated.
- **Remedial Alternatives.** Technologies that pass the screening phase are assembled into remedial alternatives.
- **Detailed Analysis.** Selected remedial alternatives are described and evaluated using seven of the nine criteria outlined in the NCP.
- **Comparative Analysis.** Remedial alternatives identified for Site 17 are compared against each other using threshold and primary balancing criteria.

Upon completion of the FS Report, a Proposed Plan will be developed. The Proposed Plan will identify the preferred remedial alternative for Site 17. This document will be written in community-friendly language and will be made available for public comment. Upon receipt of public comments, responses to these comments will be developed in a responsiveness summary and the ROD will be prepared. The ROD will document the chosen alternative for the site and will include the responsiveness summary as an appendix. Once the ROD is signed, the chosen remedial alternative will be implemented.

1.3 ENVIRONMENTAL CONDITIONS.

Site 17 is located along the northwestern facility boundary and near the North Air Field taxiway. The site is approximately 4 acres (Figure 1-2) in size and was in use between 1951 and 1991. Site 17 is composed of multiple shallow depressions where metallic objects were placed to simulate an aircraft after a crash. Crash crew training activities consisted of pouring approximately 100 gallons of aviation gasoline (AVGAS) or jet fuel into the depressions and then igniting it. The fires were then extinguished using an aqueous film-forming foam (AFFF) as part of crash crew training exercises (Geraghty & Miller, 1986).

Investigators conducting soil sampling during Phase IIA in 1992 collected samples in a linear area they suspected was a channel of overland flow oriented to the southwest. Neither the suspected areas nor their boundaries are currently discernable. This change may have been a result of the removal of the fuel tanks and aircraft bodies from the burn pits, after which earth-moving equipment spread the rim of mounded soil from around the burn pit depressions to the adjacent surrounding areas in September 1994. During the interim remedial action (IRA) in February 1999, contaminated areas of the site were covered with 2 feet of soil and sod was placed over the soil cover. The IRA was conducted to address soil contamination due to the presence of TRPH and arsenic at levels in excess of State and Federal industrial standards. Currently, the site is maintained as an open grassy field. This site has a slight surface gradient that slopes gently toward the southwestern site boundary. Additional IRA information follows and is presented in Section 1.4 and in Appendix F of the RI Report (HLA, 2000).

Figure 1-2 General Features Prior to Interim Remedial Action

According to the U.S. Department of Agriculture (USDA) (USDA, 1980), the surficial soil horizon at Site 17, prior to the IRA, was classified as Troup loamy sand and Orangeburg sandy loam.

1.4 INTERIM ACTIONS.

In 1999, Bechtel Environmental, Inc. (BEI) performed an IRA at Site 17. The objective of the IRA was to reduce the arsenic and total recoverable petroleum hydrocarbons (TRPH) exposure risk to potential receptors at the site. The IRA consisted of the placement of a permeable soil layer and vegetative cover over areas (see Figure 1-3) where surface soil arsenic and TRPH concentrations exceeded the Florida Department of Environmental Protection (FDEP) soil cleanup target levels (SCTLs).

Pre-construction soil sampling was conducted to delineate and minimize the site restoration area. All soil sample locations and the pre-restoration grade was surveyed prior to construction. A two-foot thick permeable soil layer was constructed to cover the contaminated surface soil. The soil cover consisted of an 18-inch thick red sandy base with a 6-inch thick brown fill for topsoil. In January 1999, approximately 8,480 cubic yards of clean fill was used to construct the 61,150 square foot soil cover. Drawing 419-DD-002 of the BEI Removal Action Report (BEI, 2000) shows the outer limits of the 24-inch soil cover and the additional soil used for blending to natural contours. Bahia grass sod was then installed as a vegetative cover and the restoration site grade was surveyed. The *Removal Action/Completion Report for Sites 9, 10, 17, 18, and 31C* (Appendix F of the RI) contains further details regarding the surface-soil contamination removal actions (BEI, 2000). Figure D-2 of the BEI Report presents the boundaries of the soil cover.

1.5 RI SUMMARY.

The final RI report was submitted by HLA in March 2000. The conclusions listed below from the RI are pertinent to the development of this FS for surface and subsurface soils are based on the risk assessment conducted prior to the completion of the IRA.

- Organic analytes detected in surface soil samples consist of seven volatile organic compound (VOCs), four semivolatile organic compound (SVOCs), and total recoverable petroleum hydrocarbons (TRPH). Five VOCs (ethylbenzene, methylene chloride, toluene, trichloroethene, and total xylenes) and one SVOC (naphthalene) exceeded Chapter 62-777, Florida Administrative code (FAC), leachability soil cleanup target levels (SCTLs). TRPH exceeded the Chapter 62-777, FAC, residential, industrial, and leachability SCTLs. No pesticides or polychlorinated biphenyls (PCBs) were detected in the surface soil sample collected from Site 17.
- Twenty target analyte list inorganic analytes were detected in the surface soil samples. Ten analytes (aluminum, antimony, arsenic, barium, cadmium, chromium, copper, iron, manganese, and vanadium) exceeded either the U.S. Environmental Protection Agency Region III residential soil screening values or Chapter 62-777, FAC, residential and leachability SCTLs.
- Organic analytes detected in subsurface soil samples consist of three VOCs, two SVOCs, and two pesticides or PCBs. No VOCs, SVOCs, pesticides, or PCBs exceeded Florida or Federal residential or industrial screening criteria.
- TRPH was detected in 4 of 19 subsurface soil samples and no duplicates. None of the samples exceeded the Chapter 62-777, FAC, industrial and leachability SCTLs.
- Twenty-three inorganic analytes were detected in the subsurface soil samples. Three inorganic analytes (arsenic, chromium, and iron) exceeded either the USEPA Region III industrial RBCs or Chapter 62-777,

Figure 1-3 Approximate Boundary of IRA Soil Cover

FAC, industrial and leachability SCTLs. Arsenic was detected in four subsurface soil samples at concentrations that exceeded the State and Federal industrial screening criteria. The cancer risks associated with excavation worker exposure is 6×10^{-8} . This is below the USEPA cancer risk range and also below the FDEP target risk level.

- The human health chemicals of potential concern (HHPCs) detected in surface soil do not pose unacceptable carcinogenic risks to the receptors evaluated based on USEPA risk criteria.
- The total estimated lifetime cancer risk at Site 17 associated with ingestion of surface soil by a hypothetical future resident exceeds Florida's target risk level of concern 1×10^{-6} due primarily to arsenic.
- Noncancer risk levels for soil, subsurface soil, and groundwater meet the USEPA and FDEP target hazard index of one.
- Although RME concentrations of cadmium and lead exceeded their respective benchmark values, CT exposure concentrations of these constituents were below the benchmark values. In addition, no evidence of stressed vegetation outside of the burn pits was observed at Site 17. Therefore, it is unlikely that plant cover and/or biomass at Site 17 would be reduced such that small mammals and birds would be affected.
- Reduction in invertebrate biomass across the entire Site 17 area is not expected to occur.
- Only sublethal risks associated with ingestion of cadmium in surface soil and food items are predicted for small mammals and birds at Site 17. However, this exposure route was eliminated by the construction of the soil cover.
- In February 1999, BEI completed an IRA at Site 17. The objective of the IRA was to reduce the arsenic and the total recoverable petroleum hydrocarbons (TRPH) exposure risk to potential industrial or residential receptors at the site. The IRA consisted of the placement of a permeable soil layer and vegetative cover over areas where surface soil arsenic and TRPH concentrations exceeded the Florida Department of Environmental Protection (FDEP) industrial soil cleanup target levels (SCTLs).

2.0 REMEDIAL ACTION OBJECTIVES

This section presents the goals and objectives for remedial action at Site 17 that provide the basis for selecting appropriate RAOs and, subsequently, identifying remedial technologies and developing alternatives to address contamination at the site. To establish these objectives, ARARs are first identified (Section 2.1). Next, RAOs are defined based on consideration of ARARs, the results and conclusions of the RI, the risk assessment, and other criteria (Section 2.2). Next, the volume of contaminated media for Site 17 is presented (Section 2.3). Finally, general response actions appropriate for technology identification are discussed (Section 2.4). The information presented in this chapter will be used to identify appropriate remedial technologies for the sites (presented in Chapter 3.0).

2.1 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS.

ARARs are Federal and State human health and environmental requirements used to define the appropriate extent of site cleanup, identify sensitive land areas or land uses, develop remedial alternatives, and direct site remediation. CERCLA and the NCP require that remedial actions comply with State ARARs that are more stringent than Federal ARARs, legally enforceable, and consistently enforced statewide.

The NCP defines two ARAR components: (1) applicable requirements, and (2) relevant and appropriate requirements.

Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under Federal or State environmental or facility citing laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, or other circumstance found at a CERCLA site. State standards that may be applicable are only those which (1) have been identified by the State in a timely manner, (2) are consistently enforced, and (3) are more stringent than Federal requirements.

Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements under Federal and State environmental and facility citing laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, or remedial action, address situations sufficiently similar to those encountered at the CERCLA site so that their use is well suited to the particular site. Only those State standards that are identified in a timely manner and are more stringent than Federal requirements may be relevant and appropriate.

"Applicability" is a legal determination of jurisdiction of existing statutes and regulations, whereas "relevant and appropriate" is a site-specific determination of the appropriateness of existing statutes and regulations. Therefore, relevant and appropriate requirements allow flexibility not provided by applicable requirements in the final determination of cleanup levels. Once a requirement is identified as an ARAR, the selected remedy must comply with ARARs, even if the ARAR is not required to assure protectiveness. The general relevant and appropriate requirements apply only to actions at the site. Applicable requirements apply to both on- and off-site remedial actions.

Other requirements "to be considered" (TBC) are Federal and State nonpromulgated advisories or guidance that are not legally binding and do not have the status of potential ARARs (i.e., they have not been promulgated by statute or regulation). However, if there are no specific ARARs for a chemical or site condition, or if ARARs are not deemed sufficiently protective, then guidance or advisory criteria should be identified and used to ensure the protection of human health and the environment.

Under the description of ARARs set forth in the NCP and SARA, State and Federal ARARs are categorized as:

- chemical-specific (i.e., governing the extent of site remediation with regard to specific contaminants and pollutants);
- location-specific (i.e., governing site features such as wetland, floodplains, and sensitive ecosystems and pertaining to existing natural and manmade site features such as historical or archaeological sites); and
- action-specific (i.e., pertaining to the proposed site remedies and governing the implementation of the selected site remedy).

During the detailed analysis of remedial alternatives, each alternative will be analyzed to determine its compliance with ARARs. Chemical-, location-, and action-specific ARARs are discussed in the following subsections, and presented in Table 2-1.

2.1.1 Chemical-Specific ARARs

Chemical-specific requirements are standards that limit the concentration of a chemical found in or discharged to the environment. They govern the extent of site remediation by providing either actual cleanup levels or the basis for calculating such levels. The State of Florida has promulgated SCTLs under Florida Administrative Code (FAC) 62-777 (FDEP, 1999).

2.1.2 Location-Specific ARARs

Location-specific ARARs govern site features (e.g., wetland, floodplains, wilderness areas, and endangered species) and manmade features (e.g., places of historical or archaeological significance). These ARARs place restrictions on concentrations of hazardous substances or the conduct of activities based solely on the site's particular characteristics or location.

As stated in the RI (ABB-ES, 1998b), no State or federally listed rare, threatened, or endangered species or species of concern are known to inhabit Site 17 (Nature Conservancy, 1997). Furthermore, Site 17 is not located within the 100-year flood plain or known to contain areas of historical or archeological significance. Therefore, location-specific ARARs do not apply to Site 17.

2.1.3 Action-Specific ARARs

Action-specific ARARs are technology- or activity-based limitations controlling activities for remedial actions. Action-specific ARARs generally set performance or design standards, controls, or restrictions on particular types of activities. To develop technically feasible alternatives, applicable performance or design standards must be considered during the detailed analysis of remedial alternatives. During the detailed analysis of alternatives, each alternative will be analyzed to determine compliance with action-specific ARARs.

Certain action-specific ARARs include permit requirements. Under CERCLA Section 121(e), permits are not required for remedial actions conducted entirely on site at Superfund sites. This permit exemption applies to all administrative requirements, including approval of or consultation with administrative bodies, documentation, record keeping, and enforcement. However, the substantive requirements of these ARARs must be attained.

**Table 2-1
Synopsis of Federal and State ARARs and Guidance**

Feasibility Study
Site 17, Crash Crew Training Area
Naval Air Station Whiting Field
Milton, Florida

Name and Regulatory Citation	Description	Consideration in the Remedial Action Process	Type
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the National Hazardous Substance and Contingency Plan Regulations (40 Code of Federal Regulations [CFR], Section 300.430)	Discusses the types of institutional controls to be established at CERCLA sites.	Applicable. These regulations may be used as guidance in establishing appropriate institutional controls at Site 17.	Action-specific
Occupational Safety and Health Act (OSHA) Occupational Safety and Health Standards (29 CFR Part 1910)	Requires establishment of programs to ensure worker health and safety at hazardous waste sites.	Applicable. These requirements apply to all response activities conducted in accordance with the National Contingency Plan. During the implementation of any remedial alternative for Site 17, compliance with these regulations must be attained.	Action-specific
Resource Conservation and Recovery Act (RCRA) Regulations, Identification and Listing of Hazardous Waste (40 CFR, Part 261)	Defines those solid wastes that are subject to regulation as hazardous wastes.	Applicable. Any alternative that would excavate and dispose of soil offsite would be sampled and analyzed for hazardous characteristics as defined by 40 CFR Part 261.	Action-specific
RCRA Regulations, Standards Applicable to Transporters of Hazardous Wastes (40 CFR Part 263)	Establishes the responsibilities of the generators and transporters of hazardous waste in the handling, transportation, and management of that waste. To avoid duplicative regulation, USEPA has expressly adopted certain DOT regulations governing the transportation of hazardous waste.	Applicable. For excavation and offsite disposal alternatives, the hazardous material would need to be handled, manifested, and transported to a permitted offsite disposal facility in compliance with these regulations.	Action-specific
RCRA Regulations, Releases from Solid Waste Management Units (40 CFR, Part 264, Subpart F)	Contains general groundwater monitoring requirements. Establishes detection and compliance monitoring programs that apply to owners and operators of solid waste units.	Applicable. For capping alternatives, these regulations provide guidance for establishing and conducting a groundwater monitoring program at sites contaminated with RCRA wastes.	Action-specific
Hazardous Materials Transportation Act Regulations (49 CFR Parts 171-179)	USDOT provides requirements for packaging, labeling, manifesting, and transporting hazardous materials. Similar requirements are found in 40 CFR Part 263.	Relevant and Appropriate. For excavation and offsite disposal alternatives, the hazardous material would need to be handled, manifested, and transported to a permitted offsite disposal facility in compliance with these regulations.	Action-specific
See notes at end of table.			

Table 2-1 (Continued)
Synopsis of Federal and State ARARs and Guidance

Feasibility Study
 Site 17, Crash Crew Training Area
 Naval Air Station Whiting Field
 Milton, Florida

Name and Regulatory Citation	Description	Consideration in the Remedial Action Process	Type
USEPA Region III Risk-Based Concentrations (RBCs), October 1998	Provides risk-based concentrations from ingestion or exposure to chemicals in soil, tap water, ambient air, and fish consumption.	Relevant and Appropriate. The chemicals detected at Site 17 are screened against these standards for selection of chemicals concern and developing RAOs.	Chemical-specific
Florida Rules on Hazardous Waste Warning Signs (FAC, Chapter 62-736)	Requires warning signs at National Priorities List (NPL) sites to inform the public of the presence of potentially harmful conditions.	Applicable. This requirement is applicable for sites that are on the NPL.	Action-specific
Florida Petroleum Contaminated Site Cleanup Criteria (FAC, Chapter 62-770)	Rule establishes a cleanup process to be followed at petroleum-contaminated sites. The cleanup criteria apply to sites contaminated with petroleum or petroleum products but does not apply to sites contaminated with significant quantities of other substances.	Relevant and Appropriate. Site 17 was a former crash crew training area; however, analytical data does not show evidence of petroleum contamination in the soil or groundwater.	Chemical-specific
Florida Contaminant Cleanup Criteria Rule (FAC, 62-777)	Establishes soil and groundwater cleanup criteria	Relevant and Appropriate. The soil cleanup target levels should be considered when evaluating RGOs.	Chemical-specific
Notes: ARAR = applicable or relevant and appropriate requirement. USEPA = U.S. Environmental Protection Agency. TBC = to be considered guidance materials.			

2.1.4 To Be Considered Criteria

As previously stated, TBCs are Federal and State nonpromulgated advisories or guidance that are not legally binding and do not have the status of being a potential ARAR (i.e., have not been promulgated by statute or regulation). However, if there are no specific regulatory requirements for a chemical or site condition, or if ARARs are not deemed sufficiently protective, then guidance or advisory criteria should be identified and used to ensure the protection of human health and the environment.

2.2 IDENTIFICATION OF RAOs.

RAOs are defined in the CERCLA RI/FS guidance manual as media-specific goals that are established to protect human health and the environment and are typically based on chemicals of concern, exposure routes, and receptors present or available at the site. RAOs are developed to ensure compliance with ARARs. RAOs for Site 17 will be identified by consideration of ARARs, the RI, the risk assessment (RA), and the IRA. Although the risk assessment was conducted before the IRA, the risk assessment will not be revised in light of the IRA.

Groundwater. Groundwater at NAS Whiting Field has been identified as a separate site (Site 40) and if necessary, groundwater will be investigated and remediated separately from Site 17. Therefore, no RAOs for groundwater will be established.

Surface Water. Site 17 does not contain surface water. Therefore, RAOs for surface water will not be established.

Surface Soil. Chemical-specific ARARs and TBCs for surface soil were considered when identifying RAOs based on ARARs. The State of Florida has promulgated SCTLs under the Contaminant Cleanup Criteria Rule (FAC 62-777). And USEPA Region III published RBCs for ingestion of soil. Table 2-2 provides a summary of the detected concentrations for COCs with an ELCR of greater than 1×10^{-6} or an hazard quotient (HQ) greater than 0.1 and their respective Florida SCTLs and USEPA Region III RBCs.

Organic analytes detected in surface soil samples consist of seven VOCs, four SVOCs, and TRPH. Five VOCs (ethylbenzene, methylene chloride, toluene, trichloroethene, and total xylenes) and one SVOC (naphthalene) exceeded Chapter 62-777, FAC, leachability SCTLs. All of the VOC and SVOCs detected were below the State and Federal residential and industrial target levels. TRPH exceeded the Chapter 62-777, FAC residential, industrial, and leachability SCTLs. No pesticides or PCBs were detected in the surface soil samples collected from Site 17.

Ten inorganic analytes (aluminum, antimony, arsenic, barium, cadmium, chromium, copper, iron, manganese and vanadium) were detected at concentrations exceeding either USEPA Region III residential soil screening values or Chapter 62-777, FAC, residential and leachability SCTLs (Table 5-9).

Arsenic was the only inorganic detected at concentrations exceeding both USEPA Region III RBCs and Chapter 62-777, FAC, SCTLs for residential and industrial sites. Iron exceeded the Federal residential screening criterion (2,300 milligrams per kilogram [mg/kg] based on a non-hazardous risk multiplier of 0.1) in all 34 surface soil samples.

In response to the detection of TRPH and arsenic above screening criteria, the Navy conducted the IRA at Site 17. The IRA involved placing 2 feet of clean soil and a vegetative cover over the area shown in Figure 1-3. The extent of the soil cover was governed by site specific COC concentrations exceeding Florida industrial SCTLs and confirmation samples collected during the IRA.

**Table 2-2
Summary of Chemicals Exceeding ARARs and TBCs in Surface Soil**

Feasibility Study
Site 17, Crash Crew Training Area
Naval Air Station Whiting Field
Milton, Florida

Analyte	Frequency of Detection ¹	Range of Detected Analyte Concentrations	Mean Analyte Concentration ²	Background Screening Values	Florida Soil Cleanup Target Level ³ Residential/Industrial/Leachability	USEPA Region III RBCs ⁴ Residential/Industrial
<u>Inorganic Analytes (mg/kg)</u>						
Aluminum	35/47	4,500 to 29,900	13,700	19,580	72,000/---/SPLP	7,800/200,000
Arsenic	23/47	0.29 to 5.9	2.2	3.6	0.8/3.7/29	0.43/3.8
Iron	47/47	2,550 to 23,800	7,740	11,172	23,000/480,000/SPLP	23,000/610,000
<u>TRPH (mg/kg)</u>						
TRPH	38/47	2.3 to 19,300	3,090	NA	340/2,500/340	NA

¹ Frequency of detection is the fraction of total samples analyzed in which the analyte was detected.

² The mean of detected concentrations is the arithmetic mean of all environmental samples in which the analyte was detected, including duplicate samples. The arithmetic mean does not include those environmental samples in which the analyte was not detected.

³ Source: Contaminant Cleanup Criteria Rule, Chapter 62-777, F.A.C., July 1, 1999.

⁴ USEPA Region II Risk-Based Concentrations (RBCs) for soil ingestion based on an excess lifetime cancer risk of 1×10^{-6} or an adjusted hazard quotient of 0.1, 1998.

Notes: ARAR = applicable or relevant and appropriate requirement.
NA = Not available
FDEP = Florida Department of Environmental Protection
TBC = to be considered guidance material
TRPH = Total Recoverable Petroleum Hydrocarbons.

The human health risk assessment (HHRA), completed for Site 17 prior to the completion of the IRA, evaluated risks to current and future users of the site.

For the current land-use scenario, the cancer risks associated with exposure to surface soil (ingestion, dermal contact, and fugitive dust inhalation) are 4×10^{-7} for an aggregate (combined adult and adolescent) trespasser and 1×10^{-7} for a site maintenance worker. The cancer risk values for both receptors are below the USEPA acceptable cancer risk range of 1 in 10,000 to 1 in 1,000,000 and FDEP target risk level of 1 in 1,000,000. The noncancer risks associated with surface soil ingestion, dermal contact, and fugitive dust inhalation exposure pathways under current land use (adolescent trespasser, adult trespasser, and site worker) are below USEPA's target HI of 1.

The cancer risks associated with exposure to surface soil ingestion, dermal contact, and fugitive dust inhalation under hypothetical future land use are 7×10^{-6} for an aggregate resident (combined adult and child), 4×10^{-7} for an aggregate trespasser (combined adult and adolescent), 8×10^{-7} for an occupational worker, 1×10^{-7} for a site maintenance worker, and 3×10^{-8} for an excavation worker under hypothetical future land use. All of these hypothetical future receptor risks are within or below the USEPA acceptable cancer risk range; however, the hypothetical future residential risk exceeds the Florida level of concern of 1×10^{-6} (due to arsenic).

However, a portion of Site 17 was remediated to eliminate exposure to surface soils that posed an unacceptable risk to human receptors at the site. The remedial action involved placing a two-foot thick soil cover over approximately 50% of the site. Risks to ecological receptors were recalculated utilizing data from sample locations that were not covered during the remediation activities. During the reevaluation of ecological risks a hot spot was identified, at sample location 17-SL-29. Elevated concentrations of cadmium and chromium, the primary risk drivers for ecological receptors (i.e., small mammals and small birds) were detected at this location. Surface soil analytical data from the unremediated area, excluding data from location 17-SL-29 were summarized and new RME and CT concentrations were calculated for cadmium and chromium (see Table 2-3). These new estimated exposure concentrations were used in the food web model to recalculate risks to representative wildlife receptors (see Table 2-4). The site area was also reduced from 4 acres to 2 acres, to account for the area of the site that was left uncovered.

Table 2-3
Recalculated Cadmium and Chromium Concentrations

Feasibility Study Site 17, Crash Crew Training Area Naval Air Station Whiting Field Milton, Florida			
	RME (mg/kg)	CT (mg/kg)	Notes
Cadmium	1.1	0.66	RME is arithmetic 95 th UCL on mean
Chromium	17	13	RME 95 th UCL by Land's method

Notes: RME: Reasonable Maximum Exposure
 CT: Central Tendency
 mg/kg: milligrams per kilogram

The ecological risk assessment originally concluded that there would be no lethal effects from exposure to RME concentrations. The HIs presented in the first column of Table 2-4, represent results using recalculated cadmium and chromium RME concentrations. In the original evaluation, sublethal impacts were identified for small mammals and small birds, based on RME and CT concentrations. The recalculated HIs are

presented in the second and third columns of Table 2-4. These HIs were derived utilizing the recalculated RME and CT concentrations for cadmium and chromium presented in Table 2-3.

Based on the results presented in Table 2-4, risks to small birds would be significantly reduced if covering or removing contamination at sample location 17-SL-29 occurs. The HIs for small birds only slightly exceed 1, based on RME concentrations, and HIs based on CT concentrations are equal to or less than 1. Risks to small mammals would also be reduced, by addressing contamination at sample location 17-SL-29, with all HIs for small mammals less than 5.

**Table 2-4
Summary of Hazard Indices (HIs) for Representative Wildlife**

Feasibility Study Site 17, Crash Crew Training Area Naval Air Station Whiting Field Milton, Florida			
	Lethal Effects from Exposure to RME Concentrations	Sublethal Effects from Exposure to RME Concentrations	Sublethal Effects from Exposure to CT Concentrations
Cotton mouse	0.32	3.6	2.2
Mourning dove	0.0078	1.7	1.0
Short-tailed shrew	0.79	4.9	3.1
Eastern meadow lark	0.037	1.2	0.74
Red fox	0.0013	0.014	0.0078
Red-tailed hawk	0.000013	0.0054	0.0032

Cadmium is the primary risk driver for the cotton mouse. The background concentration for cadmium is 0.58 mg/kg, which is consistent with the CT concentration and is greater than half the RME concentration, 0.66 and 1.1 mg/kg, respectively. The primary risk drivers for the short-tailed shrew are chromium (RME and CT exposures) and zinc (RME exposure, only). The background concentration of chromium is 14 mg/kg, which is consistent with the RME and CT concentrations, 17 and 13, respectively. The HQ for zinc, based on RME concentration slightly exceeded one for the short-tailed shrew. However, the HQ for zinc, based on CT concentrations was less than 1. Therefore, based on the relatively low magnitude of HIs (i.e., less than five for RME and CT concentrations) and the consistency between background and RME and CT concentrations, population level impacts to small mammals, following remediation in the vicinity of 17-SL-29, are considered unlikely.

Based on information presented above, an RAO to address human exposure to arsenic and TRPH in soils at Site 17 will be identified.

RAO 1: Address surface soil containing arsenic and TRPH contamination exceeding action levels at Site 17.

Subsurface Soil. Chemical-specific ARARs and TBCs for subsurface soil were considered when identifying RAOs. The cancer risks associated with excavation worker exposure to subsurface soil via ingestion, dermal contact, and fugitive dust inhalation, under hypothetical future land use, is 6×10^{-8} . The cancer risk is below the USEPA cancer risk range and FDEP target risk level.

The noncancer risk associated with subsurface soil ingestion, dermal contact, and fugitive dust inhalation exposure pathways, under future land use for a hypothetical excavation worker, is below USEPA's and FDEP's target HI of 1. Therefore no RAO will be established for subsurface soils at Site 17.

As noted in the surface soil discussions above, surface soils with TRPH concentrations above industrial SCTLs were covered with 2 feet of clean soil during the IRA. Direct exposure to these soils will only occur in the event of intrusive work at the site. In order to address the risk posed by this direct exposure, the following RAO is established:

RAO 2: Address possible future risk of direct exposure to subsurface soil to an excavation worker at Site 17.

Summary of RAOs. Two RAOs have been established for Site 17. Table 2-5 lists these RAOs.

**Table 2-5
Summary of Remedial Action Objectives for Site**

Feasibility Study
Site 17, Crash Crew Training Area
Naval Air Station Whiting Field
Milton, Florida

Remedial Action Objective	Description
1	Address surface soil containing arsenic and TRPH contamination exceeding action levels at Site 17.
2	Address the possible future risk of direct exposure to subsurface soil to an excavation worker at Site 17.

2.3 VOLUME OF CONTAMINATED MEDIA.

Soil is the only media at Site 17 for which RAOs have been established. Therefore, this section presents the basis for the calculation of the volume of soil containing COCs above the action levels at Site 17. Appendix C contains calculations and supporting information used to develop the soil volume. The sampling locations where chemical concentrations exceeded their respective SCTLs are also presented in Appendix B.

Volume calculations for soil removal include the 2-foot thick constructed soil cover and the 2-foot thick original contaminated surface soil layer.

2.4 IDENTIFICATION OF GENERAL RESPONSE ACTIONS.

General response actions describe potential medium-specific measures that may be employed to address the RAO. Potential response actions for CERCLA sites include the following general response categories:

- no action
- limited action
- containment
- treatment (either *in situ* or *ex situ*)
- disposal

3.0 REMEDIAL ACTION ALTERNATIVES

The approach and rationale leading to the development of remedial alternatives for Site 17 are presented in this chapter. The development of remedial alternatives for CERCLA sites consists of identifying applicable technologies, screening those technologies, and using the selected technologies to develop remedial alternatives that accomplish the RAOs identified in Chapter 2.0.

The NCP requires that a range of remedial alternatives be considered and SARA emphasizes the use of treatment technologies. Treatment alternatives range from those that eliminate the need for long-term management to those that reduce toxicity, mobility, or volume of contaminants. The range of alternatives considered in this FS include technologies from the following categories:

- no action
- limited action
- containment
- treatment
- disposal

In the following sections, technologies that contribute to achieving the RAO is identified and evaluated. Next, alternatives are developed using the selected technologies. A detailed evaluation of remedial alternatives is presented in Chapter 4.0.

3.1 IDENTIFICATION AND SCREENING OF REMEDIAL TECHNOLOGIES.

The purpose of this section is to identify and screen appropriate technologies for assembly into remedial alternatives that address the RAO identified for Site 17. Each technology is then screened based on site- and waste-limiting characteristics.

Site characteristics considered during this process included the following:

- site geology, hydrogeology, and terrain;
- availability of space and resources necessary to implement the technology; and
- presence of special site features (e.g., wetlands, forest areas, floodplains, or endangered species).

Based on the review of site characteristics, no special site features or characteristics exist at Site 17 that would preclude any remedial technology from implementation.

The following waste characteristics were also considered:

- contaminated media,
- types and concentrations of waste constituents, and
- physical and chemical properties of the waste (e.g., volatility, solubility, and mobility).

Table 3-1 presents and screens the remedial technologies applicable for addressing the RAO. The technology screening process reduces the number of potentially applicable technologies by evaluating the applicability of each technology to site- and waste-limiting factors. Technologies deemed ineffective or not implementable (such as physical or chemical treatment technologies) were eliminated from Table 3-1. The remaining technologies are assembled into remedial alternatives in Section 3.2.

Several alternatives propose to manage COCs in soil through limited action or containment. For these alternatives, long-term groundwater monitoring may be necessary. Because groundwater assessment and monitoring will be presented under a facility-wide groundwater RI/FS designated Site 40, groundwater monitoring will not be included as a component in any alternatives for this FS. Furthermore, if groundwater

**Table 3-1
Identification and Screening of Remedial Technologies**

Feasibility Study
Site 17, Crash Crew Training Area
Naval Air Station Whiting Field
Milton, Florida

General Response Action And Technology	Description of Technology	Applicability to:		Screening Status
		Site Characteristics	Waste Characteristics	
No Action				
No action	No remedial actions are taken at Site 18. Five-year site reviews would be required.	Applicable.	Applicable.	Retained. This alternative is retained for a baseline for comparison with other alternatives as required by CERCLA.
Five-year site reviews	Under CERCLA, if wastes are left on a site after closure, the site should be reviewed every 5 years.	Applicable.	Applicable.	Retained. This alternative is retained based on the CERCLA requirement that if wastes remain on site after closure, a review of the site must be completed every 5 years.
Limited Action				
Land-use controls (LUC)	Use of LUC documents to maintain the site for non-residential purposes.	Applicable.	Applicable.	Retained. This alternative is retained because it would achieve RAOs.
LUC Implementation Plan (LUCIP)	Identifies each LUC objective for Site 17 and specifies actions required to achieve those objectives (i.e., install fencing, post warning signs). LUCIP includes a description of the disposal history and the status of the site conditions during inspections and sampling and analysis, if required.	Applicable.	Applicable.	Retained. This component would achieve RAOs.
Containment				
Soil Cover	Development of a closure plan for site monitoring and maintenance. Plan includes a description of the disposal history, status of the site conditions during inspections and sampling, and effectiveness of the cover design.	Applicable.	Applicable.	Eliminated. This was completed during the IRA.
See notes at end of table.				

Table 3-1 (Continued)
Identification and Screening of Remedial Technologies

Feasibility Study
 Site 17, Crash Crew Training Area
 Naval Air Station Whiting Field
 Milton, Florida

General Response Action and Technology	Description of Technology	Applicability to:		Screening Status
		Site Characteristics	Waste Characteristics	
Containment (Continued)				
Groundwater Monitoring	Sampling and analysis of the up-gradient, downgradient, and cross-gradient wells at Site 17 to assess whether COCs in surface soil are leaching into groundwater over time.	Applicable.	Not applicable. COCs in soil may leach into groundwater.	Eliminated. Groundwater monitoring will be addressed separately on a facility-wide basis (designated Site 40).
Soil Stabilization	Soils are mixed with an additive, such as a reactive chemical or concrete, to bind specific analytes chemically or physically with soil particle. This technology eliminates migration of contaminants from soil. The process can be performed <i>in situ</i> or <i>ex situ</i> .	Applicable.	Applicable.	Eliminated. This alternative would not achieve the RAOs, and significant arsenic migration from Site 17 is not expected.
Disposal				
Excavate Soil	Surface soil is excavated to a depth of 4 feet in contaminated areas.	Applicable. Site is accessible for removal or excavation activities.	Applicable. Constructed soil cover and underlying "hot spots" have been identified where soil containing COCs above action levels would be removed.	Retained. Would achieve RAOs and eliminate risks to human health and ecological receptors.
Offsite Soil Disposal:				
RCRA Subtitle D Solid Waste Landfill	Excavated soil is sampled and analyzed for waste classification. Soil is transported to a non-hazardous, solid waste landfill based on analytical results from excavated soil.	Applicable.	Applicable. Analytical results from the RI indicate that the soil would not be classified as hazardous.	Retained. Would achieve RAOs and eliminate risks to human health and ecological receptors.
RCRA Subtitle C Hazardous Waste Landfill	Excavated soil is sampled and analyzed for waste classification. Soil is transported to a hazardous, solid waste landfill based on analytical results from excavated soil.	Applicable.	Not Applicable. Analytical results from the RI indicate that the soil would not be classified as hazardous.	Eliminated.
Notes: CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act. RAO = remedial action objective.				

monitoring is deemed necessary under Site 40 RI/FS alternatives, would not interfere with any of the proposed soil remedial alternatives.

3.2 REMEDIAL ALTERNATIVES.

Remedial technologies that passed the technology screening are assembled into alternatives that meet the RAOs. Table 3-2 presents the alternative development for Site 17. The alternatives were developed to address closure of the crash crew training areas in accordance with ARARs.

Based on the applicable technologies identified in the preceding section, three remedial alternatives were developed. These alternatives are options under the no action, limited action, and disposal general response categories. The no action alternative was developed to provide a baseline for comparison with other alternatives (USEPA, 1988).

3.2.1 Alternative 1: No Action

The NCP requires the development of the no action alternative to provide a baseline for comparison against other remedial alternatives. This alternative does not involve the implementation of any remedial technologies to treat wastes. Under CERCLA Section 121(c), any remedial action that results in hazardous substances, pollutants, or contaminants remaining on site must be reviewed at least every 5 years. The 5-year site review typically involves an administrative review of site records. For this FS, Alternative 1 would include 5-year reviews for a period of 30 years. A period of 30-years was chosen for costing purposes only. The alternatives developed for Site 17 are discussed in the following subsections.

3.2.2 Alternative 2: Land-Use Controls

Alternative 2 consists of activities necessary to maintain land-use controls at the Site 17 crash crew training area. These activities are:

- development and implementation of land-use controls,
- 5-year site reviews.

Land-use controls restricting the use of the land in the vicinity of a site and placing regulatory controls on excavation of soil would be drafted, implemented, and enforced in compliance with local regulations as a part of this alternative. The land-use controls will be placed on the parcel of land encompassing the site, including a typical buffer zone, as is currently used at other sites in the State.

Under CERCLA Section 121(c), any remedial action that results in hazardous substances, pollutants, or contaminants remaining on site must be reviewed at least every 5 years.

3.2.3 Alternative 3: Soil Removal and Disposal

One disposal alternative developed for Site 17 consists of off-site disposal of the contaminated soil. Prior to soil removal composite samples would be collected from the site to characterize the soil for off-site disposal. After the soil is taken to off-site disposal areas, the excavation area would be backfilled with clean fill and topsoil. The fill material and topsoil would be transported from a nearby off-site borrow source using dump trucks and tractor-trailers. The backfill would be spread across each excavated area using a bulldozer. Once in place, the soil layer would be seeded.

**Table 3-2
Development of Remedial Alternatives**

Feasibility Study
Site 17, Crash Crew Training Area
Naval Air Station Whiting Field
Milton, Florida

Alternative	Description of Key Components
Alternative 1: No action	Five-year site reviews.
Alternative 2: Land-Use Controls	Land-Use Controls including LUC Implementation Plan (LUCIP). Five-year site reviews.
Alternative 3: Soil Removal and Disposal	Excavate soil. Sample and analyze excavated soil for waste classification. Confirmatory sampling of open excavation areas. Backfill excavation with clean fill. Establish vegetative cover. Five-year site reviews.

4.0 DETAILED ANALYSIS OF ALTERNATIVES

This chapter presents detailed analyses of alternatives for Site 17 at NAS Whiting Field. A detailed analysis is performed to provide decision makers with sufficient information to select the appropriate remedial alternative for a site. The detailed analysis has been conducted in accordance with CERCLA Section 121, the NCP, and USEPA RI/FS Guidance (USEPA, 1988). The detailed evaluation of each remedial alternative includes the following:

- a detailed description of the alternative, emphasizing the applications of the technology or actions proposed for each alternative; and
- a detailed analysis of the alternative against seven of the nine CERCLA criteria.

The remedial alternatives are examined with respect to the requirements stipulated by CERCLA and factors described in the USEPA's *Guidance for Conducting RI/FS Under CERCLA* (USEPA, 1988). The nine criteria from the RI/FS Guidance document are

- overall protection of human health and the environment,
- compliance with ARARs,
- long-term effectiveness and permanence,
- reduction of toxicity, mobility, and volume of contaminants through treatment,
- short-term effectiveness,
- implementability,
- cost,
- State acceptance, and
- community acceptance.

This FS presents evaluation of the first seven criteria in the alternative evaluation process. Table 4-1 outlines the specific elements considered for these seven criteria.

Typically, State acceptance (i.e., the eighth factor) is addressed when comments on the draft FS Report have been received from the State. Therefore, State comments will be addressed, and a response to State comments will be included in the Final FS Report.

Community acceptance (i.e., the ninth factor) is addressed upon receipt of public comments on the Proposed Plan (USEPA, 1988). The responsiveness summary, included as an appendix to the ROD for the site, is intended to provide the overview of achievement of this ninth criterion.

4.1 DETAILED ANALYSIS FOR ALTERNATIVE 1: NO ACTION.

Alternative 1 is a no action alternative. Under this alternative, no actions would be taken to address contamination at the site. A description of this alternative is presented in Subsection 4.1.1 and a technical assessment of this alternative is presented in Subsection 4.1.2.

4.1.1 Detailed Description of Alternative 1

In accordance with the NCP, the no-action alternative is used as a baseline for comparison against other alternatives. Because hazardous substances, pollutants, or contaminants would be left in place at Site 17, this alternative would include 5-year site reviews. Under this alternative, soil would remain in place, thus allowing natural processes to reduce the concentrations of organic COCs; however, concentrations of inorganic COCs would not be reduced. No other additional remedial or institutional controls would be implemented under this alternative. There would be no restrictions on land-use types; therefore, the site

could be used for residential, industrial, or commercial uses. Sample locations identifying inorganics as COPCs (ecological or human health) were covered with a 2-foot thick soil cover and sod during the IRA (Figure 1-3).

**Table 4-1
Criteria for Evaluation of Remedial Action Alternatives**

Feasibility Study
Site 17, Crash Crew Training Area
Naval Air Station Whiting Field
Milton, Florida

Factors	Criteria to Consider
Overall protection of human health and the environment	How risks are eliminated, reduced, or controlled. Short-term or cross-media effects.
Compliance with ARARs	Compliance with chemical-specific ARARs. Compliance with location-specific ARARs. Compliance with action-specific ARARs.
Long-term effectiveness and permanence	Magnitude of residual risk. Adequacy of controls. Reliability of controls.
Reduction of mobility, toxicity, and volume of contaminants through treatment	Treatment process and remedy. Amount of hazardous materials destroyed or treated. Reduction of mobility, toxicity, or volume through treatment. Irreversibility of treatment. Type and quantity of treatment residual.
Short-term effectiveness	Protection of community during remedial action. Protection of workers during remedial action. Environmental effects. Time until RAOs are achieved.
Implementability	Ability to construct technology. Reliability of technology. Ease of undertaking additional remedial action, if necessary. Coordination with other agencies.
Cost	Capital cost. Operation and maintenance cost. Total present worth of alternative.

Notes: ARAR = applicable or relevant and appropriate requirement.
RAO = Remedial Action Objective.

Five-Year Site Reviews. Under CERCLA Section 121(c), any remedial action that results in hazardous substances, pollutants, or contaminants remaining on site must be reviewed at least every 5 years. It is assumed, for this FS, that these reviews would occur over a 30-year period. These reviews would consist of evaluating changes to site conditions at the site (e.g., construction, demolition, change in potential receptors, migration pathways, qualitative risks, etc.) to assess whether or not human health and the environment continue to be protected by the alternative. The appropriateness of this alternative would then be compared to other remedial alternatives to confirm that it is still the most appropriate selection.

4.1.2 Technical Criteria Assessment of Alternative 1

This subsection provides the technical criteria assessment of Alternative 1 against the seven criteria.

Overall Protection of Human Health and the Environment. This alternative would provide no additional protection to human or ecological receptors who may be exposed to soil at Site 17. If this alternative were selected, 5-year site reviews would be instituted. No adverse short-term or cross-media effects are anticipated with this no-action alternative.

Compliance with ARARs. This alternative would not comply with chemical-specific ARARs or TBCs (e.g., MCLs, Florida GCTLs, or Florida SCTLs) in the short term. Eventually, this alternative may comply with ARARs if natural processes including physical, chemical, and biological changes in the soil and groundwater reduce contaminant concentrations. However, this alternative would not comply with ARARs for arsenic concentrations in soil.

Long-term Effectiveness and Permanence. Land-use controls are not part of the alternative; therefore, human and ecological risks due to exposure to site soils would not be addressed via this alternative. Therefore, these risks would remain over a period of time until natural processes reduce the contaminant concentrations and reduce the mobility of the contaminants, or other land-use controls are implemented.

Administrative actions proposed in this alternative (e.g., 5-year site reviews) would provide a means of evaluating the effectiveness of the alternative, but would not provide a permanent remedy for the site. Administrative actions are considered to be reliable controls.

Reduction of Toxicity, Mobility, and Volume of Contaminants through Treatment. Although treatment is not included in this alternative, this alternative may provide some reduction in TRPH toxicity through natural degradation processes. No reduction in arsenic and cadmium toxicity is anticipated. This alternative would not provide a reduction in contaminant mobility or volume because active mitigation of contaminant mobility or reduction in volume is not proposed. On the other hand, treatment residuals would not be produced if this alternative were implemented.

Short-term Effectiveness. This alternative would not reduce human health risks in the short term because no land-use restrictions or active treatment would be implemented.

This alternative would not comply with RAOs in the short term because the only means of contaminant reduction is natural degradation processes for TRPH. No reduction in inorganic concentrations would be anticipated. This alternative does not pose a threat to workers through exposure to contaminated soil because remedial construction activities are not proposed under this alternative.

Implementability. This alternative does not require remedial construction for implementation. Other activities, such as 5-year site reviews are easily implemented.

Cost. The present worth cost of Alternative 1 is presented on Table 4-2. The cost includes 5-year site reviews over a 30-year monitoring period. A 30-year period was chosen because RI/FS guidance suggests using this timeframe when contaminants are left onsite. The total present worth cost of Alternative 1 is \$19,000. Cost estimates are presented in Appendix C.

4.2 DETAILED ANALYSIS FOR ALTERNATIVE 2: LAND-USE CONTROLS.

Alternative 2 consists of LUC actions to limit the exposure to surface soil at Site 17. A description of this alternative is presented in Subsection 4.2.1 and a technical assessment of this alternative is presented in Subsection 4.2.2.

Table 4-2
Cost Summary Table, Alternative 1: No Action

Feasibility Study
Site 17, Crash Crew Training Area
Naval Air Station Whiting Field
Milton, Florida

Operation and Maintenance Cost (O&M) (per event)		
5-year site review		\$5,000
	Total O&M cost (per event)	\$5,000
	Total O&M cost (present worth of semi-annual O&M for 30 years)	\$17,000
	Contingency (10 percent)	\$2,000
	Total cost Alternative 1: no action	\$19,000

Notes: Cost are rounded to the nearest \$1,000. See Appendix C for cost details.
Total costs are based on present worth costs.

4.2.1 Detailed Description of Alternative 2

Under this alternative, land-use controls would be implemented to provide protection of human receptors. Land-use controls would involve the use of institutional controls that would restrict the use of the land in the vicinity of Site 17. Land-use controls would place regulatory controls on the excavation of soil or similar activities that have the potential to disturb the site soil or increase the likelihood of exposure to the site soil.

The land-use control would be placed on a parcel of land slightly larger than the boundaries of Site 17. This would ensure that an appropriate buffer zone is created and maintained between the disposal areas and other areas of NAS Whiting Field. Warning signs stating restricted access would be posted to discourage trespassing.

Land-use controls would remain in place until the level of contamination at the sites has been adequately addressed. As part of this alternative, a quarterly site inspection program would be established to insure that compliance with the agreed upon land-use controls is maintained. The results of these inspections would be summarized in quarterly reports and an annual report provided to appropriate parties. The inspection and reporting activities would be performed as long as the land-use controls are in place. The following components would be included as part of this alternative:

- Land-Use Controls
- 5-year site reviews

Land-Use Controls. Under new USEPA Region IV guidance (USEPA, 1998), the use of land-use controls as a remedy for contaminated sites requires the development of land-Use Control Implementation Plan (LUCIP). These documents detail the actions required when land-use controls are selected as a remedy for a site.

The LUCIP is developed for each site where land-use controls are necessary on the facility. The LUCIP would include details regarding additional required activities, such as quarterly and annual inspection and reporting for the specific area. These activities are required as part of the LUC agreement to insure compliance, while the land-use controls for the sites are in effect. Further, as land-use controls will remain in effect until the contamination at the sites has been adequately addressed, the activities identified in the LUCIP will also remain in effect until such time that the contamination present at the sites has been adequately addressed.

5-Year Site Reviews. Refer to Subsection 4.1.1 for a detailed description of these reviews.

4.2.2 Technical Criteria Assessment of Alternative 2

This subsection presents the technical criteria assessment of Alternative 2.

Overall Protection of Human Health and the Environment. Human receptors would be protected if this alternative were implemented. Regulatory controls (i.e., land-use controls) would prohibit potential future residents from exposure to the site because residential use of the site would be restricted under the proposed land-use controls. Based on data presented in the RI report, this alternative would not provide protection for ecological receptors at the site. However, the sublethal risk to small mammals and birds from the ingestion of cadmium in surface soil was reduced when a soil cover was placed over the site.

Compliance with ARARs. This alternative would not comply with chemical-specific ARARs or TBCs (e.g., MCLs, FGCTLs) in the short term. Eventually, this alternative may comply with ARARs for TRPH if natural processes in the soil reduce organic contaminant concentrations. Reduction of arsenic concentrations are not expected; therefore, ARARs would not be achieved.

Long-term Effectiveness and Permanence. Naturally occurring processes, such as biological activity, may reduce organic contaminant concentrations (TRPH) in the soil over the long term but would not reduce arsenic concentrations. The risks presented to the future resident based on exposure to surface soil at the site would be addressed via the land-use controls. The long-term effectiveness and permanence of these controls will be controlled by the facility under the MOA developed for NAS Whiting Field.

Administrative actions proposed in this alternative (e.g., Land-use controls and 5-year site reviews) would provide a means of evaluating the effectiveness of the alternative. These administrative actions are considered to be reliable controls.

Reduction of Toxicity, Mobility, and Volume of Contaminants through Treatment. Although treatment is not included in this alternative, this alternative may provide some reduction in TRPH toxicity through natural degradation processes. No reduction in arsenic toxicity is anticipated; however arsenic can form low solubility metal arsenates. This alternative would not provide a reduction in contaminant mobility or volume because active mitigation of contaminant mobility or reduction in volume is not proposed. On the other hand, treatment residuals would not be produced if this alternative were implemented.

Short-term Effectiveness. This alternative would reduce human health risks in the short term by reducing the potential exposure to Site 17 soil by human receptors. Furthermore, the threat to trespassers is considered to be minimal. Access to the base is restricted and continued operation of the base is expected. Additionally, the site is remote (i.e. far from base housing).

This alternative does not pose a threat to workers through exposure to contaminated soil because no construction activities are proposed under this alternative.

Implementability. This alternative does not require remedial construction for implementation. Other activities, such as land-use controls, and 5-year site reviews, are easily implemented.

Cost. The present worth cost of Alternative 2 is presented on Table 4-3. Both the land-use controls and 5-year site reviews were costed over a 30-year monitoring period. A 30-year period was chosen because RI/FS guidance suggests using this timeframe where COCs remain onsite. The total present worth cost of Alternative 2 is \$135,000. Cost estimates are presented in Appendix C.

4.3 DETAILED ANALYSIS FOR ALTERNATIVE 3: SOIL REMOVAL AND DISPOSAL.

Alternative 3 includes remedial actions to excavate the constructed soil cover and other site areas exceeding residential SCTLs and dispose of the excavated soil at an FDEP-approved and permitted disposal facility. A description of this alternative is presented in Subsection 4.3.1 and a technical criteria assessment of this alternative is presented in Subsection 4.3.2.

4.3.1 Detailed Description of Alternative 3

Under this alternative, the top 4 feet of soil from the constructed soil cover (2 feet of soil cover and 2 feet of original surface soil) and 2 feet of soil from other site areas exhibiting exceedance of residential SCTLs would be excavated, sampled and analyzed, transported and disposed at an approved offsite disposal facility. Based on the low COC concentrations in surface soil during the RI, the excavated soil would most likely be suitable for disposal at a Subtitle D (non-hazardous, solid waste) facility. Excavation and offsite disposal of the contaminated surface soil would eliminate COC exposure to humans and ecological receptors in Site 17 soil.

**Table 4-3
Cost Summary Table, Alternative 2: Land-Use Controls**

Feasibility Study Site 17, Crash Crew Training Area Naval Air Station Whiting Field Milton, Florida	
Direct Cost	
Land-use controls	\$12,000
Total direct cost	\$12,000
Operation and Maintenance Cost (O&M) (per event)	
5-year site review	\$ 5,000
Inspection/Reporting	\$7,000
Total O&M cost (per event)	\$ 12,000
Total O&M cost (present worth of semi-annual O&M for 30 years)	\$111,000
Total Direct and O&M	\$123,000
Contingency (10 percent)	\$12,000
Total cost Alternative 2: Land-Use Controls	\$135,000

Notes: Costs are rounded to the nearest \$1,000. See Appendix C for cost details.
The cost of the IRA soil cover was \$102,000.
Total costs are based on present worth costs.

The following components of this alternative include:

- mobilization and site preparation
- excavation and stockpiling surface soil
- soil sampling and analysis
- transportation and offsite disposal
- site restoration
- Five-year site reviews

These activities are discussed in the following sections.

Mobilization and Site Preparation Under this alternative, heavy equipment such as a front end loader and backhoe would be mobilized to the site. Mobilization and site preparation would include all activities and construction prior to excavating surface soil. Since there is no electrical power or water supply at Site 17, a

portable generator and a high pressure washer with water tank would be mobilized to the site to supply power and water during decontamination procedures. A temporary decontamination area would be constructed at the site. Equipment and vehicles used during site preparation, excavation, and soil sampling would be steam-cleaned and decontaminated at this location.

A staging area for excavated soil would be constructed on site using 2 layers of 6-millimeter plastic sheeting as lining.

Excavating and Stockpiling of Soil The constructed soil cover and pre-construction surface soil areas will be excavated to a depth of 4 feet and 2 feet respectively below surface and stockpiled for waste characterization. The excavation area is shown in Appendix B and is approximately 130,000 ft². The total volume of soil removed for disposal is approximately 14,150 cubic yards (16,980 tons).

Soil Sampling and Analysis A soil sampling and analysis plan would be developed for two reasons: (1) to characterize the excavated soil for offsite disposal and (2) to confirm COC removal from the open excavation areas. To meet offsite disposal requirements, stockpiled soil samples would be analyzed for hazardous waste characteristics (TCLP metals, VOCs, SVOCs, pesticide/herbicides) and TRPH. In addition, composite soil samples would be collected from the bottom of the open excavation areas to confirm contaminant removal. Confirmatory soil samples would be collected and analyzed for COCs (i.e., arsenic and TRPH).

Transportation and Offsite Disposal Based on the relatively low concentrations of COCs in surface soil (Table 2-2), it was assumed that the excavated soil would be characterized as nonhazardous and would be disposed of in a nonhazardous, solid waste landfill (RCRA Subtitle D Landfill). Excavated soil would be loaded onto DOT-approved transport vehicles or rolloff containers (22 ton load capacity) and transported to an FDEP-approved Subtitle D landfill.

Site Restoration and Demobilization Once contaminated soil has been removed, the excavation area would be backfilled with clean fill and topsoil. The fill material and topsoil would be transported from a nearby offsite borrow source using dump trucks and trailers and the top 2 feet of soil from the IRA soil cover area will also be used as backfill material. The material would be spread across the excavated areas using a front-end loader. Once the excavation areas have been backfilled, the areas would be seeded and fertilized to promote vegetative growth. Hay would be used to protect the seed and fertilizer during initial development. Decontamination water generated during implementation of this alternative would be sampled and either discharged on the ground at Site 17 or transported to the NAS Whiting Field FOTW for treatment. The storage trailer, heavy equipment, miscellaneous equipment and tools used during the implementation of this alternative would be demobilized.

Five Year Site Reviews Five year site reviews would be conducted to assess the effectiveness of this alternative. Refer to Alternative 1 for a description of this component.

4.3.2 Technical Criteria Assessment of Alternative 3

This subsection presents the technical criteria assessment of Alternative 3.

Overall Protection of Human Health and the Environment. This alternative would minimize human and ecological exposure to COCs in Site 17 surface soil because the hot spot soil areas would be excavated and disposed offsite. Soil, where concentrations of COCs are above the FDEP SCTLs, would be removed from the site and the resulting excavation would be backfilled with clean fill. As a result, risks posed to human and ecological receptors by exposure to contaminated surface soil would be minimized.

Compliance with ARARs. It is expected that source excavation, transportation and disposal, and backfilling activities would comply with ARARs (see Section 2.1).

Worker safety standards will be maintained during remedial activities to comply with ARARs. A site-specific health and safety plan will be developed and implemented during all site activities.

Long-Term Effectiveness and Permanence. This alternative is expected to provide long-term effectiveness and permanence by excavation and offsite disposal of hot spot contaminated surface soil. A five-year site review will be used to assess changes in site conditions to ensure long-term effectiveness and permanence. Alternative 3 can be viewed as a permanent method of reducing human health and ecological risks posed by ingestion of contaminated surface soil by excavation and removal of hot spot soil areas.

Reduction of Toxicity, Mobility, and Volume of Contaminants through Treatment. Disposal of the excavated surface soil within an approved landfill would not reduce the toxicity, mobility, or volume of the waste because active treatment of the soil would not occur. However, the toxicity, mobility, and volume of waste would be reduced onsite for Site 17 surface soil because the waste would be transported and disposed at an approved offsite disposal facility.

Short-Term Effectiveness. Through implementation of this alternative, there would be an immediate reduction in risk to human health and the environment. During excavation and soil handling activities, site workers would wear appropriate personal protective equipment (PPE) for protection against exposure to site-related contaminants.

This alternative would also ensure the protection of non-site workers and trespassers immediately after backfilling the excavation with clean fill.

Implementability. This alternative is easily implementable. Equipment and materials are readily available for excavation and removal activities. Site work would be completed within a 2-month period, allowing for a 28-day turnaround time (TAT) for analytical results. If an expedited remedial action is required, this alternative can be completed within 2 to 4 weeks using an expedited TAT for analytical results.

Cost. The cost estimate for Alternative 3 is presented in Table 4-4 and detailed cost calculations are provided in Appendix C. O&M activities include a 5-year review and quarterly/annual reporting and inspections for a 30-year monitoring period. The total present worth cost of Alternative 3 is approximately \$3,247,000.

Table 4-4
Cost Summary Table, Alternative 3: Soil Removal and Disposal

Feasibility Study
 Site 17, Crash Crew Training Area
 Naval Air Station Whiting Field
 Milton, Florida

Direct Cost	
Mobilization	\$8,000
Site Preparation and Clearing	\$2,000
Excavating and offsite Transportation and Disposal (Subtitle D Landfill)	\$2,174,000
Soil Sampling and Analysis	\$37,000
Site Restoration and Vegetative Support Layer	\$108,000
	<hr/>
	Total direct cost
	\$2,329,000
Indirect Cost	
Health and safety (3 percent)	\$70,000
Administration and permitting (3 percent)	\$70,000
Engineering and design (10 percent)	\$233,000
Construction support services (10 percent)	\$233,000
	<hr/>
	Total indirect cost
	\$606,000
	<hr/>
	Total capital cost (direct + indirect)
	\$2,935,000
Operation and Maintenance (O&M) Cost (capitalized)	
5-year site review	\$17,000
	<hr/>
	Total O&M cost (capitalized)
	\$17,000
	<hr/>
	Total Capital and O&M costs
	\$2,952,000
	Contingency (10 percent)
	\$295,000
	<hr/>
	Total cost Alternative 3: Soil Removal and Disposal
	\$3,247,000

Notes: Costs are rounded to the nearest \$1,000. See Appendix C for cost details.
 Total costs are based on present worth costs.

5.0 COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES

Remedial alternatives for Site 17 were developed in Chapter 3.0 and were individually evaluated in Chapter 4.0 using seven technical criteria. For comparative purposes, these criteria are grouped into the following categories:

- threshold criteria,
- primary balancing criteria, and
- modifying criteria.

This chapter presents a comparison of remedial alternatives with respect to these criteria. This comparison is intended to provide technical information required to support the selection of a preferred alternative for Site 17. It is anticipated that modifying criteria (i.e. State and community acceptance) will be used in conjunction with the information presented herein to select an appropriate remedial alternative for Site 17. The remainder of this chapter presents this comparison.

5.1 OVERALL APPROACH TO COMPARATIVE ANALYSIS.

As presented in Chapter 4.0, remedial alternatives were developed to accomplish the RAO identified for the site. The 3 sets of criteria identified above are used to streamline the comparison between alternatives while ensuring compliance with the RAO. Components of these criteria are described below.

5.1.1 Threshold Criteria

Because the selected remedy must be protective of human health and the environment, as well as comply with ARARs, the following two threshold criteria are essential:

- overall protection of human health and the environment, and
- compliance with ARARs.

An individual assessment of each alternative with respect to these criteria was presented in Chapter 4.0. An overall comparative analysis of alternatives using threshold criteria is presented in Section 5.2.

5.1.2 Primary Balancing Criteria

Primary balancing criteria consist of the following 5 components:

- long-term effectiveness and permanence;
- reduction of toxicity, mobility, and volume of contaminants through treatment;
- short-term effectiveness;
- implementability; and
- cost.

These criteria are used to provide an assessment of the permanence of each remedial alternative, while ensuring their implementability and cost-effectiveness. An individual assessment of each alternative with respect to these criteria is presented in Chapter 4.0. An overall comparative analysis of alternatives using primary balancing criteria is presented in section 5.2.

5.1.3 Modifying Criteria

The final two criteria are as follows:

- State acceptance, and
- community acceptance.

Typically, State acceptance (i.e., the eighth factor) is addressed when comments on the draft FS Report have been received from the State. Therefore, State comments will be addressed and a response to State comments will be included in the Final FS Report.

Community acceptance (i.e., the ninth factor) is addressed upon receipt of public comments on the Proposed Plan (USEPA, 1988). The responsiveness summary, included as an appendix to the ROD for the site, is intended to provide the overview of achievement of this ninth criterion.

Based on this information, an evaluation of modifying criteria is not included in this FS.

5.2 COMPARATIVE ANALYSIS OF REMEDIAL ALTERNATIVES.

This section provides the comparative analysis for remedial alternatives for Site 17 with respect to the criteria described in Section 5.1. Alternatives presented in this FS include:

- Alternative 1: No Action
- Alternative 2: Land-Use Controls
- Alternative 3: Soil Removal and Disposal

5.2.1 Comparison of Threshold Criteria

The remedial alternatives for Site 17 were first compared to the two threshold criteria, overall protection of human health and the environment and compliance with ARARs.

Alternative 1 does not provide a means of restricting future land use of the area. Therefore, this alternative does not protect potential future residents from environmental conditions at the site. Alternative 1 would not achieve the RAO established for Site 17.

The implementation of Alternative 2 would provide a measure of continued protection of human health and the environment because the alternative includes land-use controls (including LUCIP). In this manner, Alternative 2 would achieve the RAOs established for the site and would also achieve ARARs.

Alternative 3 would achieve the RAOs through removal of the previously constructed soil cover and other site areas and provide a measure of continued protection of human health and the environment. In this manner, Alternative 3 would achieve the RAOs established for the site and would therefore achieve ARARs. Implementation of Alternative 3 may have potential short-term effects of exposure to site workers.

Because the implementation of Alternative 3 would achieve the RAOs and eliminate COC exposure in surface soil as opposed to leaving COCs in surface soil, Alternative 3 is the best alternative in providing overall protection of human health and the environment. However, Alternative 3 will also require the removal of soil cover constructed during the IRA.

5.2.2 Comparison of Primary Balancing Criteria

A comparison is made between alternatives with respect to five criteria: long-term effectiveness and permanence; reduction in toxicity, mobility, and volume; short-term effectiveness; implementability; and cost.

For long-term effectiveness, Alternatives 1 and 2 may reduce concentrations of TRPH through natural mechanisms, but unlikely for arsenic. Alternative 3 would provide long-term effectiveness by removing surface soil where COC concentrations exceed action levels established in the RAOs.

The alternatives evaluated for Site 17 would not reduce the toxicity or volume of contaminants at the site, as none of the alternatives involve treatment of contaminants in media at the site. On the other hand, Alternative 3 is the only alternative where offsite removal of contaminated surface soil would reduce the toxicity and volume onsite. Also, Alternative 3 would provide a reduction in the mobility (i.e., leaching) of contaminants from the soil; however, it does not appear that contaminants are currently leaching to the groundwater. In addition, groundwater at NAS Whiting Field has been identified as a separate site (Site 40), which will be investigated and remediated separately from Site 17.

The implementability of Alternatives 2 and 3 would be relatively easy. For Alternative 2 a LUCIP would need to be developed. The documents should be relatively easy to complete, but implementation of the land-use controls may be extended until agreement is reached among the regulatory agencies as to the format for these documents at NAS Whiting Field.

The relative present-worth cost estimates are shown below for each alternative. In accordance with USEPA guidance for contaminants left in place, the cost for Alternatives 1, 2, and 3 is based on a 30-year timeframe.

- Alternative 1: \$19,000
- Alternative 2: \$135,000
- Alternative 3: \$3,247,000

As expected, Alternative 1, the no-action alternative, has the lowest estimated overall cost. Alternative 2 involves land-use controls and quarterly/annual inspections and reporting over 30 years and is the next lowest cost. Alternative 3 involves soil removal and disposal at a cost of \$3,247,000.

5.2.3 Modifying Criteria

As stated in Subsection 5.1.3, an evaluation of modifying criteria will not be included in this FS.

REFERENCES

- ABB Environmental Services, Inc. (ABB-ES). 1998a. *Remedial Investigation and Feasibility Study, General Information Report, Naval Air Station Whiting Field, Milton, Florida*. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina.
- ABB-ES. 1993. *Geophysical Survey Technical Report, Naval Air Station Whiting Field, Milton, Florida*. Final report prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina.
- Bechtel Environmental, Inc. 2000. *Removal Action/Completion Report for Sites 9, 10, 17, 18, and 31C Surface Soil Remediation, NAS Whiting Field, Milton, FL*. Prepared for Department of the Navy, Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina.
- Florida Department of Protection (FDEP). *Contaminant Cleanup Criteria Rule (July) Chapter 62-777 Florida Administrative Code (1999)*.
- Harding Lawson Associates (HLA). 2000. *Remedial Investigation, Site 17, Crash Crew Training Area, Naval Air Station Whiting Field, Milton, Florida*. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina.
- Nature Conservancy/Florida Natural Areas Inventory. 1997. "Rare Plant, Rare Vertebrate, and Natural Community Survey of NAS Whiting Field..." Final Report, sub-agreement (N624067-95-RP00236) to the 1995 Cooperative Agreement between DoD and the Nature Conservancy.
- U.S. Department of Agriculture. 1980. *Soil Survey of Santa Rosa County, Florida*. Soil conservation Service. Washington, D.C.
- U.S. Environmental Services Protection Agency (USEPA). 1988. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final*. Office of Solid Waste and Emergency Response. Washington, D.C. (October).
- USEPA. Region IV. 1998. *Assuring Land-Use Controls at Federal Facilities*. Memorandum from Jon D. Johnston, Chief of Federal Facilities Branch to the Region IV Federal Facilities Branch.

APPENDIX A
RESPONSE TO AGENCY COMMENTS

**Response to EPA Review Comments
Site 17, Crash Crew Training Area
Draft Feasibility Study**

1. **Cover Page.** The EPA ID number should be included on the cover page both inside and outside.

Response: The EPA ID number will be added to the cover page and the report title page.

2. **Glossary, Page –viii-** The abbreviation “BRA” defined as “baseline risk assessment” should be included in the glossary. In the definition for “LUCIP”, change the word “Installation” to “Implementation”. The definition for “RA” should be “remedial action” instead of “risk assessment”. These abbreviations should be changed throughout the document, accordingly, wherever they occur.

Response: As suggested by the reviewer, the abbreviation “BRA” for “baseline risk assessment” will be included in the glossary. Also “CPC” will be changed to “COPC”. In the definition for “LUCIP”, the word “Installation” will be replaced by “Implementation”. The report will be revised to reflect “RA” means “remedial action” and not risk assessment. These abbreviations will be changed throughout the document.

3. **Section 1.0, Page 1-1.** Change the word “Priority” to “Priorities” in the first sentence of the second paragraph.

Response: The word “Priority” will be changed to “Priorities” in the first sentence of the second paragraph.

4. **Section 1.3, Page 1-5.** The second paragraph of this section should address why the interim action was conducted. The text discusses actions taken during the interim action without first providing a basis for the action.

Response: The 2nd paragraph of this section will be revised to include the following information. “The IRA was conducted to address soil contamination due to the presence of TRPH and arsenic at levels in excess of federal and State industrial standards.”

5. **Section 3.2.2, Page 3-4.** In the first full paragraph of this section, delete the words “such as LUC Agreements, LUCAP/LUCIP, or other documents”. These documents are not considered LUCs but rather tools to implement LUCs.

Response: In the first paragraph of this page, words “such as LUC Agreements, LUCAP/LUCIP, or other documents” will be deleted.

6. **Section 4.0, Page 4-1.** Delete the second sentence in the fourth paragraph. State comments are addressed in the final FS prior to a Proposed Plan being developed. A summary of State acceptance is not typically provided in the FS.

Response: The 2nd sentence in the 4th paragraph will be revised to read as follows. “Therefore, State comments will be addressed and a response to State comments will be included in the Final FS Report.”

7. **Table 4-2, 4-3, and Table 4-4.** Each of these tables should indicate that the total costs are present worth costs.

Response: A note indicating the total costs are present worth costs will be added to Tables 4-2, 4-3, and 4-4.

8. **Section 5.1.3, Page 5-2.** The second sentence at the top of the page should be deleted. See Comment No. 6 above.

Response: The 2nd sentence at the top of Page 5-2 will be deleted.

**Response to FDEP Review Comments
For Feasibility Study Report
Site 17, Crash Crew Training Area**

1. It is not always clear in this document that a two-foot thick soil cover was placed on Site 17. This should be clearly stated early in the document. Additionally, replacing the present Figure 1-3 with figure requested in the RI review is desirable. To do so will help address many of my comments.

Response: The placement of a 2-foot thick soil cover will be clearly stated in the FS on page 1-5 and 1-7. A figure (Figure 1-3), similar to the one requested for the RI report, will be included in the FS. This figure will depict the IRA soil cover boundary and analytical results.

2. Page 1-1, third paragraph: following "NAS Whiting Field," use "were" in place of "are."

Response: The text revision will be made as requested.

3. Page 1-3: add a "bulleted" item that gives a summary description of the IRA that was accomplished. This should also be discussed in Section 1.2, Purpose, first paragraph.

Response: A summary description of the IRA will be included on page 1-3 and in Section 1.2.

4. On page 1-5, next to the last line: change to read: "Additional IRA information follows and is presented in Appendix A."

Response: The text revision will be made as requested.

5. Page 1-7, Section 1.4, Interim Actions, last paragraph: following "and 31C," add "and Figure X in Appendix Y of the RI" before "contains further details.." Note that "X" refers to the figure number requested in the RI review and "Y" refers to the appropriate appendix where Figure "X" was placed in the RI.

Response: The text revision will be made as requested.

6. Page 1-7, Section 1.5, RI Summary: in the first "bulleted" paragraph, it is noted that leachability levels were exceeded for one SVOC and for TRPH. This is in apparent disagreement with the statement on the top of page 3-4 where it says; "it is highly unlikely that groundwater actions would interfere with any of the proposed soil remedial alternatives." I think the use of the term "highly unlikely" is marginal, given that leaching of SVOCs and TRPH may be a problem at the site. Please note also that in Table 3-1 on page 3-3, under Waste Characteristics related to Groundwater Monitoring, it states that COCs are *not* leaching into the groundwater; this has not been shown to be the case and should be corrected.

Response: The last sentence of the referenced paragraph will be revised to read as follows. "Furthermore, if groundwater monitoring is deemed necessary under Site 40 RI/FS alternatives, it would not interfere with any of the proposed soil remedial alternatives."

Table 3-1 will also be revised to indicate COCs may leach to groundwater.

7. Page 3-4, Section 3.2.2, discussion of Alternative 2 and Section 4.2.1 on page 4-4: whenever the LUCAP is discussed, the Navy should refer to it as the Memorandum of Agreement (MOA), in the present tense, not the future tense, since it has been adopted. LUCAP was the proper term before the MOA was adopted; however, that is past, and MOA should be used.

Response: The text will be revised per USEPA comment No. 5. All references to LUCAP will be deleted.

**Response to FDEP Review Comments
For Feasibility Study Report
Site 17, Crash Crew Training Area**

8. Page 4-1, Section 4.1.1 and other following sections: the Navy should acknowledge that cadmium is (was, if you consider that the IRA covered the cadmium locations, which has not yet been shown to be the case) also a COC from an ecological standpoint. Since the ecological risk assessment noted significant risk that was attributed to cadmium, at some point (hopefully by referring to the figure that was requested in my review of the RI), it must be shown that this contaminant was properly addressed in the IRA. This circumstance should also be discussed in Section 4.1.2, page 4-3, Reduction of Toxicity, Mobility and Volume of Contaminants through Treatment and in the section on Short-term Effectiveness on page 4-3.

Response: Please see response to Comment 9. Also, a figure depicting all chemical data will be added to the FS report. Appropriate information will be added to Section 4.1.2 (Reduction, Toxicity, Mobility and Volume of Contaminants through Treatment) and in the section on Short-term Effectiveness.

9. Page 4-4, Section 4.2.2: the document should discuss and clearly state why Alternative 2 would not provide ecological protection. How will the Navy address this in the Proposed Plan, which I already know recommends alternative 2?

Response: A portion of Site 17 was remediated to eliminate exposure to surface soils that posed an unacceptable risk to human receptors at the site. The remedial action involved placing a two-foot thick soil cover over approximately 50% of the site. Risks to ecological receptors were recalculated utilizing data from sample locations that were not covered during the remediation activities. *During the reevaluation of ecological risks a hot spot was identified, at sample location 17-SL-29.* Elevated concentrations of cadmium and chromium, the primary risk drivers for ecological receptors (i.e., small mammals and small birds) were detected at this location. Surface soil analytical data from the unremediated area, excluding data from location 17-SL-29 were summarized and new RME and CT concentrations were calculated for cadmium and chromium (see Table 1). These new estimated exposure concentrations were used in the food web model to recalculate risks to representative wildlife receptors (see Table 2). The site area was also reduced from 4 acres to 2 acres, to account for the area of the site that was left uncovered.

Table 1. Recalculated Cadmium and Chromium Concentrations

	RME (mg/kg)	CT (mg/kg)	Notes
Cadmium	1.1	0.66	RME is arithmetic 95 th UCL on mean
Chromium	17	13	RME 95 th UCL by Land's method
RME: Reasonable Maximum Exposure CT: Central Tendency mg/kg: milligrams per kilogram			

The ecological risk assessment originally concluded that there would be no lethal effects from exposure to RME concentrations. The HIs presented in the first column of Table 2, represent results using recalculated cadmium and chromium RME concentrations. In the original evaluation, sublethal impacts were identified for small mammals and small birds, based on RME and CT concentrations. The recalculated HIs are presented in the second and third columns of Table 2. These HIs were derived utilizing the recalculated RME and CT concentrations for cadmium and chromium presented in Table 1.

**Response to FDEP Review Comments
For Feasibility Study Report
Site 17, Crash Crew Training Area**

Based on the results presented in Table 2, risks to small birds would be significantly reduced if covering or removing contamination at sample location 17-SL-29 occurs. The HIs for small birds only slightly exceed 1, based on RME concentrations, and HIs based on CT concentrations are equal to or less than 1. Risks to small mammals would also be reduced, by addressing contamination at sample location 17-SL-29, with all HIs for small mammals less than 5.

Table 2. Summary of Hazard Indices (HIs) for Representative Wildlife

	Lethal Effects from Exposure to RME Concentrations	Sublethal Effects from Exposure to RME Concentrations	Sublethal Effects from Exposure to CT Concentrations
Cotton mouse	0.32	3.6	2.2
Mourning dove	0.0078	1.7	1.0
Short-tailed shrew	0.79	4.9	3.1
Eastern meadow lark	0.037	1.2	0.74
Red fox	0.0013	0.014	0.0078
Red-tailed hawk	0.000013	0.0054	0.0032

Cadmium is the primary risk driver for the cotton mouse. The background concentration for cadmium is 0.58 mg/kg, which is consistent with the CT concentration and is greater than half the RME concentration, 0.66 and 1.1 mg/kg, respectively. The primary risk drivers for the short-tailed shrew are chromium (RME and CT exposures) and zinc (RME exposure, only). The background concentration of chromium is 14 mg/kg, which is consistent with the RME and CT concentrations, 17 and 13, respectively. The HQ for zinc, based on RME concentration slightly exceeded one for the short-tailed shrew. However, the HQ for zinc, based on CT concentrations was less than 1. Therefore, based on the relatively low magnitude of HIs (i.e., less than five for RME and CT concentrations) and the consistency between background and RME and CT concentrations, population level impacts to small mammals, following remediation in the vicinity of 17-SL-29, are considered unlikely.

The text will be revised to indicate that ecological risks at Site 17 are unlikely.

APPENDIX B

VOLUME ESTIMATES FOR CONTAMINATED MEDIA

PROJECT Site 17 FS - Draft Soil Volume Calculations	COMP. BY RA	JOB NO.
	CHK. BY	DATE 4/1/00

Area calculations completed by using a Planix 7 (Digital Planimeter)

- Site Area based on boundary presented on the attached figure is 130,000 ft².
- Area for IRA Soil Cover = 61,000 ft².

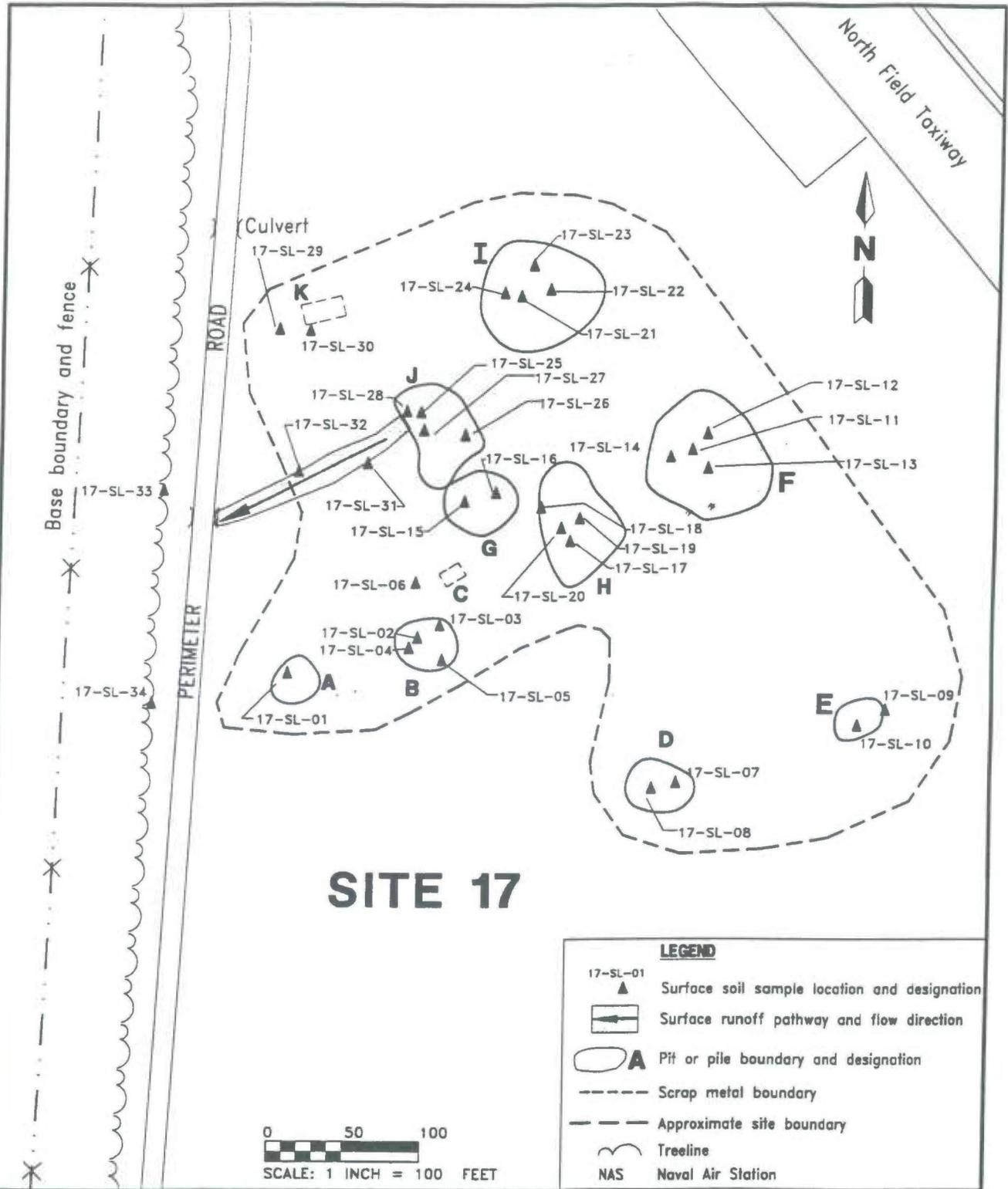
Volume Calculations:

IRA Soil Cover Area - 61,000 x 4 = 244,000 ft³
 Assumed 4 feet depth. Upper 2 feet is Soil Cover and Soil from 2-4 feet is the original surface soil.

Remainder of Site - Volume = (130,000 - 61,000) x 2
 = 138,000 ft³.

The top 2 feet of soil from the IRA Soil Cover will be separated and used as backfill.

Total volume for disposal = $\frac{244,000}{122,000} + 138,000$ ft³
 = $\frac{382,000}{269,000}$ ft³ = $\frac{14,150}{9,600}$ cubic yds
 = $\frac{11,600}{16,980}$ tons



Soil Volume Calculations



**SITE 17, CRASH CREW
TRAINING AREA**

**NAS WHITING FIELD
MILTON, FLORIDA**

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APPENDIX C

COST CALCULATIONS FOR REMEDIAL ALTERNATIVES

ALTERNATIVE #1: NO ACTION, SITE 17

	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
FIVE YEAR SITE REVIEW COSTS				
<u>Five-year Site Reviews (every 5 years for 30 years)</u>				
Meetings (includes travel time)				
Senior Scientist	16	hrs	\$90.00	\$1,440
Mid-level Engineer	16	hrs	\$60.00	\$960
ODCs (includes per diem and rental car)	1	lump sum	\$110.00	\$110
Five-year Report				
Report				
Senior Scientist	15	hrs	\$90.00	\$1,350
Mid-level Engineer	20	hrs	\$60.00	\$1,200
ODCs (includes photocopying, etc.)	1	lump sum	\$250.00	\$250
<i>Total 5-year costs</i>				\$5,310
<i>Present Worth of 5-year costs at i=6%</i>				\$17,352
TOTAL FIVE YEAR SITE REVIEW COSTS				\$17,352
CONTINGENCY @ 10 PERCENT				\$1,735
TOTAL COST OF ALTERNATIVE #1				\$19,087

ALTERNATIVE #2: LAND USE CONTROLS, SITE 17

	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
FIVE YEAR SITE REVIEW COSTS				
<u>Five-year Site Reviews (every 5 years for 30 years)</u>				
Meetings (includes travel time)				
Senior Scientist	16	hrs	\$90.00	\$1,440
Mid-level Engineer	16	hrs	\$60.00	\$960
ODCs (includes per diem and rental car)	1	lump sum	\$110.00	\$110
Five-year Report				
Report				
Senior Scientist	15	hrs	\$90.00	\$1,350
Mid-level Engineer	20	hrs	\$60.00	\$1,200
ODCs (includes photocopying, etc.)	1	lump sum	\$250.00	\$250
<i>Total 5-year costs</i>				\$5,310
<i>Present Worth of 5-year costs at i=6%</i>				\$17,352

TOTAL FIVE YEAR SITE REVIEW COSTS **\$17,352**

Land Use Controls (LUCs)

Direct Costs				
Survey Plat	1	lump sum	\$2,500.00	\$2,500
Land Use Restriction Fees (Filing, Legal, etc.)	1	lump sum	\$5,000.00	\$5,000
Land Use Implementation Plan:				
Senior Scientist	20	hrs	\$90.00	\$1,800
Mid-level Engineer	40	hrs	\$60.00	\$2,400
ODCs (includes photocopying, etc.)	1	lump sum	\$250.00	\$250
Total Direct Costs for Land Use Controls				\$11,950

Annual Operation and Maintenance (O&M) Costs

Quarterly Inspection				
Senior Scientist	0	hrs	\$90.00	\$0
Mid-level Engineer	32	hrs	\$60.00	\$1,920
ODCs (per diem, rental vehicle, etc.)	1	lump sum	\$320.00	\$320
Quarterly Reporting				
Senior Scientist	8	hrs	\$90.00	\$720

Mid-level Engineer	32 hrs	\$60.00	\$1,920
ODCs (per diem, rental vehicle, etc.)	1 lump sum	\$1,000.00	\$1,000
Annual Reporting			
Senior Scientist	2 hrs	\$90.00	\$180
Mid-level Engineer	8 hrs	\$60.00	\$480
ODCs (per diem, rental vehicle, etc.)	1 lump sum	\$250.00	<u>\$250</u>
Total Annual Operation and Maintenance Costs			\$6,790
<i>Present Worth of Land Use Control costs at i=6%</i>			\$93,464
TOTAL LAND USE CONTROLS COSTS			\$105,414
COST OF ALTERNATIVE #2			\$122,766
CONTINGENCY @10 PERCENT			\$12,277
TOTAL COST OF ALTERNATIVE #2			\$135,043

Alternative 3: Soil Removal and Disposal, Site 17

	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost</u>	<u>Total Cost</u>
<u>CAPITAL COSTS</u>				
TOTAL DIRECT COSTS				
<u>Mobilization</u>				
<u>Miscellaneous</u>				
Storage Trailer	2	day	\$ 150.00	\$ 300.00
Trailer Delivery, Setup, Removal	1	each	\$ 300.00	\$ 300.00
Toilet/Water Cooler Service	0	day	\$ 50.00	\$ -
Misc. Equipment	1	LS	\$ 2,500.00	\$ 2,500.00
 <u>Labor (Site Preparation)</u>				
Foreman (1 man @ 2 days @ 10hrs/day)	20	hrs	\$ 60.00	\$ 1,200.00
 <u>Equipment (Mobilization)</u>				
Dump Truck	3	each	\$ 250.00	\$ 750.00
Backhoe	2	each	\$ 250.00	\$ 500.00
Front End Loader	1	each	\$ 250.00	\$ 250.00
Portable Generator	1	each	\$ 50.00	\$ 50.00
Water Tank	1	each	\$ 250.00	\$ 250.00
Pressure Washer	1	each	\$ 250.00	\$ 250.00
Equipment (Mobilization)	1	LS	\$ 1,200.00	\$ 1,200.00
General Site Mobilization	1	LS	\$ 250.00	\$ 250.00
Mobilization				\$ 7,800.00 ✓
 <u>Soil Sampling</u>				
<u>Soil Sampling and Analysis (Waste Characterization)</u>				
Sampling Plan				
Mid-level Engineer/Scientist	16	hrs	\$ 75.00	\$ 1,200.00
ODCs	1	LS	\$ 250.00	\$ 250.00
Sample Collection				
Associate Scientist	30	hrs	\$ 60.00	\$ 1,800.00
Technician	30	hrs	\$ 40.00	\$ 1,200.00
ODCs, Sample Equipment, Supplies	1	LS	\$ 500.00	\$ 500.00
<u>Waste Characterization and Clean Fill Analysis</u>				
TCLP, Metals, VOCs, SVOCs, Pest/Herb, TRPH	40	each	\$ 800.00	\$ 32,000.00
Soil Sampling and Analysis				\$ 36,950.00 ✓

Alternative 3: Soil Removal and Disposal, Site 17

Site Preparation

Labor (Site Preparation)

Laborers (2 men @ 1 days @ 8 hrs/day)	16	hrs	\$	36.00	\$	576.00
Foreman (labor included in mobilization)						

Equipment and Disposal Costs

Backhoe and Operator	1	days	\$	1,200.00	\$	1,200.00
Miscellaneous Tools	1	LS	\$	300.00	\$	300.00

Transport and Disposal - Misc. Debris	5	tons	\$	69.00	\$	345.00
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Site Preparation **\$ 2,421.00** ✓

Excavation and Off-site Landfill Disposal (14,150 cy = 16,980 tons)

Backhoe and operator (15 days @ 10 hrs/day)	15	days	\$	1,200.00	\$	18,000.00
Laborers (4 @ 15 days @ 10 hrs/day)	600	hrs	\$	40.00	\$	24,000.00
Site Superintendent	150	hrs	\$	60.00	\$	9,000.00

RCRA Subtitle D (Solid Waste) Landfill

Transportation and Disposal	16,980	tons	\$	125.00	\$	2,122,500.00
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Excavating and Off-site Landfill Disposal (16,980 tons) **\$ 2,173,500.00** ✓

Vegetative Support Layer

Clean Fill - 18" layer, Purchase & Haul	10613	yd ³	\$	8.00	\$	84,900.00
Topsoil - 6" layer, Spread	3538	yd ³	\$	2.00	\$	7,075.00
Site Superintendent (10 day @ 10 hrs/day)	100	hrs	\$	60.00	\$	6,000.00

Vegetative Support Layer **\$ 97,975.00** ✓

Site Restoration

Fertilize, Seed, Mulch	4	acres	\$	2,000.00	\$	8,000.00
Demob of Equipment	1	LS	\$	2,000.00	\$	2,000.00

Site Restoration **\$ 10,000.00**

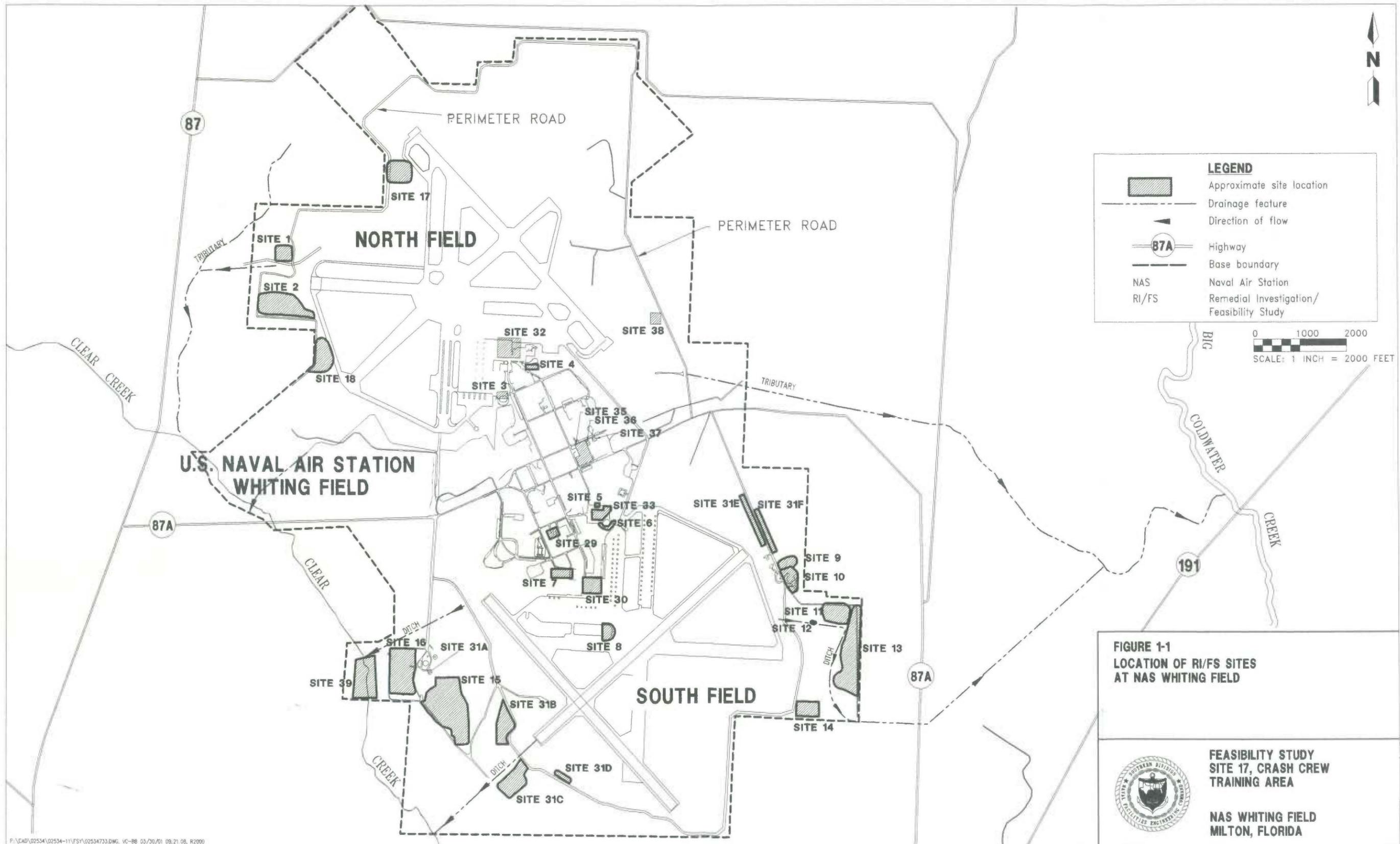
TOTAL DIRECT COSTS **\$ 2,328,646.00**

INDIRECT COSTS

Health and Safety (@ 3% of Direct Costs)				\$	69,859.38
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Alternative 3: Soil Removal and Disposal, Site 17

Administrative Fees (@ 3% of Direct Costs)	\$	69,859.38
Engineering and Design (@ 10% of Direct Costs)	\$	232,864.60
Construction Support Services (@ 10% of Direct Costs)	\$	232,864.60
TOTAL INDIRECT COSTS	\$	605,447.96
TOAL CAPITAL COSTS - Total Direct Costs + Total Indirect Costs	\$	2,934,093.96
OPERATION AND MAINTENANCE COSTS (ANNUAL)		
<u>5-Year Site Review (see Alternative #1)</u>		
Total LOE	\$	4,950.00
Total ODCs	\$	360.00
Subtotal Cost	\$	5,310.00
Present Worth (capitalized @ 6%, 30 years)	\$	17,352.00
TOTAL O&M COSTS (Annual Monitoring, 5-Year Review, LUCs)	\$	17,352.00
TOTAL CAPITAL COSTS & O&M COSTS	\$	2,951,445.96
Contingency (@ 10%)	\$	295,144.60
TOTAL COST OF ALTERNATIVE #3	\$	3,246,590.56



LEGEND

- Approximate site location
- Drainage feature
- Direction of flow
- Highway
- Base boundary
- NAS Naval Air Station
- RI/FS Remedial Investigation/ Feasibility Study

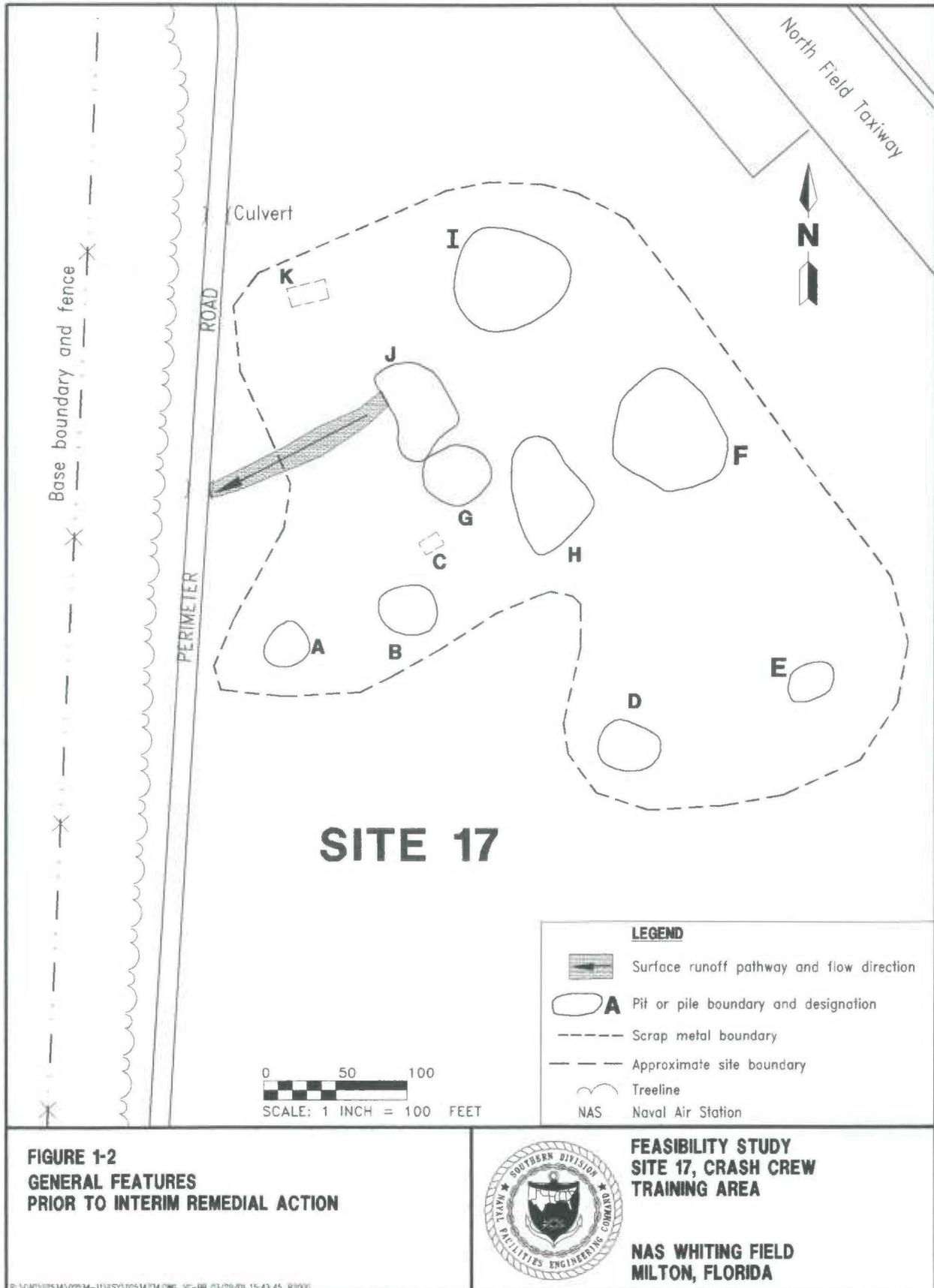
0 1000 2000
SCALE: 1 INCH = 2000 FEET

**FIGURE 1-1
LOCATION OF RI/FS SITES
AT NAS WHITING FIELD**

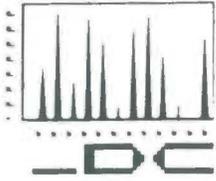


**FEASIBILITY STUDY
SITE 17, CRASH CREW
TRAINING AREA**

**NAS WHITING FIELD
MILTON, FLORIDA**



APPENDIX A
QUALITY CONTROL PARCCs REPORT



LABORATORY DATA CONSULTANTS, INC.

7750 El Camino Real, Suite 2C, Carlsbad, CA 92009 Phone: 619 634-0437 Fax: 619 634-0439

APPENDIX A

**Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida
PARCC Summary Tables**

Draft Version

08/30/96

APPENDIX A

Table of Contents

Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton, Florida

Table	Title	Page No.
I	Sample Delivery Group Versus Sample Identification	A-1
II	Summary of Rejected Data (Organics)	A-11
III	Summary of Rejected Data (Inorganics)	A-12
<u>Organics</u>		
IV	Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike/Matrix Spike Duplicates	A-13
V	Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples	A-14
VI	Summary of Surrogate Recoveries	A-16
VII	Summary of Compounds Exceeding Instrument Calibration	A-17
VIII	Summary of Method Blank Contamination	A-19
IX	Summary of Field Blank Contamination	A-22
<u>Inorganics</u>		
X	Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike and Laboratory Duplicate Samples	A-25
XI	Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples	A-26
XII	Summary of Analytes Exceeding Instrument Calibration	A-29
XIII	Summary of Method Blank Contamination	A-30
XIV	Summary of Field Blank Contamination	A-31
XV	Sample Event PARCC Summary	A-33

Table 1

SDG#: WF016

VALIDATION SAMPLE TABLE

LDC#: 1876A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide
BKB00101	RB583001		soil	5-20-96	X	X	X	X	X
BKB00102	RB583002		soil	5-20-96	X	X	X	X	X
BKB00401	RB583003	FD	soil	5-20-96	X	X	X	X	X
BKB00401D	RB583004	FD	soil	5-20-96	X	X	X	X	X
BKB00402	RB583005		soil	5-20-96	X	X	X	X	X
BKB00201	RB583006		soil	5-20-96	X	X	X	X	X
BKB00202	RB583007		soil	5-20-96	X	X	X	X	X
BKR00201	RB583008	R	water	5-20-96	X	X	X	X	X
BKF00101	RB583009	SB	water	5-20-96	X	X	X	X	X
BKT00201	RB583010	TB	water	5-20-96	X				
BKB00301	RB583011		soil	5-21-96	X	X	X	X	X
BKB00302	RB583012		soil	5-21-96	X	X	X	X	X
BKB00501	RB583013		soil	5-21-96	X	X	X	X	X
BKB00502	RB583014		soil	5-21-96	X	X	X	X	X
BKB00601	RB583015		soil	5-21-96	X	X	X	X	X
BKB00602	RB583016	FD	soil	5-21-96	X	X	X	X	X
BKB00602D	RB583017	FD	soil	5-21-96	X	X	X	X	X
BKB00701	RB583018		soil	5-21-96	X	X	X	X	X
BKB00702	RB583019		soil	5-21-96	X	X	X	X	X
BKB00401MS	RB583003MS	MS	soil	5-20-96	X	X	X	X	X
BKB00401MSD	RB583003MSD	MSD	soil	5-20-96	X	X	X	X	X
BKR00201MS	RB583008MS	MS	water	5-20-96				X	
BKR00201MSD	RB583008MSD	MSD	water	5-20-96				X	

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF016		VALIDATION SAMPLE TABLE					LDC#: 1876A		
Project Name: NAS Whiting Field				Parameters/Analytical Method			Job#: 8532-20		
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide
BKF00101MS	RB583009MS	MS	water	5-20-96					X
BKF00101MSD	RB583009MSD	MSD	water	5-20-96					X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF017		VALIDATION SAMPLE TABLE						LDC#: 1876B	
Project Name: NAS Whiting Field			Parameters/Analytical Method					Job#: 8532-20	
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide
31B00601	RB592001	FD	soil	5-21-96	X	X	X	X	X
31B00602	RB592002		soil	5-21-96	X	X	X	X	X
31B00603	RB592003		soil	5-21-96	X	X	X	X	X
31B00604	RB592004		soil	5-21-96	X	X	X	X	X
31B00605	RB592005		soil	5-21-96	X	X	X	X	X
31B00601D	RB592006	FD	soil	5-21-96	X	X	X	X	X
12B00101	RB592007	FD	soil	5-21-96	X	X	X	X	X
12B00101D	RB592008	FD	soil	5-21-96	X	X	X	X	X
12B00102	RB592009		soil	5-21-96	X	X	X	X	X
31B00701	RB592010		soil	5-22-96	X	X	X	X	X
31B00702	RB592011		soil	5-22-96	X	X	X	X	X
31B00703	RB592012		soil	5-22-96	X	X	X	X	X
31B00704	RB592013		soil	5-22-96	X	X	X	X	X
31B00705	RB592014		soil	5-22-96	X	X	X	X	X
31B00801	RB592015		soil	5-22-96	X	X	X	X	X
31B00801DL	RB592015DL		soil	5-22-96	X				
31B00802	RB592016		soil	5-22-96	X	X	X	X	X
31B00803	RB592017		soil	5-22-96	X	X	X	X	X
31B00803DL	RB592017DL		soil	5-22-96	X				
31B00804	RB592018		soil	5-22-96	X	X	X	X	X
31B00804DL	RB592018DL		soil	5-22-96	X				
31B00805	RB592019		soil	5-22-96	X	X	X	X	X
31R00101	RB592020	R	water	5-22-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF017

VALIDATION SAMPLE TABLE

LDC#: 1876B

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide
31T00301	RB592021	TB	water	5-22-96	X				
12R00101	RB592022	R	water	5-21-96	X	X	X	X	X
BKT00301	RB592023	TB	water	5-21-96	X				
31B00601MS	RB592001MS	MS	soil	5-21-96	X	X	X	X	X
31B00601MSD	RB592001MSD	MSD	soil	5-21-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF018		VALIDATION SAMPLE TABLE				LDC#: 1876C	
Project Name: NAS Whiting Field			Parameters/Analytical Method			Job#: 8532-20	
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Lead only
30B00201	RB602001		soil	5-23-96	X	X	X
30B00202	RB602002	FD	soil	5-23-96	X	X	X
30B00203	RB602003		soil	5-23-96	X	X	X
30B00202D	RB602005	FD	soil	5-23-96	X	X	X
30B00101	RB602006		soil	5-23-96	X	X	X
30B00102	RB602007		soil	5-23-96	X	X	X
30B00103	RB602008		soil	5-23-96	X	X	X
30R00101	RB602010	R	water	5-23-96	X	X	X
30T00101	RB602011	TB	water	5-23-96	X		
30B00202MS	RB602002MS	MS	soil	5-23-96	X	X	X
30B00202MSD	RB602002MSD	MSD	soil	5-23-96	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF019

VALIDATION SAMPLE TABLE

LDC#: 1876D

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Lead only
30B00501	MB047001		soil	6-4-96	X	X	X
30B00502	MB047002	FD	soil	6-4-96	X	X	X
30B00503	MB047003		soil	6-4-96	X	X	X
30B00502D	MB047005	FD	soil	6-4-96	X	X	X
30B00401	MB047006		soil	6-4-96	X	X	X
30B00402	MB047007		soil	6-4-96	X	X	X
30B00403	MB047008		soil	6-4-96	X	X	X
30R00201	MB047010	R	water	6-4-96	X	X	X
30T00201	MB047011	TB	water	6-4-96	X		
30R00301	MB068001	R	water	6-5-96	X	X	X
30T00301	MB068002	TB	water	6-5-96	X		
30F00101	MB068003	SB	water	6-5-96	X	X	X
30B00601	MB068004		water	6-5-96	X	X	X
30B00602	MB068005	FD	soil	6-5-96	X	X	X
30B00603	MB068006		soil	6-5-96	X	X	X
30B00602D	MB068009	FD	soil	6-5-96	X	X	X
30B00301	MB068010		soil	6-5-96	X	X	X
30B00302	MB068011		soil	6-5-96	X	X	X
30B00303	MB068012		soil	6-5-96	X	X	X
30B00303DL	MB068012DL		soil	6-5-96		X	
30B00305	MB068015		soil	6-5-96	X	X	X
30B00502MS	MB047002MS	MS	soil	6-4-96	X	X	X
30B00502MSD	MB047002MSD	MSD	soil	6-4-96	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF019		VALIDATION SAMPLE TABLE				LDC#: 1876D	
Project Name: NAS Whiting Field			Parameters/Analytical Method			Job#: 8532-20	
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Lead only
30F00101MS	MB068003MS	MS	soil	6-4-96			X
30F00101MSD	MB068003MSD	MSD	soil	6-4-96			X
30B00601MS	MB068004MS	MS	water	6-5-96			X
30B00601MSD	MB068004MSD	MSD	water	6-5-96			X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

SDG#: WF020

VALIDATION SAMPLE TABLE

LDC#: 1883A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Lead only
33B00301	MB080001		soil	6-6-96	X	X	X
33B00302	MB080002	FD	soil	6-6-96	X	X	X
33B00303	MB080003		soil	6-6-96	X	X	X
33B00304	MB080004		soil	6-6-96	X	X	X
33B00305	MB080005		soil	6-6-96	X	X	X
33B00305RE	MB080005RE		soil	6-6-96		X	
33B00306	MB080006		soil	6-6-96			X
33B00302D	MB080007	FD	soil	6-6-96	X	X	X
33B00201	MB080008		soil	6-6-96	X	X	X
33B00202	MB080009		soil	6-6-96	X	X	X
33B00203	MB080010		soil	6-6-96	X	X	X
33B00205	MB080011		soil	6-6-96			X
33B00101	MB080012		soil	6-6-96	X	X	X
33B00102	MB080013	FD	soil	6-6-96	X	X	X
33B00103	MB080014		soil	6-6-96	X	X	X
33B00102D	MB080015	FD	soil	6-6-96	X	X	X
33R00101	MB080016	R	water	6-6-96	X	X	X
33T00101	MB080017	TB	water	6-6-96	X		
33B00302MS	MB080002MS	MS	soil	6-6-96	X	X	
33B00302MSD	MB080002MSD	MSD	soil	6-6-96	X	X	
33B00302MSRE	MB080002MSRE	MS	soil	6-6-96		X	
33B00302MSDRE	MB080002MSDRE	MSD	soil	6-6-96		X	
33B00302S	MB080002S	MS	soil	6-6-96			X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

SDG#: WF020

VALIDATION SAMPLE TABLE

LDC#: 1883A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Lead only
33B00302D	MB080002D	DUP	soil	6-6-96			X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

SDG#: WHF021

VALIDATION SAMPLE TABLE

LDC#: 1883B

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	TCLP Metals
30U00101	MB107001		soil	6-11-96	X
30U00201	MB107002		soil	6-11-96	X
30U00301	MB107003		soil	6-11-96	X
30U00401	MB107004		soil	6-11-96	X
33U00101	MB107005		soil	6-11-96	X
33U00201	MB107006		soil	6-11-96	X
33U00301	MB107007		soil	6-11-96	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table II
Summary of Rejected Data (Organics)
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds				
SDG	Fraction	Sample	Compound	Reason
WF016	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBS	All samples	No rejected results	-
WF017	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBS	All samples	No rejected results	-
WF018	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
WF019	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
WF020	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-

Table III
Summary of Rejected Data (Inorganics)
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes				
SDG	Fraction	Sample	Analyte	Reason
WF016	All metals	All samples	No rejected results	-
	Cyanide	All samples	No rejected results	-
WF017	All metals	All samples	No rejected results	-
	Cyanide	All samples	No rejected results	-
WF018	Lead	All samples	No rejected results	-
WF019	Lead	All samples	No rejected results	-

Table IV
Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike/Matrix Spike Duplicates
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds								
SDG	Client ID	Compound	Criteria		% Recovery		RPD	Qualifier
			% Recovery	RPD	MS	MSD		
WF016	BKB00401	Volatiles	-	-	-	-	-	None
		Semivolatiles	-	-	-	-	-	None
		Pesticides/PCBs	-	-	-	-	-	None
WF017	31B00601	Volatiles	-	-	-	-	-	None
		N-Nitroso-di-n-propylamine	41-126	≤38	33	-	45	None
		1,2,4-Trichlorobenzene	38-107	≤23	33	-	43	None
		Phenol	-	≤35	-	-	40	None
		1,4-Dichlorobenzene	-	≤27	-	-	44	None
		4-Chloro-3-methylphenol	-	≤33	-	-	38	None
		Acenaphthene	-	≤19	-	-	30	None
Pesticides/PCBs	-	-	-	-	-	None		
WF018	30B00203	Volatiles	-	-	-	-	-	None
		N-Nitroso-di-n-propylamine	41-126	-	33	34	-	UJ
		1,2,4-Trichlorobenzene	38-107	-	35	35	-	UJ
		Pyrene	35-142	-	33	-	-	UJ
WF019	30B00502	Volatiles	-	-	-	-	-	None
		1,4-Dichlorobenzene	-	≤27	-	-	40	UJ
		1,2,4-Trichlorobenzene	-	≤23	-	-	34	UJ
		Acenaphthene	-	≤19	-	-	25	UJ
WF020	33B00302	Volatiles	-	-	-	-	-	None
		Semivolatiles	-	-	-	-	-	None

Table V
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Organic Compounds			RPD	
WF016	Client ID	BKB00401	BKB00401D		
	Laboratory ID	RB583003	RB583004		
	Collection Date	5/20/96	5/20/96		
	Acetone	6 ug/Kg	17 ug/Kg	96	
	Di-n-butylphthalate	1000 ug/Kg	970 ug/Kg	3	
	Pesticides/PBs	ND	ND	-	
WF016	Client ID	BKB00602	BKB00602D		
	Laboratory ID	RB583016	RB583017		
	Collection Date	5/21/96	5/21/96		
	Acetone	47 ug/Kg	6 ug/Kg	155	
	Di-n-butylphthalate	580 ug/Kg	310 ug/Kg	61	
	Pesticides/PCBs	ND	ND	-	
WF017	Client ID	31B00601	31B00601D		
	Laboratory ID	RB592001	RB592006		
	Collection Date	5/21/96	5/21/96		
	Acetone	3 ug/Kg	11 ug/Kg	114	
	Di-n-butylphthalate	39 ug/Kg	350U ug/Kg	Not calculable	
	Bis(2-ethylhexyl)phthalate	110 ug/Kg	79 ug/Kg	33	
	Gamma-chlordane	1.5 ug/Kg	1.1 ug/Kg	31	
WF017	Client ID	12B00101	12B00101D		
	Laboratory ID	RB592007	RB592008		
	Collection Date	5/21/96	5/21/96		
	Acetone	8 ug/Kg	3 ug/Kg	91	
	Diethylphthalate	830 ug/Kg	370U ug/Kg	Not calculable	
	Pesticides/PCBs	ND	ND	-	
WF018	Client ID	30B00202	30B00202D		
	Laboratory ID	RB602002	RB602005		
	Collection Date	5/23/96	5/23/96		
	Acetone	7 ug/Kg	9 ug/Kg	25	
	Methylene chloride	1 ug/Kg	2 ug/Kg	67	
	Di-n-butylphthalate	380U ug/Kg	360 ug/Kg	Not calculable	
WF019	Client ID	30B00502	30B00502D		
	Laboratory ID	MB047002	MB047005		
	Collection Date	6/4/96	6/4/96		
	Acetone	16 ug/Kg	14 ug/Kg	13	
		Methylene chloride	2 ug/Kg	2 ug/Kg	0
		Trichloroethene	ND	1 ug/Kg	Not calculable
	Bis(2-ethylhexyl)phthalate	1000 ug/Kg	970 ug/Kg	3	
	2-Methylnaphthalene	1900U ug/Kg	210 ug/Kg	Not calculable	

Table V
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Organic Compounds			RPD
WF019	Client ID	30B00602	30B00602D	
	Laboratory ID	MB068005	MB068009	
	Collection Date	6/5/96	6/5/96	
	Acetone	23 ug/Kg	31 ug/Kg	30
	Methylene chloride	5 ug/Kg	4 ug/Kg	22
	Trichloroethene	ND	1	Not calculable
	Di-n-butylphthalate	51 ug/Kg	43 ug/Kg	17
	Bis(2-ethylhexyl)phthalate	99 ug/Kg	42 ug/Kg	81
WF020	Client ID	33B00302	33B00302D	
	Laboratory ID	MB080002	MB08007	
	Collection Date	6/6/96	6/6/96	
	Acetone	7 ug/Kg	8 ug/Kg	13
	Methylene chloride	ND	2 ug/Kg	Not calculable
	1,2-Dichloroethene (total)	ND	4 ug/Kg	Not calculable
	Trichloroethene	ND	13 ug/Kg	Not calculable
	Bis(2-ethylhexyl)phthalate	48 ug/Kg	380U ug/Kg	Not calculable
WF020	Client ID	33B00102	33B00102D	
	Laboratory ID	MB080013	MB080015	
	Collection Date	6/6/96	6/6/96	
	Acetone	5 ug/Kg	5 ug/Kg	0
	Methylene chloride	ND	1 ug/Kg	Not calculable
	Di-n-butylphthalate	66 ug/Kg	45 ug/Kg	21
	Bis(2-ethylhexyl)phthalate	760 ug/Kg	370U ug/Kg	Not calculable

Table VI
Summary of Surrogate Recoveries
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds						
SDG	Client ID	Compound	Percent Recovery	QC Limits	# of Samples	Qualifier
WF016	All samples	Volatiles	All within QC limits	-	-	None
	All samples	Semivolatiles	All within QC limits	-	-	None
	All samples	Pesticides/PCBs	All within QC limits	-	-	None
WF017	All samples	Volatiles	All within QC limits	-	-	None
	All samples	Semivolatiles	All within QC limits	-	-	None
		<u>Pesticides/PCBs</u>			6	
	12R00101	Decachlorobiphenyl	57	60-150		UJ (all detects)
		Decachlorobiphenyl	56	60-150		UJ (all detects)
	31R00101	Decachlorobiphenyl	27	60-150		UJ (all detects)
		Decachlorobiphenyl	27	60-150		UJ (all detects)
	12B00101D	Tetrachloro-m-xylene	58	60-150		UJ (all detects)
	12B00102	Tetrachloro-m-xylene	55	60-150		UJ (all detects)
		Tetrachloro-m-xylene	56	60-150		UJ (all detects)
	31B00603	Tetrachloro-m-xylene	46	60-150		UJ (all detects)
		Decachlorobiphenyl	54	60-150		UJ (all detects)
		Tetrachloro-m-xylene	49	60-150		UJ (all detects)
	31B00604	Decachlorobiphenyl	53	60-150		UJ (all detects)
		Tetrachloro-m-xylene	52	60-150		UJ (all detects)
	Decachlorobiphenyl	58	60-150		UJ (all detects)	
	Tetrachloro-m-xylene	54	60-150		UJ (all detects)	
WF018	All samples	Volatiles	All within QC limits	-	-	None
	All samples	Semivolatiles	All within QC limits	-	-	None
WF019	All samples	Volatiles	All within QC limits	-	-	None
	All samples	Semivolatiles	All within QC limits	-	-	None
WF020	All samples	Volatiles	All within QC limits	-	-	None
	33B00305	<u>Semivolatiles</u>			1	
		2-Fluorophenol	0	25-121		R (all compounds)
		Phenol-d5	0	24-113		R (all compounds)
		2-Chlorophenol-d4	0	20-130		R (all compounds)
		1,2-Dichlorobenzene-d4	0	20-130		R (all compounds)
		Nitrobenzene-d5	0	23-120		R (all compounds)
		2-Fluorobiphenyl	0	30-115		R (all compounds)
		2,4,6-Tribromophenol	0	19-122		R (all compounds)
		Terphenyl-d14	0	18-137		R (all compounds)

Notes: J = estimated value
 UJ = undetected, but number that is reported as the quantification limit is an estimated value.

Table VII
Summary of Compounds Exceeding Instrument Calibration
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds						
SDG	Date	Compound	Criteria		Qualifier	
			Initial Calibration %RSD	Continuing Calibration %D		
WF016	5/31/96	Chloromethane	48.8	26.5	UJ	
	6/1/96	Chloromethane	42.0	-	UJ	
	6/2/96	Chloromethane	-	37.6	UJ	
	6/3/96	Chloromethane	-	33.4	UJ	
	6/6/96	4-Nitroaniline	-	29.2	UJ	
			Di-n-octylphthalate	-	25.2	UJ
	6/12/96	Endrin aldehyde	21.4	-	J	
WF017	5/31/96	Chloromethane	48.8	26.5	UJ	
	6/1/96	Chloromethane	42.0	-	UJ	
	6/2/96	Chloromethane	-	37.6	UJ	
	6/3/96	Chloromethane	-	33.4	UJ	
	6/4/96	Chloromethane	-	64.3	UJ	
			Chloroethane	-	37.9	UJ
	6/4/96	Chloromethane	-	62.2	UJ	
	6/6/96	4-Nitroaniline	-	29.2	UJ	
			Di-n-octylphthalate	-	25.2	UJ
	6/7/96	Butylbenzylphthalate	-	26.8	UJ	
			3,3'-Dichlorobenzidine	-	32.9	UJ
		Bis(2-ethylhexyl)phthalate	-	27.4	UJ	
	6/12/96	Endrin aldehyde	21.4	-	J	
WF018	5/31/96	Chloromethane	48.8	26.5	UJ	
	6/1/96	Chloromethane	42.0	-	UJ	
	6/4/96	Chloromethane	-	64.3	UJ	
			Chloroethane	-	37.9	UJ
	6/6/96	4-Nitroaniline	-	29.2	UJ	
		Di-n-octylphthalate	-	25.2	UJ	
WF019	All	Volatiles	-	-	None	
	6/11/96	Hexachlorobenzene	-	30.8	UJ	

**Table VII
Summary of Compounds Exceeding Instrument Calibration
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds					
SDG	Date	Compound	Criteria		Qualifier
			Initial Calibration %RSD	Continuing Calibration %D	
WF020	All	Volatiles	-	-	None
	6/26/96	Bis(2-ethylhexyl)phthalate	-	28.6	UJ
		Di-n-octylphthalate	-	33.8	UJ

Notes: %RSD = percent Relative Standard Deviation for initial calibrations

%D = percent Difference for continuing calibrations

J = the compound was positively identified; the associated numerical value is the approximate concentration of the compound in the sample, either because its concentration was lower than the QL (laboratory "J" flag), or because QC criteria were not met (validation "J").

UJ = the compound was not detected above the reported sample QL. However, the reported sample QL is approximate; the compound concentration may not reliably be presumed to be less than the QL value.

R = the sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the compound cannot be verified.

**Table VIII
Summary of Method Blank Contamination
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds			
SDG	Compound	Concentration	Associated Samples
WF016	Acetone	2 ug/Kg	BKB00101 BKB00401 BKB00401D BKB00402 BKB00201 BKB00202 BKB00301 BKB00302 BKB00501 BKB00502 BKB00601 BKB00602
	Acetone	1 ug/Kg	BKB00602D
	Bis(2-ethylhexyl)phthalate	12 ug/L	BKR00201 BKF00101
	Pesticides/PCBs	ND	-
WF017	Acetone	1 ug/Kg	31B00601 31B00605 12B00101 12B00101D 12B00102 31B00702 31B00703 31B00704 31B00705 31B00801 31B00802 31B00803
	Acetone	2 ug/Kg	31B00701 31B00804 31B00805
	Acetone	2 ug/Kg	31B00803DL 31B00804DL
	Bis(2-ethylhexyl)phthalate	2 ug/L	31R00101
	Bis(2-ethylhexyl)phthalate	2 ug/L	12R00101
	Pesticides/PCBs	ND	-

**Table VIII
Summary of Method Blank Contamination
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds			
SDG	Compound	Concentration	Associated Samples
WF018	Acetone	2 ug/Kg	30B00201 30B00203
	Acetone	2 ug/Kg	30B00202 30B00202D 30B00101 30B00102 30B00103
	Bis(2-ethylhexyl)phthalate	43 ug/Kg	30B00201 30B00202 30B00203 30B00202D 30B00101 30B00102 30B00103
WF019	Methylene chloride	5 ug/Kg	30B00501 30B00502 30B00503 30B00502D
	Acetone	5 ug/Kg	30B00401 30B00402 30B00403
	Acetone	5 ug/Kg	30B00601 30B00602 30B00603 30B00602D 30B00301 30B00302 30B00303 30B00305
	Bis(2-ethylhexyl)phthalate	1 ug/L	30R00201
	Bis(2-ethylhexyl)phthalate	59 ug/Kg	30B00601 30B00602 30B00603 30B00602D 30B00301 30B00302 30B00303 30B00303DL 30B00305

Table VIII
Summary of Method Blank Contamination
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Compound	Concentration	Associated Samples
WF020	Acetone	5 ug/Kg	33B00301
			33B00302
			33B00303
			33B00304
			33B00305
			33B00302D
			33B00201
			33B00202
			33B00203
			33B00101
33B00102			
33B00103			
33B00102D			
	Bis(2-ethylhexyl)phthalate	6 ug/L	33R00101
	Bis(2-ethylhexyl)phthalate	43 ug/Kg	33B00301
			33B00302
			33B00303
			33B00304
			33B00302D
			33B00201
			33B00202
			33B00203
			33B00101
			33B00102
			33B00103
			33B00102D
	Bis(2-ethylhexyl)phthalate	300 ug/Kg	33B00305RE

Table IX
Summary of Field Blank Contamination
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Parameter	Concentration	Qualifier
WF016	Client ID: BKR00201 Laboratory ID: RB583008 Collection Date: 5/20/96 Type: Equipment Rinsate		
	Acetone	2 ug/L	None
	Di-n-butylphthalate	8 ug/L	None
	Bis(2-ethylhexyl)phthalate	3 ug/L	10U ug/L ¹
	Pesticides/PCBs	ND	None
WF016	Client ID: BKT00201 Laboratory ID: RB583010 Collection Date: 5/20/96 Type: Trip Blank		
	Methylene chloride	1 ug/L	None
	Acetone	13 ug/L	None
WF016	Client ID: BKF00101 Laboratory ID: RB583009 Collection Date: 5/20/96 Type: Source Blank		
	Acetone	23 ug/L	None
	Di-n-butylphthalate	9 ug/L	None
	Bis(2-ethylhexyl)phthalate	3 ug/L	10U ug/L ¹
	Pesticides/PCBs	ND	None
WF017	Client ID: 12R00101 Laboratory ID: RB592022 Collection Date: 5/21/96 Type: Rinsate		
	Acetone	8 ug/L	None
	Di-n-butylphthalate	9 ug/L	None
	Bis(2-ethylhexyl)phthalate	15 ug/L	15U ug/L ¹
	Butylbenzylphthalate	2 ug/L	None
Pesticides/PCBs	ND	None	
WF017	Client ID: 31R00101 Laboratory ID: RB592020 Collection Date: 5/22/96 Type:		
	Acetone	17 ug/L	None
	Di-n-butylphthalate	6 ug/L	None
	Bis(2-ethylhexyl)phthalate	6 ug/L	10U ug/L ¹
	Pesticides/PCBs	ND	None

**Table IX
Summary of Field Blank Contamination
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds			
SDG	Parameter	Concentration	Qualifier
WF017	Client ID: 31T00301 Laboratory ID: RB592021 Collection Date: 5/22/96 Type: Trip Blank Acetone	4 ug/L	None
WF017	Client ID: BKT00301 Laboratory ID: RB592023 Collection Date: 5/21/96 Type: Trip Blank Acetone	3 ug/L	None
WF018	Client ID: 30T00101 Laboratory ID: RB602011 Collection Date: 5/23/96 Type: Trip Blank Methylene chloride Acetone	3 ug/L 10 ug/L	None None
WF018	Client ID: 30R00101 Laboratory ID: RB602010 Collection Date: 5/23/96 Type: Rinsate Acetone Di-n-butylphthalate	6 ug/L 9 ug/L	None None
WF019	Client ID: 30T00201 Laboratory ID: MB047011 Collection Date: 6/4/96 Type: Trip Blank Volatiles	ND	None
WF019	Client ID: 30T00301 Laboratory ID: MB068002 Collection Date: 6/5/96 Type: Trip Blank Volatiles	ND	None
WF019	Client ID: 30R00201 Laboratory ID: MB047010 Collection Date: 6/4/96 Type: Rinsate Volatiles Di-n-butylphthalate Bis(2-ethylhexyl)phthalate	ND 3 ug/L 4 ug/L	None None 10U ug/L ¹

Table IX
Summary of Field Blank Contamination
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds

SDG	Parameter	Concentration	Qualifier
WF019	Client ID: 30R00301		
	Laboratory ID: MB068001		
	Collection Date: 6/5/96		
	Type: Rinsate		
	Methylene chloride	3 ug/L	None
	Di-n-butylphthalate	7 ug/L	None
	Bis(2-ethylhexyl)phthalate	4 ug./L	None
WF019	Client ID: 30F00101		
	Laboratory ID: MB068003		
	Collection Date: 6/5/96		
	Type: Source Blank		
	Acetone	29 ug/L	None
	Di-n-butylphthalate	13 ug/L	None
WF020	Client ID: 33T00101		
	Laboratory ID: MB080017		
	Collection Date: 6/6/96		
	Type: Trip Blank		
	Volatiles	ND	None
WF020	Client ID: 33R00101		
	Laboratory ID: MB080016		
	Collection Date: 6/6/96		
	Type: Rinsate		
	Acetone	15 ug/L	None
	Di-n-butylphthalate	13 ug/L	None
	Bis(2-ethylhexyl)phthalate	3 ug/L	10U ug/L ¹

¹ = sample result was modified based on an associated method blank concentration.

Note: see detailed data validation report for the discrete qualifiers.

Table X
Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike and Laboratory Duplicate Samples
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes								
SDG	Client ID	Analyte	Criteria		% Recovery		RPD	Qualifier
			% Recovery	RPD	MS	MSD		
WF016	BKB00401	All metals Cyanide	- -	- -	- -	- -	- -	None None
WF016	BKR00201	Metals	-	-	-	-	-	None
WF016	BKF00101	Cyanide	-	-	-	-	-	None
WF017	31B00601	Lead Cyanide	75-125 -	≤35 -	179.2 -	- -	49.3 -	J None
WF018	30B00202	Lead	-	-	-	-	-	None
WF019	30B00502	Lead	-	-	-	-	-	None
WF019	30F00101	Lead	-	-	-	-	-	None
WF019	30B00601	Lead	75-125	-	66.4	-	-	J
WF020	33B00302	Lead	-	-	-	-	-	None

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF016	Client ID	BKB00401	BKB00401D	
	Laboratory ID	RB583003	RB583004	
	Collection Date	5/20/96	5/20/96	
	Aluminum	3600 mg/Kg	2290 mg/Kg	44
	Arsenic	0.54 mg/Kg	0.79 mg/Kg	38
	Barium	7.2 mg/Kg	6.4 mg/Kg	12
	Beryllium	ND	0.07 mg/Kg	Not calculable
	Calcium	194 mg/Kg	203 mg/Kg	5
	Chromium	3.2 mg/Kg	2.4 mg/Kg	29
	Cobalt	0.77 mg/Kg	0.58 mg/Kg	28
	Copper	1.8 mg/Kg	1.7 mg/Kg	6
	Iron	2220 mg/Kg	1660 mg/Kg	29
	Lead	1.4 mg/Kg	2.4 mg/Kg	53
	Magnesium	114 mg/Kg	93.0 mg/Kg	20
	Manganese	19.5 mg/Kg	14.5 mg/Kg	29
	Nickel	1.5 mg/Kg	ND	Not calculable
	Potassium	84.5 mg/Kg	ND	Not calculable
	Sodium	27.6 mg/Kg	22.5 mg/Kg	20
	Vanadium	4.9 mg/Kg	3.4 mg/Kg	36
	Zinc	3.9 mg/Kg	2.7 mg/Kg	36
Cyanide	0.10 mg/Kg	0.13 mg/Kg	26	
WF016	Client ID	BKB00602	BKB00602D	
	Laboratory ID	RB583016	RB583017	
	Collection Date	5/21/96	5/21/96	
	Aluminum	5040 mg/Kg	6050 mg/Kg	18
	Arsenic	1.4 mg/Kg	0.95 mg/Kg	38
	Barium	5.2 mg/Kg	5.9 mg/Kg	13
	Calcium	210 mg/Kg	195 mg/Kg	7
	Chromium	4.5 mg/Kg	4.7 mg/Kg	4
	Copper	2.0 mg/Kg	2.3 mg/Kg	14
	Iron	3430 mg/Kg	3820 mg/Kg	11
	Lead	1.8 mg/Kg	1.7 mg/Kg	6
	Magnesium	97.6 mg/Kg	111 mg/Kg	13
	Manganese	9.5 mg/Kg	11.1 mg/Kg	16
	Nickel	1.6 mg/Kg	ND	Not calculable
	Sodium	28.6 mg/Kg	26.2 mg/Kg	9
	Vanadium	10.3 mg/Kg	11.3 mg/Kg	9
	Zinc	3.2 mg/Kg	3.1 mg/Kg	3
Cyanide	0.13 mg/Kg	0.16 mg/Kg	21	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF017	Client ID	31B00601	31B00601D	
	Laboratory ID	RB295001	RB592006	
	Collection Date	5/21/96	5/21/96	
	Aluminum	1580 mg/Kg	1760 mg/Kg	11
	Arsenic	0.44 mg/Kg	0.29 mg/Kg	41
	Barium	7.4 mg/Kg	9.6 mg/Kg	26
	Beryllium	0.07 mg/Kg	0.07 mg/Kg	0
	Cadmium	0.52 mg/Kg	0.68 mg/Kg	27
	Calcium	237 mg/Kg	297 mg/Kg	22
	Chromium	3.9 mg/Kg	5.4 mg/Kg	32
	Copper	11.4 mg/Kg	13.6 mg/Kg	18
	Iron	1120 mg/Kg	1310 mg/Kg	16
	Lead	6.3 mg/Kg	7.0 mg/Kg	11
	Magnesium	83.5 mg/Kg	98.7 mg/Kg	17
	Manganese	9.2 mg/Kg	11.3 mg/Kg	20
	Mercury	0.07 mg/Kg	0.08 mg/Kg	13
	Selenium	0.14 mg/Kg	ND mg/Kg	Not calculable
	Silver	1.1 mg/Kg	1.7 mg/Kg	43
	Sodium	23.5 mg/Kg	26.3 mg/Kg	11
	Vanadium	2.2 mg/Kg	2.4 mg/Kg	9
Zinc	11.0 mg/Kg	15.9 mg/Kg	36	
Cyanide	0.10 mg/Kg	ND	Not calculable	
WF017	Client ID	12B00101	12B00101D	
	Laboratory ID	RB592007	RB592008	
	Collection Date	5/21/96	5/21/96	
	Aluminum	25400 mg/Kg	8890 mg/Kg	96
	Arsenic	5.3 mg/Kg	1.2 mg/Kg	126
	Barium	18.0 mg/Kg	14.5 mg/Kg	22
	Beryllium	0.20 mg/Kg	ND	Not calculable
	Cadmium	0.57 mg/Kg	ND	Not calculable
	Calcium	495 mg/Kg	552 mg/Kg	11
	Chromium	19.9 mg/Kg	9.1 mg/Kg	74
	Copper	6.3 mg/Kg	2.9 mg/Kg	74
	Iron	16100 mg/Kg	8620 mg/Kg	61
	Lead	4.7 mg/Kg	3.4 mg/Kg	32
	Magnesium	170 mg/Kg	96.7 mg/Kg	55
	Manganese	7.7 mg/Kg	4.9 mg/Kg	44
	Mercury	0.04 mg/Kg	0.04 mg/Kg	0
	Nickel	2.5 mg/Kg	ND	Not calculable
	Potassium	81.2 mg/Kg	ND	Not calculable
	Sodium	49.8 mg/Kg	33.4 mg/Kg	39
	Vanadium	41.7 mg/Kg	26.5 mg/Kg	45
Zinc	3.6 mg/Kg	3.7 mg/Kg	3	
Cyanide	ND	ND	None	
WF018	Client ID	30B00202	30B00202D	
	Laboratory ID	RB602002	RB602005	
	Collection Date	5/23/96	5/23/96	
	Lead	1.8 mg/Kg	1.9 mg/Kg	5
WF019	Client ID	30B00502	30B00502D	
	Laboratory ID	MB047002	MB047005	
	Collection Date	6/4/96	6/4/96	
	Lead	4.3 mg/Kg	3.9 mg/Kg	10
WF019	Client ID	30B00602	30B00602D	
	Laboratory ID	MB068005	MB068009	
	Collection Date	6/5/96	6/5/96	
	Lead	4.5 mg/Kg	5.0 mg/Kg	11

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF020	Client ID Laboratory ID Collection Date Lead	33B00302 MB080002 6/6/96 7.8 mg/Kg	33B00302D MB080007 6/6/96 7.1 mg/Kg	9
WF020	Client ID Laboratory ID Collection Date Lead	33B00102 MB080013 6/6/96 7.2 mg/Kg	33B00102D MB080015 6/6/96 8.0 mg/Kg	11

Table XII
Summary of Analytes Exceeding Instrument Calibration
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes					
SDG	Date	Analyte	Criteria		Qualifier
			Initial Calibration r	Continuing Calibration %R	
WF016	All	All metals Cyanide	- -	- -	None None
WF017	All	All metals Cyanide	- -	- -	None None
WF018	All	Lead	-	-	None
WF019	All	Lead	-	-	None
WF020	All	Lead	-	-	None

Notes: r = correlation coefficient for initial calibrations
 %R = percent recovery for continuing calibrations

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample because QC criteria were not met (validation "J").

UJ = the analyte was not detected above the reported sample IDL. However, the reported sample is approximate; the analyte concentration may not reliably be presumed to be less than the IDL value.

R = the sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Table XIII
Summary of Method Blank Contamination
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF016	Barium	1.760 ug/L	All water samples in SDG WF016
	Iron	31.120 ug/L	
	Sodium	88.880 ug/L	
	Zinc	16.920 ug/L	
	Aluminum	3.309 mg/Kg	All soil samples in SDG WF016
	Calcium	11.435 mg/Kg	
	Copper	0.249 mg/Kg	
	Iron	1.650 mg/Kg	
	Sodium	5.214 mg/Kg	
	Thallium	0.001 mg/Kg	
Zinc	1.342 mg/Kg		
Cyanide	ND	All samples in SDG WF016	
WF017	Barium	1.760 ug/L	All water samples in SDG WF017
	Iron	31.120 ug/L	
	Sodium	88.880 ug/L	
	Zinc	16.920 ug/L	
	Aluminum	3.309 mg/Kg	All soil samples in SDG WF017
	Calcium	11.435 mg/Kg	
	Cobalt	0.249 mg/Kg	
	Copper	1.650 mg/Kg	
	Sodium	5.214 mg/Kg	
	Zinc	1.342 mg/Kg	
Cyanide	ND	All samples in SDG WF017	
WF018	Lead	ND	All samples in SDG WF018
WF019	Lead	2.260 ug/L	All water samples in SDG WF019
WF020	Lead	ND	All samples in SDG WF020

Table XIV
Summary of Field Blank Contamination
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes

SDG	Parameter	Concentration	Qualifier	
WF016	Client ID:	BKR00201		
	Laboratory ID:	RB583008		
	Collection Date:	5/20/96		
	Type:	Rinsate		
	Barium	1.8 ug/L	1.7U ug/L ¹	
	Iron	5.6 ug/L	5.6U ug/L ¹	
	Lead	2.3 ug/L	None	
WF016	Client ID:	BKF00101		
	Laboratory ID:	RB583009		
	Collection Date:	5/20/96		
	Type:	Source Blank		
	Sodium	57.5 ug/L	57.5U ug/L ¹	
	Zinc	3.0 ug/L	3.0U ug/L ¹	
	Cyanide	1.8 ug/L	None	
WF016	Client ID:	BKR00201		
	Laboratory ID:	RB583008		
	Collection Date:	5/20/96		
	Type:	Rinsate		
	Iron	6.4 ug/L	6.4U ug/L ¹	
	Sodium	52.9 ug/L	52.9U ug/L ¹	
	Zinc	3.8 ug/L	3.8U ug/L ¹	
WF017	Client ID:	31R00101		
	Laboratory ID:	RB592020		
	Collection Date:	5/22/96		
	Type:	Rinsate		
	Aluminum	86.5 ug/L	None	
	Barium	2.3 ug/L	2.3U ug/L ¹	
	Calcium	503 ug/L	None	
WF017	Chromium	11.3 ug/L	None	
	Copper	1.4 ug/L	None	
	Iron	132 ug/L	132U ug/L ¹	
	Lead	0.60 ug/L	None	
	Magnesium	66.2 ug/L	None	
	Manganese	3.8 ug/L	None	
	Sodium	264 ug/L	None	
	Zinc	7.8 ug/L	7.8U ug/L ¹	
	Cyanide	ND	None	
	WF017	Client ID:	12R00101	
		Laboratory ID:	RB592022	
Collection Date:		5/21/96		
Type:		Rinsate		
Aluminum		19.1 ug/L	None	
Barium		1.8 ug/L	1.8U ug/L ¹	
Calcium		86.5 ug/L	None	
Iron		15.6 ug/L	15.6U ug/L ¹	
Lead		0.60 ug/L	None	
Magnesium		30.5 ug/L	None	
Sodium		59.8 ug/L	None	
Zinc	3.8 ug/L	3.8U ug/L ¹		
Cyanide	ND	None		

**Table XIV
Summary of Field Blank Contamination
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Inorganic Analytes

SDG	Parameter	Concentration	Qualifier
WF018	Client ID: 30R00101 Laboratory ID: RB602010 Collection Date: 5/23/96 Type: Rinsate Lead	ND	None
WF019	Client ID: 30R00201 Laboratory ID: MB047010 Collection Date: 6/4/96 Type: Rinsate Lead	ND	None
WF019	Client ID: 30R00301 Laboratory ID: MB068001 Collection Date: 6/5/96 Type: Rinsate Lead	ND	None
WF019	Client ID: 30F00101 Laboratory ID: MB068003 Collection Date: 6/5/96 Type: Source Blank Lead	2.1 ug/L	2.1U ug/L [†]
WF020	Client ID: 33R00101 Laboratory ID: MB080016 Collection Date: 6/6/96 Type: Rinsate Lead	1.6 ug/L	None
[†] = sample result was modified based on an associated method blank concentration. Note: see detailed data validation report for the discrete qualifiers.			

Table XV
Sample Event PARCC Summary
Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton, Florida

SDG	Fraction	Precision ¹	Accuracy ²	Representativeness	Completeness (%)	Comparability
WF016	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
WF017	Volatiles	Acceptable	Acceptable	Acceptable	100 ³	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
WF018	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Lead	Acceptable	Acceptable	Acceptable	100	Acceptable
WF019	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100 ³	Acceptable
	Lead	Acceptable	Acceptable	Acceptable	100	Acceptable
WF020	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Lead	Acceptable	Acceptable	Acceptable	100	Acceptable

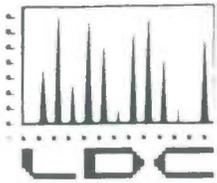
¹ Cumulative of sampling and analytical components.

² Analytical component.

³ Samples results rejected for database purposes were not used in the completeness calculation.

Notes: All completeness is expressed as the ratio of number of sample results considered usable (i.e., not qualified as rejected) to the total number of sample results.

% = percent



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APPENDIX A

**Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida
PARCC Summary Tables**

Final Version

5/1/96

APPENDIX A

Table of Contents

Surface Soil Investigation, Phase IIB NAS Whiting Field, Milton, Florida

<u>Table</u>	<u>Title</u>	<u>Page No.</u>
I	Sample Delivery Group Versus Sample Identification	A-1
II	Summary of Rejected Data (Organics)	A-16
III	Summary of Rejected Data (Inorganics)	A-17
<u>Organics</u>		
IV	Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike/Matrix Spike Duplicates	A-18
V	Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples	A-21
VI	Summary of Surrogate Recoveries	A-25
VII	Summary of Compounds Exceeding Instrument Calibration	A-29
VIII	Summary of Method Blank Contamination	A-33
IX	Summary of Field Blank Contamination	A-36
<u>Inorganics</u>		
X	Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike and Laboratory Duplicate Samples ..	A-40
XI	Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples	A-42
XII	Summary of Analytes Exceeding Instrument Calibration	A-50
XIII	Summary of Method Blank Contamination	A-51
XIV	Summary of Field Blank Contamination	A-55
XV	Sample Event PARCC Summary	A-58

Table I

SDG#: WF006

Sample Delivery Group Versus Sample Identification

LDC#: 1779A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide	TRPH
01T00101	G8864001	TB	water	12-5-95	X					
01S00101	G8864002		soil	12-5-95	X	X	X	X	X	
01S00201	G8864003		soil	12-5-95	X	X	X	X	X	
01S00301	G8864004		soil	12-5-95	X	X	X	X	X	
01S00401	G8864005		soil	12-5-95	X	X	X	X	X	
01S00501	G8864006		soil	12-5-95	X	X	X	X	X	
02S00401	G8864007	FD	soil	12-5-95	X	X	X	X	X	
02S00401D	G8864008	FD	soil	12-5-95	X	X	X	X	X	
02S00401DDL	G8864008DL		soil	12-5-95		X				
02T00101	G8876001	TB	water	12-6-95	X					
02S00101	G8876002		soil	12-6-95	X	X	X	X	X	
02S00201	G8876003		soil	12-6-95	X	X	X	X	X	
02S00301	G8876004		soil	12-6-95	X	X	X	X	X	
02S00501	G8876005		soil	12-6-95	X	X	X	X	X	
09S00101	G8876006		soil	12-6-95	X	X	X	X	X	X
09S00201	G8876007		soil	12-6-95	X	X	X	X	X	X
09S00401	G8876008		soil	12-6-95	X	X	X	X	X	X
09S00501	G8876009		soil	12-6-95	X	X	X	X	X	X
09S00301	G8876010	FD	soil	12-6-95	X	X	X	X	X	X
09S00301D	G8876011	FD	soil	12-6-95	X	X	X	X	X	X
01R00101	G8876012	R	water	12-6-95	X	X	X	X	X	X
01F00101	G8876013	SB	water	12-6-95	X	X	X	X	X	X
02S00401MS	G8864007MS	MS	soil	12-5-95	X	X	X	X	X	

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

Table I

SDG#: WF006

Sample Delivery Group Versus Sample Identification

LDC#: 1779A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide	TRPH
02S00401MSD	G8864007MSD	MSD	soil	12-5-95	X	X	X	X	X	
09S00101MS	G8876006MS	MS	soil	12-6-95						X
09S00101DUP	G8876006MSD	DUP	soil	12-6-95						X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

Table I

SDG#: WF007

Sample Delivery Group Versus Sample Identification

LDC#: 1779B

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide	TRPH
10T00101	G8889001	TB	water	12-7-95	X					
10S00101	G8889002	FD	soil	12-7-95	X	X	X	X	X	X
10S00101R	G8889002R		soil	12-7-95		X				
10S00101D	G8889003	FD	soil	12-7-95	X	X	X	X	X	X
10S00401	G8889004		soil	12-7-95	X	X	X	X	X	X
10S00601	G8889005		soil	12-7-95	X	X	X	X	X	X
12S00301	G8889006		soil	12-7-95	X	X	X	X	X	X
12S00101	G8889007		soil	12-7-95	X	X	X	X	X	X
12S00601	G8889008		soil	12-7-95	X	X	X	X	X	X
10R00101	G8889009	R	water	12-7-95	X	X	X	X	X	X
13T00101	G8895001	TB	water	12-8-95	X					
13S00101	G8895002		soil	12-8-95	X	X	X	X	X	
13S00201	G8895003		soil	12-8-95	X	X	X	X	X	
13S00301	G8895004		soil	12-8-95	X	X	X	X	X	
13S00401	G8895005		soil	12-8-95	X	X	X	X	X	
13S00501	G8895006		soil	12-8-95	X	X	X	X	X	
14S00101	G8895007	FD	soil	12-8-95	X	X	X	X	X	
14S00101D	G8895008	FD	soil	12-8-95	X	X	X	X	X	
14S00201	G8895009		soil	12-8-95	X	X	X	X	X	
14S00301	G8895010		soil	12-8-95	X	X	X	X	X	
10S00101MS	G8889002MS	MS	soil	12-7-95	X		X	X	X	X
10S00101MSD	G8889002MSD	MSD	soil	12-7-95	X		X	X	X	X
10S00101RMS	G8889002RMS	MS	soil	12-7-95		X				

TB = Trip Blank, R = Rinstate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

Table I

SDG#: WF007

Sample Delivery Group Versus Sample Identification

LDC#: 1779B

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide	TRPH
10S00101RMSD	G8889002RMSD	MSD	soil	12-7-95		X				

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

Table I

SDG#: WF008

Sample Delivery Group Versus Sample Identification

LDC#: 1779C

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide
15T00101	G8913001	TB	water	12-9-95	X				
15S02001	G8913002	FD	soil	12-9-95	X	X	X	X	X
15S02001D	G8913003	FD	soil	12-9-95	X	X	X	X	X
15S02101	G8913004		soil	12-9-95	X	X	X	X	X
15S02201	G8913005		soil	12-9-95	X	X	X	X	X
15S02301	G8913006		soil	12-9-95	X	X	X	X	X
15S02401	G8913007		soil	12-9-95	X	X	X	X	X
15S02501	G8913008		soil	12-9-95	X	X	X	X	X
15S01501	G8913009		soil	12-9-95	X	X	X	X	X
15S01401	G8913010		soil	12-9-95	X	X	X	X	X
15S01301	G8913011		soil	12-9-95	X	X	X	X	X
15S01601	G8913012		soil	12-10-95	X	X	X	X	X
15S01701	G8913013	FD	soil	12-10-95	X	X	X	X	X
15S01701D	G8913014	FD	soil	12-10-95	X	X	X	X	X
15S01801	G8913015		soil	12-10-95	X	X	X	X	X
15S01901	G8913016		soil	12-10-95	X	X	X	X	X
15S00901	G8913017		soil	12-11-95	X	X	X	X	X
15S00901RE	G8913017RE		soil	12-11-95		X			
15R00101	G8913020	R	water	12-11-95	X	X	X	X	X
15S02001MS	G8913002MS	MS	soil	12-9-95	X	X	X	X	X
15S02001MSD	G8913002MSD	MSD	soil	12-9-95	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: WF009

Sample Delivery Group Versus Sample Identification

LDC#: 1779D

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide
15T00201	G8914001	TB	water	12-11-95	X				
15S00101	G8914002	FD	soil	12-11-95	X	X	X	X	X
15S00101R	G8914002R		soil	12-11-95		X			
15S00101D	G8914003	FD	soil	12-11-95	X	X	X	X	X
15S00201	G8914004		soil	12-11-95	X	X	X	X	X
15S00301	G8914005		soil	12-11-95	X	X	X	X	X
15S00501	G8914006		soil	12-11-95	X	X	X	X	X
15S00401	G8914007		soil	12-11-95	X	X	X	X	X
15S00601	G8914008		soil	12-11-95	X	X	X	X	X
15S00701	G8914009		soil	12-11-95	X	X	X	X	X
15S00801	G8914010		soil	12-11-95	X	X	X	X	X
15S01201	G8914011		soil	12-11-95	X	X	X	X	X
15R00201	G8914012	R	water	12-11-95	X	X	X	X	X
15S01101	G8914013		soil	12-10-95	X	X	X	X	X
15S01001	G8914014		soil	12-10-95	X	X	X	X	X
15S00101MS	G8914002MS	MS	soil	12-11-95	X	X	X	X	X
15S00101MSD	G8914002MSD	MSD	soil	12-11-95	X	X	X	X	X
15S00101RMS	G8914002RMS	MS	soil	12-11-95		X			
15S00101RMSD	G8914002RMSD	MSD	soil	12-11-95		X			

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: WF010

Sample Delivery Group Versus Sample Identification

LDC#: 1779E

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide
31S00101	G8924001		soil	12-12-95	X	X	X	X	X
31S00201	G8924002		soil	12-12-95	X	X	X	X	X
31S00301	G8924003		soil	12-12-95	X	X	X	X	X
31S00401	G8924004		soil	12-12-95	X	X	X	X	X
31T00101	G8924005	TB	water	12-12-95	X				
31R00101	G8924006	R	water	12-12-95	X	X	X	X	X
31T00201	G8938001	TB	water	12-13-95	X				
31S01501	G8938002	FD	soil	12-13-95	X	X	X	X	X
31S01501D	G8938003	FD	soil	12-13-95	X	X	X	X	X
31S01601	G8938004		soil	12-13-95	X	X	X	X	X
31S01701	G8938005		soil	12-13-95	X	X	X	X	X
31S01801	G8938006		soil	12-13-95	X	X	X	X	X
31S01901	G8938007		soil	12-13-95	X	X	X	X	X
31S01501MS	G8938002MS	MS	soil	12-13-95	X	X	X	X	X
31S01501MSD	G8938002MSD	MSD	soil	12-13-95	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

Table I

SDG#: WF11A

Sample Delivery Group Versus Sample Identification

LDC#: 1777A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide	TRPH
09W00101	RA903001	FD	water	1-5-96	X	X	X	X	X	X
09W00101D	RA903002	FD	water	1-5-96	X	X	X	X	X	X
16W00101	RA903003		water	1-5-96	X	X	X	X	X	
09W00101MS	RA903001MS	MS	water	1-5-96	X	X	X	X	X	X
09W00101MSD	RA903001MSD	MSD	water	1-5-96	X	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

Table I

SDG#: WF11B

Sample Delivery Group Versus Sample Identification

LDC#: 1777B

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide	TRPH
12T00101	RA847001	TB	water	1-5-96	X					
10S00201	RA847002	FD	soil	1-5-96	X	X	X	X	X	X
10S00201DL	RA847002DL		soil	1-5-96		X				
10S00201D	RA847003	FD	soil	1-5-96	X	X	X	X	X	X
10S00301	RA847004		soil	1-5-96	X	X	X	X	X	X
10S00301R	RA847004R		soil	1-5-96		X				
10S00501	RA847005		soil	1-5-96	X	X	X	X	X	X
12S00201	RA847006		soil	1-5-96	X	X	X	X	X	X
12S00401	RA847007		soil	1-5-96	X	X	X	X	X	X
12S00501	RA847008		soil	1-5-96	X	X	X	X	X	X
12R00101	RA847012	R	water	1-5-96	X	X	X	X	X	X
11T00101	RA847013	TB	water	1-6-96	X					
11S00101	RA847014		soil	1-6-96	X	X	X	X	X	X
11S00201	RA847015		soil	1-6-96	X	X	X	X	X	X
11S00201DL	RA847015DL		soil	1-6-96			X			
11S00201R	RA847015R		soil	1-6-96	X					
11S00501	RA847016		soil	1-6-96	X	X	X	X	X	X
11S00401	RA847017		soil	1-7-96	X	X	X	X	X	X
11S00301	RA847018		soil	1-7-96	X	X	X	X	X	X
10S00201MS	RA847002MS	MS	soil	1-5-96	X	X	X	X	X	X
10S00201MSD	RA847002MSD	MSD	soil	1-5-96	X	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

Table I

SDG#: WF012

Sample Delivery Group Versus Sample Identification

LDC#: 1777C

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/ PCBs	Metals	Cyanide	Lead	TCLP Metals
11S00601	RA855001	FD	soil	1-7-96						X	
11S00601D	RA855002	FD	soil	1-7-96						X	
11S00701	RA855003		soil	1-7-96						X	
11S00801	RA855004		soil	1-7-96						X	
11S00901	RA855005		soil	1-7-96						X	
11S01001	RA855006		soil	1-7-96						X	
11S01101	RA855007		soil	1-7-96						X	
11S01201	RA855008		soil	1-7-96						X	
11S01301	RA855009		soil	1-7-96						X	
31S00401	RA855010		soil	1-7-96	X	X	X	X	X		
31S00501	RA855011	FD	soil	1-7-96	X	X	X	X	X		
31S00501D	RA855012	FD	soil	1-7-96	X	X	X	X	X		
31S00601	RA855013		soil	1-7-96	X	X	X	X	X		
31S00701	RA855014		soil	1-7-96	X	X	X	X	X		
31S01001	RA855015		soil	1-7-96	X	X	X	X	X		
31S01101	RA855016		soil	1-7-96	X	X	X	X	X		
31S00901	RA855017		soil	1-7-96	X	X	X	X	X		
31S00801	RA855018		soil	1-7-96	X	X	X	X	X		
31S01201	RA855019		soil	1-8-96	X	X	X	X	X		
31S01201R	RA855019R		soil	1-8-96	X						
31S01301	RA855020		soil	1-8-96	X	X	X	X	X		
31R00201	RA855021	R	water	1-8-96	X	X	X	X	X		
31S00401	RA857001		soil	1-7-96							X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

Table I

SDG#: WF012

Sample Delivery Group Versus Sample Identification

LDC#: 1777C

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/ PCBs	Metals	Cyanide	Lead	TCLP Metals
31S00501	RA857002	FD	soil	1-7-96							X
31S00501D	RA857003	FD	soil	1-7-96							X
31S00601	RA857004		soil	1-7-96							X
31S00701	RA847005		soil	1-7-96							X
31S01001	RA857006		soil	1-7-96							X
31S01101	RA857007		soil	1-7-96							X
31S00901	RA857008		soil	1-7-96							X
31S00801	RA857009		soil	1-7-96							X
31S01201	RA857010		soil	1-8-96							X
31S01301	RA857011		soil	1-8-96							X
31S00501MS	RA855011MS	MS	soil	1-7-96	X	X	X	X	X		
31S00501MSD	RA855011MSD	MSD	soil	1-7-96	X	X	X	X	X		
31S00501MS	RA857002MS	MS	soil	1-7-96							X
31S00501MSD	RA857002MSD	MSD	soil	1-7-96							X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: WF013

Sample Delivery Group Versus Sample Identification

LDC#: 1777D

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/ PCBs	Metals	Cyanide
16S00101	RA856001	FD	soil	1-8-96	X	X	X	X	X
16S00501	RA856002		soil	1-8-96	X	X	X	X	X
16S00401	RA856003		soil	1-8-96	X	X	X	X	X
16S00901	RA856004		soil	1-8-96	X	X	X	X	X
16S00901R	RA856004R		soil	1-8-96		X			
16S01501	RA856005		soil	1-8-96	X	X	X	X	X
16S00201	RA856006		soil	1-9-96	X	X	X	X	X
16S00301	RA856007		soil	1-9-96	X	X	X	X	X
16S00801	RA856008		soil	1-9-96	X	X	X	X	X
16S00801RE	RA856008RE		soil	1-9-96		X			
16S00601	RA856009		soil	1-9-96	X	X	X	X	X
16S00601DL	RA856009DL		soil	1-9-96		X			
16S01201	RA856010		soil	1-9-96	X	X	X	X	X
16S01301	RA856011		soil	1-9-96	X	X	X	X	X
BKS00301	RA856012		soil	1-9-96	X	X	X	X	X
BKS00101	RA856013		soil	1-9-96	X	X	X	X	X
16S01001	RA856014	FD	soil	1-9-96	X	X	X	X	X
16S01001D	RA856015	FD	soil	1-9-96	X	X	X	X	X
16T00101	RA856016	TB	water	1-9-96	X				
16R00101	RA856017	R	water	1-9-96	X	X	X	X	X
16S00101D	RA856018	FD	soil	1-9-96	X	X	X	X	X
24T00101	RA871001	TB	water	1-10-96	X				
24S00101	RA871002		soil	1-10-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: WF013

Sample Delivery Group Versus Sample Identification

LDC#: 1777D

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/ PCBs	Metals	Cyanide
16S01001MS	RA856014MS	MS	soil	1-9-96	X	X	X	X	X
16S01001MSD	RA856014MSD	MSD	soil	1-9-96	X	X	X	X	X
24S00101MS	RA871002MS	MS	soil	1-10-96					X
24S00101MSD	RA871002MSD	MSD	soil	1-10-96					X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

SDG#: WF014

Sample Delivery Group Versus Sample Identification

LDC#: 1777E

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide
BKR00101	RA870001	R	water	1-10-96	X	X	X	X	X
BKT00101	RA870002	TB	water	1-10-96	X				
16S01401	RA870003		soil	1-10-96	X	X	X	X	X
16S00701	RA870004		soil	1-10-96	X	X	X	X	X
16S01101	RA870005		soil	1-10-96	X	X	X	X	X
16S01701	RA870006		soil	1-10-96	X	X	X	X	X
16S01601	RA870007		soil	1-10-96	X	X	X	X	X
BKS00201	RA870008	FD	soil	1-10-96	X	X	X	X	X
BKS00201D	RA870009	FD	soil	1-10-96	X	X	X	X	X
BKS00501	RA870010		soil	1-10-96	X	X	X	X	X
BKS00401	RA870011		soil	1-10-96	X	X	X	X	X
31B00401	RA870012		soil	1-11-96	X	X	X	X	X
31B00301	RA870013		soil	1-11-96	X	X	X	X	X
31B00201	RA870014	FD	soil	1-11-96	X	X	X	X	X
31B00201D	RA870015	FD	soil	1-11-96	X	X	X	X	X
31B00101	RA870016		soil	1-11-96	X	X	X	X	X
31B00501	RA870017		soil	1-11-96	X	X	X	X	X
31T00201	RA870018	TB	water	1-11-96	X				
BKS00201MS	RA870008MS	MS	soil	1-10-96	X	X	X	X	X
BKS00201MSD	RA870008MSD	MSD	soil	1-10-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

Table I

SDG#: WF015

Sample Delivery Group Versus Sample Identification

LDC#: 1777F

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides/PCBs	Metals	Cyanide
COR00101	RA908001	R	water	1-18-96	X	X	X	X	X
COF00101	RA908002	SB	water	1-18-96	X	X	X	X	X
COT00101	RA908003	TB	water	1-18-96	X				
COS00101	RA908004	FD	soil	1-18-96	X	X	X	X	X
COS00101D	RA908005	FD	soil	1-18-96	X	X	X	X	X
EOS00101	RA908006		soil	1-18-96	X	X	X	X	X
POS00101	RA908007		soil	1-18-96	X	X	X	X	X
YOS00101	RA908008		soil	1-18-96	X	X	X	X	X
SOS00101	RA908009		soil	1-18-96	X	X	X	X	X
WOS00101	RA908010		soil	1-18-96	X	X	X	X	X
AOS00101	RA908011		soil	1-18-96	X	X	X	X	X
COS00101MS	RA908004MS	MS	soil	1-18-96	X	X	X	X	X
COS00101MSD	RA908004MSD	MSD	soil	1-18-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate

Table II
Summary of Rejected Data (Organics)
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds				
SDG	Fraction	Sample	Compound	Reason
WF006	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF007	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF008	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF009	Volatiles	All samples	No rejected results	-
	Semivolatiles	15S00201	1,4-Dichlorobenzene 1,2,4-Trichlorobenzene Acenaphthene Pyrene	Low MS/MSD recoveries Low MS/MSD recoveries Low MS/MSD recoveries MS/MSD recoveries
	Pesticides & PCBs	All samples	No rejected results	-
WF010	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF11A	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF11B	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF012	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF013	Volatiles	All samples	No rejected results	-
	Semivolatiles	16S00801	All compounds	Low Surrogate recoveries
	Pesticides & PCBs	All samples	No rejected results	-
WF014	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF015	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	COS00101 SOS00101	All compounds All compounds	Low Surrogate recoveries Low Surrogate recoveries

**Table III
Summary of Rejected Data (Inorganics)
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Inorganic Analytes				
SDG	Fraction	Sample	Analyte	Reason
WF006	All metals	All samples	No rejected results	-
	Cyanide	All samples	No rejected results	-
	TRPH	All samples	No rejected results	-
WF007	All metals	All samples	No rejected results	-
	Cyanide	All samples	No rejected results	-
	TRPH	All samples	No rejected results	-
WF008	All metals	All samples	No rejected results	-
	Cyanide	All samples	No rejected results	-
WF009	All metals	All samples	No rejected results	-
	Cyanide	All samples	No rejected results	-
WF010	All metals	All samples	No rejected results	-
	Cyanide	All samples	No rejected results	-
WF11A	All metals	All samples	No rejected results	-
	Cyanide	All samples	No rejected results	-
	TRPH	All samples	No rejected results	-
WF11B	All metals	All samples	No rejected results	-
	Cyanide	All samples	No rejected results	-
	TRPH	All samples	No rejected results	-
WF012	All metals	All samples	No rejected results	-
	All TCLP metals	All samples	No rejected results	-
	Cyanide	All samples	No rejected results	-
WF013	All metals	All samples	No rejected results	-
	Cyanide	All samples	No rejected results	-
WF014	Mercury	31B00301	Mercury	Low LCS % Recovery
	Cyanide	All samples	No rejected results	-
WF015	All metals	All samples	No rejected results	-
	Cyanide	All samples	No rejected results	-

Table IV
Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike/Matrix Spike Duplicates
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds								
SDG	Client ID	Compound	Criteria		% Recovery		RPD	Qualifier
			% Recovery	RPD	MS	MSD		
WF006	02S00401	Volatiles	-	-	-	-	-	None
		Phenol	26-90	-	-	92	-	None
		4-Chloro-3-methylphenol	26-103	-	-	104	-	None
		2,4-Dinitrotoluene	28-89	-	-	100	-	None
		Pyrene	35-142	-	29	30	-	None
		Pesticides & PCBs	-	-	-	-	-	None
WF007	10S00101	Volatiles	-	-	-	-	-	None
		4-Chloro-3-methylphenol	26-103	-	111	-	-	None
		Pesticides & PCBs	-	-	-	-	-	None
WF008	15S02001	Volatiles	-	-	-	-	-	None
		1,4-Dichlorobenzene	28-104	≤27	-	14	142	None
		1,2,4-Trichlorobenzene	38-107	≤23	-	12	149	None
		Acenaphthene	-	≤19	-	-	96	None
		2,4-Dinitrotoluene	28-89	-	100	94	-	None
		Pyrene	35-142	≤36	-	6	67	None
WF009	15S00101	Volatiles	-	-	-	-	-	None
		2-Chlorophenol	25-102	≤50	16	-	110	None
		1,4-Dichlorobenzene	28-104	-	0	0	-	R
		1,2,4-Trichlorobenzene	38-107	≤23	0	3	200	R
		Acenaphthene	31-137	≤19	0	9	200	R
		Pentachlorophenol	17-109	≤47	10	-	127	None
		Pyrene	35-142	-	0	0	-	R
		Pesticides & PCBs	-	-	-	-	-	None
WF009	15S00101R	2,4-Dinitrotoluene	28-89	-	-	95	-	UJ

Table IV
Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike/Matrix Spike Duplicates
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds								
SDG	Client ID	Compound	Criteria		% Recovery		RPD	Qualifier
			% Recovery	RPD	MS	MSD		
WF010	31S01501	Volatiles	-	-	-	-	-	-
		4-Chloro-3-methylphenol	26-103	-	104	-	-	None
		2,4-Dinitrotoluene	28-89	-	94	-	-	None
		Pesticides & PCBs	-	-	-	-	-	-
WF11A	09W00101	Volatiles	-	-	-	-	-	None
		4-Chloro-3-methylphenol	23-97	-	104	107	-	None
		4-Nitrophenol	10-80	-	117	119	-	None
		2,4-Dinitrophenol	24-96	-	106	107	-	None
		Pentachlorophenol	96-103	-	120	119	-	None
		Pesticides & PCBs	-	-	-	-	-	-
WF11B	10S00201	Volatiles	-	-	-	-	-	None
		Pyrene	-	≤36	-	-	39	None
		Pesticides & PCBs	-	-	-	-	-	None
WF012	31S00501	Volatiles	-	-	-	-	-	None
		4-Nitrophenol	11-114	-	120	115	-	None
		Pesticides & PCBs	-	-	-	-	-	None
WF013	16S01001	Volatiles	-	-	-	-	-	None
		Phenol	26-90	-	-	96	-	U
		2-Chlorophenol	25-102	-	-	103	-	U
		Pentachlorophenol	17-109	-	-	110	-	U
		Pesticides & PCBs	-	-	-	-	-	None
WF014	BKS00201	Volatiles	-	-	-	-	-	None
		Pentachlorophenol	17-109	-	133	136	-	None
		4-Nitrophenol	11-114	-	-	132	-	None
		Pesticides & PCBs	-	-	-	-	-	None

Table IV
Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike/Matrix Spike Duplicates
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds								
SDG	Client ID	Compound	Criteria		% Recovery		RPD	Qualifier
			% Recovery	RPD	MS	MSD		
WF015	COS00101	Volatiles	-	-	-	-	-	None
		Semivolatiles	-	-	-	-	-	None
		Pesticides & PCBs	-	-	-	-	-	None

Table V
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Organic Compounds			RPD
WF006	Client ID	02S00401	02S00401D	
	Laboratory ID	G8864007	G8864008	
	Collection Date	12/5/95	12/5/95	
	Volatiles	ND	ND	-
	Semivolatiles	ND	ND	-
	Dieldrin	8.3	8.0	4
	Alpha-chlordane	5.6	5.1	9
Gamma-chlordane	3.5	2.9	19	
WF006	Client ID	09S00301	09S00301D	
	Laboratory ID	G8876010	G8876011	
	Collection Date	12/6/96	12/6/96	
	Acetone	ND	5 ug/Kg	Not calculable
Semivolatiles	ND	ND	-	
Pesticides & PCBs	ND	ND	-	
WF007	Client ID	10S00101	10S00101D	
	Laboratory ID	G8889002	G8889003	
	Collection Date	12/7/95	12/7/95	
	Volatiles	ND	ND	-
	Phenanthrene	280 ug/Kg	1200 ug/Kg	124
	Fluoranthene	660 ug/Kg	2300 ug/Kg	111
	Pyrene	580 ug/Kg	1600 ug/Kg	94
	Benzo(a)anthracene	340 ug/Kg	1200 ug/Kg	112
	Chrysene	500 ug/Kg	1400 ug/Kg	120
	Bis(2-ethylhexyl)phthalate	200 ug/Kg	360U ug/Kg	Not calculable
	Benzo(b)fluoranthene	480 ug/Kg	1300 ug/Kg	92
	Benzo(k)fluoranthene	360 ug/Kg	900 ug/Kg	86
	Benzo(a)pyrene	400 ug/Kg	1000 ug/Kg	86
	Indeno(1,2,3-cd)pyrene	180 ug/Kg	360 ug/Kg	67
	Benzo(g,h,i)perylene	180 ug/Kg	340 ug/Kg	62
	Anthracene	370U ug/Kg	270 ug/Kg	Not calculable
	Carbazole	370U ug/Kg	100 ug/Kg	Not calculable
Dibenz(a,h)anthracene	370U ug/Kg	170 ug/Kg	Not calculable	
Pesticides & PCBs	ND	ND	-	
WF007	Client ID	14S00101	14S00101D	
	Laboratory ID	G8895007	G8895008	
	Collection Date	12/8/95	12/8/95	
	Acetone	8 ug/Kg	ND	Not calculable
	Methylene chloride	6 ug/Kg	ND	Not calculable
Semivolatiles	ND	ND	-	
Pesticides & PCBs	ND	ND	-	

Table V
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Organic Compounds			RPD
WF008	Client ID	15S02001	15S02001D	
	Laboratory ID	G8913002	G8913003	
	Collection Date	12/9/95	12/9/95	
	Acetone	5 ug/Kg	ND	Not calculable
	Methylene chloride	ND	5 ug/Kg	Not calculable
	Semivolatiles	ND	ND	-
	Pesticides & PCBs	ND	ND	-
WF008	Client ID	15S01701	15S01701D	
	Laboratory ID	G8913013	G8913014	
	Collection Date	12/10/95	12/10/95	
	Acetone	6 ug/Kg	4 ug/Kg	40
	Semivolatiles	ND	ND	-
	Pesticides & PCBs	ND	ND	-
WF009	Client ID	15S00101	15S00101D	
	Laboratory ID	G8914002	G8914003	
	Collection Date	12/11/95	12/11/95	
	Acetone	6 ug/Kg	7 ug/Kg	15
	Bis(2-ethylhexyl)phthalate	ND	1700 ug/Kg	Not calculable
	Pesticides & PCBs	ND	ND	-
WF010	Client ID	31S01501	31S01501D	
	Laboratory ID	G8938002	G8938003	
	Collection Date	12/13/95	12/13/95	
	Acetone	ND	5 ug/Kg	Not calculable
	Semivolatiles	ND	ND	-
	Pesticides & PCBs	ND	ND	-
WF11A	Client ID	09W00101	09W00101D	
	Laboratory ID	RA903001	RA903002	
	Collection Date	1/5/96	1/5/96	
	Toluene	10U ug/L	1 ug/L	Not calculable
	Semivolatiles	ND	ND	-
	Pesticides & PCBs	ND	ND	-

Table V
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Organic Compounds			RPD
WF11B	Client ID	10S00201	10S00201D	
	Laboratory ID	RA847002	RA847003	
	Collection Date	1/5/96	1/5/96	
	Acetone	29 ug/Kg	20 ug/Kg	37
	2-Hexanone	11U ug/Kg	4 ug/Kg	Not calculable
	Phenanthrene	68 ug/Kg	310 ug/Kg	128
	Di-n-butylphthalate	46 ug/Kg	380U ug/Kg	Not calculable
	Fluoranthene	160 ug/Kg	420 ug/Kg	90
	Pyrene	170 ug/Kg	290 ug/Kg	52
	Butylbenzylphthalate	57 ug/Kg	380U ug/Kg	Not calculable
	Benzo(a)anthracene	87 ug/Kg	190 ug/Kg	74
	Chrysene	120 ug/Kg	220 ug/Kg	59
	Bis(2-ethylhexyl)phthalate	3200 ug/Kg	140 ug/Kg	183
	Benzo(a)fluoranthene	150 ug/Kg	200 ug/Kg	28
	Benzo(k)fluoranthene	110 ug/Kg	210 ug/Kg	62
	Benzo(a)pyrene	95 ug/Kg	150 ug/Kg	45
	Indeno(1,2,3-cd)pyrene	58 ug/Kg	56 ug/Kg	4
	Acenaphthene	380U ug/Kg	40 ug/Kg	Not calculable
	Anthracene	380U ug/Kg	54 ug/Kg	Not calculable
	Carbazole	380U ug/Kg	84 ug/Kg	Not calculable
4,4'-DDT	7.0 ug/Kg	8.9 ug/Kg	24	
Aroclor 1254	340 ug/Kg	390 ug/Kg	14	
WF012	Client ID	31S00501	31S00501D	
	Laboratory ID	RA855011	RA855012	
	Collection Date	1/7/96	1/7/96	
	Acetone	9 ug/Kg	8 ug/Kg	12
Semivolatiles	ND	ND	-	
Pesticides & PCBs	ND	ND	-	
WF013	Client ID	16S00101	16S00101D	
	Laboratory ID	RA856001	RA856018	
	Collection Date	1/8/96	1/8/96	
	Acetone	4 ug/Kg	9 ug/Kg	77
	Bis(2-ethylhexyl)phthalate	45 ug/Kg	380U ug/Kg	Not calculable
4,4'-DDE	3.2 ug/Kg	2.0 ug/Kg	46	
4,4'-DDT	3.8 ug/Kg	2.7 ug/Kg	34	
WF013	Client ID	16S01001	16S01001D	
	Laboratory ID	RA856014	RA856015	
	Collection Date	1/9/96	1/9/96	
	Acetone	14 ug/Kg	4 ug/Kg	111
	Bis(2-ethylhexyl)phthalate	60 ug/Kg	58 ug/Kg	3
	Dieldrin	33 ug/Kg	60 ug/Kg	58
	4,4'-DDE	13 ug/Kg	22 ug/Kg	51
	4,4'-DDT	6.4 ug/Kg	9.0 ug/Kg	34
	Alpha-chlordane	6.8 ug/Kg	12 ug/Kg	55
	Gamma-chlordane	4.0 ug/Kg	7.9 ug/Kg	66
Aroclor 1260	48 ug/Kg	110 ug/Kg	78	

Table V
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Organic Compounds			RPD
WF014	Client ID Laboratory ID Collection Date Acetone Bis(2-ethylhexyl)phthalate Pesticides & PCBs	BKS00201 RA870008 1/10/96 8 ug/Kg 370U ug/Kg ND	BKS00201D RA870009 1/10/96 4 ug/Kg 45 ug/Kg ND	 67 Not calculable -
WF014	Client ID Laboratory ID Collection Date Acetone Bis(2-ethylhexyl)phthalate Pesticides & PCBs	31B00201 RA870014 1/11/96 3 ug/Kg 370U ug/Kg ND	31B00201D RA870015 1/11/96 11U ug/Kg 48 ug/Kg ND	 Not calculable Not calculable -
WF015	Client ID Laboratory ID Collection Date Acetone Semivolatiles Pesticides & PCBs	COS00101 RA908004 1/18/96 22 ug/Kg ND ND	COS00101D RA908005 1/18/96 12U ug/Kg ND ND	 Not calculable - -

**Table VI
Summary of Surrogate Recoveries
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds						
SDG	Client ID	Compound	Percent Recovery	QC Limits	# of Samples	Qualifier
WF006	All samples	Volatiles	All within QC limits	-	-	None
	All samples	Semivolatiles	All within QC limits	-	-	None
	All samples	Pesticides & PCBs	All within QC limits	-	-	None
WF007	All samples	Volatiles	All within QC limits	-	-	None
	All samples	Semivolatiles	All within QC limits	-	-	None
	10R00101	Pesticides & PCBs Decachlorobiphenyl	54	60-150	1	UJ (all compounds)
WF008	All samples	Volatiles	All within QC limits	-	-	None
	All samples	Semivolatiles	All within QC limits	-	-	None
	15S02501	Pesticides & PCBs Decachlorobiphenyl	54	60-150	1	UJ (all compounds)
WF009	All samples	Volatiles	All within QC limits	-	-	None
	All samples	Semivolatiles	All within QC limits	-	-	None
	All samples	Pesticides & PCBs	All within QC limits	-	-	None
WF010	All samples	Volatiles	All within QC limits	-	-	None
	All samples	Semivolatiles	All within QC limits	-	-	None
	31S00101	Pesticides & PCBs Tetrachloro-m-xylene Tetrachloro-m-xylene	57 56	60-150 60-150	1	UJ/J (all compounds)

**Table VI
Summary of Surrogate Recoveries
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds						
SDG	Client ID	Compound	Percent Recovery	QC Limits	# of Samples	Qualifier
WF11A	All samples	Volatiles	All within QC limits	-	-	None
	All samples	Semivolatiles	All within QC limits	-	-	None
	09W00101	Pesticides & PCBs Decachlorobiphenyl	56	60-150	3	UJ (all compounds)
		Decachlorobiphenyl	50	60-150		
	09W00101D	Decachlorobiphenyl	58	60-150		UJ (all compounds)
		Decachlorobiphenyl	51	60-150		UJ (all compounds)
	16W00101	Decachlorobiphenyl	45	60-150		
	Decachlorobiphenyl	40	60-150			
WF11B	All samples	Volatiles	All within QC limits	-	-	None
	All samples	Semivolatiles	All within QC limits	-	-	None
	12R00101	Pesticides & PCBs Decachlorobiphenyl	33	60-150	4	UJ (all compounds)
		Decachlorobiphenyl	29	60-150		
	10S00201	Decachlorobiphenyl	56	60-150		UJ/J (all compounds)
		Decachlorobiphenyl	55	60-150		UJ/J (all compounds)
	10S00301	Decachlorobiphenyl	45	60-150		
	Decachlorobiphenyl	42	60-150			
11S00201	Decachlorobiphenyl	50	60-150		UJ/J (all compounds)	
WF012	All samples	Volatiles	All within QC limits	-	-	None
	All samples	Semivolatiles	All within QC limits	-	-	None
	31R00201	Pesticides & PCBs Decachlorobiphenyl	54	60-150	4	UJ (all compounds)
		Decachlorobiphenyl	43	60-150		
	31S00901	Decachlorobiphenyl	45	60-150		UJ/J (all compounds)
		Decachlorobiphenyl	40	60-150		UJ/J (all compounds)
	31S01201	Decachlorobiphenyl	48	60-150		
	Decachlorobiphenyl	50	60-150			
31S01301	Decachlorobiphenyl	46	60-150		UJ (all compounds)	

**Table VI
Summary of Surrogate Recoveries
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds								
SDG	Client ID	Compound	Percent Recovery	QC Limits	# of Samples	Qualifier		
WF013	All samples	Volatiles	All within QC limits	-	-	None		
	16S00801	<u>Semivolatiles</u> Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14 Phenol-d5 2-Fluorophenol 2,4,6-Tribromophenol 2-Chlorophenol-d4 1,2-Dichlorobenzene-d4	3 3 4 2 2 3 3 2	23-120 30-115 18-137 24-113 25-121 19-122 20-130 20-130	1	R		
	16R00101	<u>Pesticides & PCBs</u> Decachlorobiphenyl	58	60-150	8	UJ (all compounds)		
	16S00101D	Tetrachloro-m-xylene	22	60-150		UJ/J (all compounds)		
	16S00301	Tetrachloro-m-xylene	21	60-150		UJ/J (all compounds)		
		Tetrachloro-m-xylene	57	60-150				
	16S01001	Decachlorobiphenyl	57	60-150		UJ/J (all compounds)		
		Decachlorobiphenyl	54	60-150				
	16S01201	Decachlorobiphenyl	44	60-150		UJ/J (all compounds)		
		Decachlorobiphenyl	41	60-150				
	16S01301	Tetrachloro-m-xylene	55	60-150		UJ/J (all compounds)		
		Decachlorobiphenyl	55	60-150				
	24S00101	Decachlorobiphenyl	55	60-150		UJ (all compounds)		
		Tetrachloro-m-xylene	48	60-150				
		Tetrachloro-m-xylene	46	60-150				
		Decachlorobiphenyl	41	60-150				
	BKS00101	Decachlorobiphenyl	43	60-150		UJ (all compounds)		
		Tetrachloro-m-xylene	56	60-150				
	WF014	All samples	Volatiles	All within QC limits		-	-	None
		All samples	Semivolatiles	All within QC limits		-	-	None
BKR00101		<u>Pesticides & PCBs</u> Decachlorobiphenyl	43	60-150		1	UJ (all compounds)	
	Decachlorobiphenyl	39	60-150					

**Table VI
Summary of Surrogate Recoveries
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds

SDG	Client ID	Compound	Percent Recovery	QC Limits	# of Samples	Qualifier
WF015	All samples	Volatiles	All within QC limits	-	-	None
	All samples	Semivolatiles	All within QC limits	-	-	None
		<u>Pesticides & PCBs</u>				
	COR00101	Decachlorobiphenyl	55	60-150	5	UJ (all compounds)
	AOS00101	Tetrachloro-m-xylene	55	60-150		UJ/J (all compounds)
		Decachlorobiphenyl	51	60-150		
		Decachlorobiphenyl	48	60-150		UJ (all compounds)
	COS00101D	Tetrachloro-m-xylene	26	60-150		
		Tetrachloro-m-xylene	24	60-150		UJ/J (all compounds)
	WOS00101	Tetrachloro-m-xylene	39	60-150		
		Tetrachloro-m-xylene	37	60-150		
		Decachlorobiphenyl	41	60-150		
		Decachlorobiphenyl	43	60-150		
	YOS00101	Tetrachloro-m-xylene	37	60-150		UJ (all compounds)
		Tetrachloro-m-xylene	36	60-150		
	COS00101	Tetrachloro-m-xylene	7	60-150	2	R (ND compounds)
	Tetrachloro-m-xylene	7	60-150			
SOS00101	Tetrachloro-m-xylene	2	60-150		R (ND compounds)	
	Tetrachloro-m-xylene	1	60-150			
	Decachlorobiphenyl	15	60-150			
	Decachlorobiphenyl	16	60-150			

Notes: J = estimated value
UJ = undetected, but number that is reported as the quantification limit is an estimated value.

Table VII
Summary of Compounds Exceeding Instrument Calibration
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds					
SDG	Date	Compound	Criteria		Qualifier
			Initial Calibration %RSD	Continuing Calibration %D	
WF006	All	Volatiles	-	-	None
	12/7/96	2,4-Dinitrophenol	-	33.1	UJ
	12/8/96	2,4-Dinitrophenol	-	27.0	UJ
	12/11/96	Diethylphthalate	-	30.1	UJ
	12/12/96	Diethylphthalate	-	27.1	UJ
	11/30/95	Alpha-BHC	21.7	-	UJ
	11/30/95	Alpha-BHC	20.3	-	UJ
WF007	All	Volatiles	-	-	None
	12/12/96	Dimethylphthalate	-	27.1	UJ
	12/15/96	Nitrobenzene	-	25.6	UJ
		Pentachlorophenol	-	29.6	UJ
	12/15/96	Nitrobenzene	-	30.8	UJ
		2,4-Dinitrophenol	-	41.8	UJ
		4,6-Dinitro-2-methylphenol	-	30.1	UJ
		Pentachlorophenol	-	29.8	UJ
		Benzo(k)fluoranthene	-	26.5	UJ/J
	All	Pesticides & PCBs	-	-	None
WF008	All	Volatiles	-	-	None
	12/15/95	Nitrobenzene	-	25.6	UJ
		Pentachlorophenol	-	29.6	UJ
	12/31/95	2,4-Dinitrophenol	-	42.0	UJ
		4-Nitrophenol	-	27.3	UJ
		Pentachlorophenol	-	34.8	UJ
		3,3'-Dichlorobenzidine	-	25.9	UJ
		Benzo(b)fluoranthene	-	27.7	UJ
	11/30/95	Alpha-BHC	21.7	-	UJ
11/30/95	Alpha-BHC	20.3	-	UJ	
WF009	All	Volatiles	-	-	None
	12/15/95	Nitrobenzene	-	25.6	UJ
		Pentachlorophenol	-	29.6	UJ
	12/31/95	2,4-Dinitrophenol	-	42.0	UJ
		4-Nitrophenol	-	27.3	UJ
		Pentachlorophenol	-	34.8	UJ
		3,3'-Dichlorobenzidine	-	25.9	UJ
		Benzo(b)fluoranthene	-	27.7	UJ
	All	Pesticides & PCBs	-	-	None

Table VII
Summary of Compounds Exceeding Instrument Calibration
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds					
SDG	Date	Compound	Criteria		Qualifier
			Initial Calibration %RSD	Continuing Calibration %D	
WF010	All	Volatiles	-	-	None
	12/27/95	4-Nitrophenol	-	28.1	UJ
		Benzo(b)fluoranthene	-	31.4	UJ
		Indeno(1,2,3-cd)pyrene	-	32.8	UJ
	11/30/95	Alpha-BHC	21.7	-	UJ
11/30/95	Alpha-BHC	20.3	-	UJ	
WF11A	All	Volatiles	-	-	None
	All	Semivolatiles	-	-	None
	1/10/96	Endosulfan I	22	-	UJ
WF11B	1/10/96	Acetone	-	40.0	UJ/J
		2-Butanone	-	37.3	UJ
		4-Methyl-2-pentanone	-	37.7	UJ
		2-Hexanone	-	41.0	UJ/J
	1/11/96	Trichloroethene	-	27.7	UJ
		2-Hexanone	-	50.9	UJ/J
		1,1,2,2-Tetrachloroethane	-	34.2	UJ
	1/12/96	2-Hexanone	-	48.4	UJ/J
	1/10/96	Endosulfan I	22	-	UJ
	WF012	1/11/96	Trichloroethene	-	27.7
2-Hexanone			-	50.9	UJ
1,1,2,2-Tetrachloroethane			-	34.2	UJ
1/12/96		2-Hexanone	-	48.4	UJ
1/13/96		Chloromethane	-	27.2	UJ
		Vinyl chloride	-	27.2	UJ
		Acetone	-	68.1	UJ/J
		2-Butanone	-	69.9	UJ
		1,2-Dichloroethane	-	29.6	UJ
		4-Methyl-2-pentanone	-	31.4	UJ
		1/15/96	Chloroethane	-	26.3
Acetone			-	51.7	UJ/J
2-Butanone			-	40.8	UJ
1,2-Dichloroethane			-	35.4	UJ
All		Semivolatiles	-	-	None
1/17/96		Endosulfan sulfate	24.0	-	UJ

Table VII
Summary of Compounds Exceeding Instrument Calibration
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds					
SDG	Date	Compound	Criteria		Qualifier
			Initial Calibration %RSD	Continuing Calibration %D	
WF013	1/15/96	1,1-Dichloroethene	33.9	-	UJ
		Carbon disulfide	32.8	-	UJ
	1/17/96	2-Hexanone	41.7	-	UJ
	1/13/96	Chloromethane	-	27.2	UJ
		Vinyl chloride	-	27.2	UJ
		Acetone	-	68.1	UJ/J
		2-Butanone	-	69.9	UJ
		1,2-Dichloroethane	-	29.6	UJ
		4-Methyl-2-pentanone	-	31.4	UJ
	1/15/96	Chloroethane	-	26.3	UJ
		Acetone	-	51.7	UJ/J
		2-Butanone	-	40.8	UJ
		1,2-Dichloroethane	-	35.4	UJ
	1/18/96	2-Hexanone	-	27.5	UJ
	1/22/96	Chloromethane	-	41.8	UJ
		Vinyl chloride	-	37.1	UJ
		Chloroethane	-	41.7	UJ
		Acetone	-	31.7	UJ/J
		Carbon disulfide	-	25.8	UJ
		2-Hexanone	-	38.4	UJ
1/19/96	Benzo(g,h,i)perylene	-	29.0	UJ/J	
1/17/96	Endosulfan sulfate	24.0	-	UJ	
WF014	1/15/96	1,1-Dichloroethene	33.9	-	UJ
		Carbon disulfide	32.8	-	UJ
	1/14/96	Acetone	31.3	-	UJ/J
	1/16/96	Acetone	-	46.7	UJ/J
		Methylene chloride	-	32.3	UJ
		2-Butanone	-	54.2	UJ
		4-Methyl-2-pentanone	-	31.9	UJ
		2-Hexanone	-	60.0	UJ
	1/12/96	Acetone	-	36.7	UJ/J
	1/20/96	Benzo(k)fluoranthene	-	30.7	UJ/J
	1/31/96	4-Nitrophenol	-	38.2	UJ
		4-Nitroaniline	-	27.9	UJ
		Pentachlorophenol	-	29.4	UJ
		Benzo(g,h,i)perylene	-	35.3	UJ/J
	1/17/96	Endosulfan sulfate	24.0	-	UJ

Table VII
Summary of Compounds Exceeding Instrument Calibration
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds

SDG	Date	Compound	Criteria		Qualifier
			Initial Calibration %RSD	Continuing Calibration %D	
WF015	1/17/96	2-Hexanone	41.7	-	UJ
	1/19/96	Chloromethane	-	47.1	UJ
		Vinyl chloride	-	39.0	UJ
		Chloroethane	-	54.7	UJ
		Acetone	-	25.8	UJ/J
		Carbon disulfide	-	45.5	UJ
	1/31/96	4-Nitroaniline	-	27.9	UJ
		Pentachlorophenol	-	29.4	UJ
		Benzo(g,h,i)perylene	-	35.3	UJ
	2/2/96	2-Chlorophenol	-	26.6	UJ
		2-Nitroaniline	-	25.1	UJ
		2,4-Dinitrophenol	-	25.7	UJ
		4-Bromophenyl-phenylether	-	27.2	UJ
		Hexachlorobenzene	-	35.4	UJ
	2/1/96	4-Bromophenyl-phenylether	-	28.4	UJ
		Hexachlorobenzene	-	35.0	UJ
	1/30/96	Endosulfan sulfate	21.0	-	UJ

Notes: %RSD = percent Relative Standard Deviation for initial calibrations

%D = percent Difference for continuing calibrations

J = the compound was positively identified; the associated numerical value is the approximate concentration of the compound in the sample, either because its concentration was lower than the QL (laboratory "J" flag), or because QC criteria were not met (validation "J").

UJ = the compound was not detected above the reported sample QL. However, the reported sample QL is approximate; the compound concentration may not reliably be presumed to be less than the QL value.

R = the sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the compound cannot be verified.

**Table VIII
Summary of Method Blank Contamination
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds			
SDG	Compound	Concentration	Associated Samples
WF006	Volatiles	ND	All samples in SDG WF006
	Pesticides & PCBs	ND	All samples in SDG WF006
	Diethylphthalate	4 ug/L	01R00101 01F00101
	Diethylphthalate	150 ug/Kg	02S00101 02S00201 02S00301 02S00501 09S00101 09S00201 09S00401 09S00501
WF007	Volatiles	ND	All samples in SDG WF007
	Pesticides & PCBs	ND	All samples in SDG WF007
	Diethylphthalate	2 ug/L	10R00101
	Di-n-octylphthalate	230 ug/Kg	13S00101 13S00301 13S00401 13S00501 14S00101D 14S00301
	Di-n-octylphthalate	180 ug/Kg	13S00201 14S00101
WF008	Volatiles	ND	All samples in SDG WF008
	Pesticides & PCBs	ND	All samples in SDG WF008
	Di-n-butylphthalate	280 ug/Kg	15S02001D 15S02101 15S02201 15S01701 15S01701D
WF009	Volatiles	ND	All samples in SDG WF009
	Semivolatiles	ND	All samples in SDG WF009
	Pesticides & PCBs	ND	All samples in SDG WF009
WF010	Volatiles	ND	All samples in SDG WF010
	Di-n-butylphthalate	320 ug/Kg	31S00101 31S00201 31S00301 31S01401 31S01501 31S01501D 31S01601 31S01701 31S01801 31S01901
	Pesticides & PCBs	ND	All samples in SDG WF010

**Table VIII
Summary of Method Blank Contamination
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds			
SDG	Compound	Concentration	Associated Samples
WF11A	Volatiles	ND	All samples in SDG WF11A
	Bis(2-ethylhexyl)phthalate	3 ug/L	09W00101 09W00101D 16W00101
	Pesticides & PCBs	ND	All samples in SDG WF11A
WF11B	Styrene	1 ug/L	11T00101
	Xylenes (total)	2 ug/L	
	Acetone	7 ug/Kg	10S00301 10S00501 11S00101 11S00201 12S00201 12S00401 12S00501
	Acetone	4 ug/Kg	11S00201R 11S00301 11S00401 11S00501
	Bis(2-ethylhexyl)phthalate	3 ug/L	12R00101
	Di-n-butylphthalate	69 ug/Kg	10S00301
	Bis(2-ethylhexyl)phthalate	37 ug/Kg	10S00501 12S00201
	Di-n-butylphthalate	100 ug/Kg	10S00201 10S00201DL 10S00201D 10S00301R 12S00401 12S00501 11S00101
	Pesticides & PCBs	ND	All samples in SDG WF11B
	WF012	Xylenes (total)	2 ug/L
Styrene		1 ug/L	
Acetone		7 ug/Kg	31S00801 31S01201
Acetone		4 ug/Kg	31S00401 31S00501 31S00501D 31S01201R
Semivolatiles Pesticides & PCBs		ND ND	All samples in SDG WF12 All samples in SDG WF12
WF013	Xylenes (total)	2 ug/L	16T00101
	Styrene	1 ug/L	16R00101 24T00101

Table VIII
Summary of Method Blank Contamination
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Compound	Concentration	Associated Samples
WF013	Bis(2-ethylhexyl)phthalate	34 ug/Kg	16S00101 16S00501 16S00401 16S00901
	Bis(2-ethylhexyl)phthalate	46 ug/Kg	16S00901R 16S00201
	Bis(2-ethylhexyl)phthalate	76 ug/Kg	16S00301 16S00801 16S00601 16S00601DL 16S01201 16S01301 BKS00301 16S01001
	Pesticides & PCBs	ND	All samples in SDG WF13
WF014	Toluene	1 ug/Kg	31B00301
	Bis(2-ethylhexyl)phthalate	38 ug/Kg	31B00501
	Pesticides & PCBs	ND	All samples in SDG WF14
WF015	Volatiles	ND	All samples in SDG WF15
	Pesticides & PCBs	ND	All samples in SDG WF15
	Bis(2-ethylhexyl)phthalate	1 ug/L	COR00101 COF00101

**Table IX
Summary of Field Blank Contamination**

**Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds

SDG	Parameter	Concentration	Qualifier
WF006	Client ID: 01T00101 Laboratory ID: G8864001 Collection Date: 12/5/95 Type: Trip Blank Acetone	9 ug/L	None
WF006	Client ID: 02T00101 Laboratory ID: G8876001 Collection Date: 12/6/95 Type: Trip Blank Acetone	7 ug/L	None
WF006	Client ID: 01R00101 Laboratory ID: G8876012 Collection Date: 12/6/95 Type: Rinsate Acetone Di-n-butylphthalate Bis(2-ethyhexyl)phthalate Pesticides & PCBs	11 ug/L 8 ug/L 2 ug/L ND	None None None None
WF006	Client ID: 01F00101 Laboratory ID: G8776013 Collection Date: 12/6/95 Type: Source Blank Acetone 2-Butanone Di-n-butylphthalate Pesticides & PCBs	12 ug/L 2 ug/L 15 ug/L ND	None None None None
WF007	Client ID: 10T00101 Laboratory ID: G8889001 Collection Date: 12/7/95 Type: Trip Blank Acetone	8 ug/L	None
WF007	Client ID: 13T00101 Laboratory ID: G8895001 Collection Date: 12/8/95 Type: Trip Blank Acetone	4 ug/L	None
WF007	Client ID: 10R00101 Laboratory ID: G8889009 Collection Date: 12/7/95 Type: Rinsate Volatiles Di-n-butylphthalate Pesticides & PCBs	ND 15 ug/L ND	None 10U ug/L ¹ None

Table IX
Summary of Field Blank Contamination

Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds

SDG	Parameter	Concentration	Qualifier
WF008	Client ID: 15T00101 Laboratory ID: G8913001 Collection Date: 12/9/95 Type: Trip Blank		
	Acetone	8 ug/L	None
WF008	Client ID: 15R00101 Laboratory ID: G8913020 Collection Date: 12/11/95 Type: Rinsate		
	Volatiles	ND	None
	Di-n-butylphthalate	3 ug/L	10U ug/L ¹
	Pesticides & PCBs	ND	None
WF009	Client ID: 15T00201 Laboratory ID: G8914001 Collection Date: 12/11/95 Trip Blank: Trip Blank		
	Acetone	19 ug/L	None
WF009	Client ID: 15R00201 Laboratory ID: G8914012 Collection Date: 12/11/95 Type: Rinsate		
	Acetone	12 ug/L	None
	Di-n-butylphthalate	4 ug/L	10U ug/L ¹
	Pesticides & PCBs	ND	None
WF010	Client ID: 31T00101 Laboratory ID: G8924005 Collection Date: 12/12/95 Type: Trip Blank		
	Acetone	10 ug/L	None
WF010	Client ID: 31T00201 Laboratory ID: G8938001 Collection Date: 12/13/95 Type: Trip Blank		
	Acetone	12 ug/L	None
WF010	Client ID: 31R00101 Laboratory ID: G8924006 Collection Date: 12/12/965 Type: Rinsate		
	Volatiles	ND	None
	Di-n-butylphthalate	7 ug/L	10U ug/L ¹
	Pesticides & PCBs	ND	None

**Table IX
Summary of Field Blank Contamination**

**Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds

SDG	Parameter	Concentration	Qualifier
WF11B	Client ID: 12R00101 Laboratory ID: RA847012 Collection Date: 1/5/96 Type: Rinsate		
	Volatiles	ND	None
	Di-n-butylphthalate	4 ug/L	None
	Pesticides &PCBs	ND	None
WF11B	Client ID: 12T00101 Laboratory ID: RA847001 Collection Date: 1/5/96 Type: Trip Blank		
	Volatiles	ND	None
WF11B	Client ID: 11T00101 Laboratory ID: RA847013 Collection Date: 1/6/96 Type: Trip Blank		
	Volatiles	ND	None
WF012	Client ID: 31R00201 Laboratory ID: RA855021 Collection Date: 1/8/96 Type: Rinsate		
	Volatiles	ND	None
	Semivolatiles	ND	None
	Pesticides & PCBs	ND	None
WF013	Client ID: 16T00101 Laboratory ID: RA856016 Collection Date: 1/9/96 Type: Trip Blank		
	Volatiles	ND	None
WF013	Client ID: 24T00101 Laboratory ID: RA871001 Collection Date: 1/10/96 Type: Trip Blank		
	Volatiles	ND	None
WF013	Client ID: 16R00101 Laboratory ID: RA856017 Collection Date: 1/9/96 Type: Rinsate		
	Volatiles	ND	None
	Di-n-butylphthalate	5 ug/L	10U ug/L ¹
	Pesticides & PCBs	ND	None

**Table IX
Summary of Field Blank Contamination**

**Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds

SDG	Parameter	Concentration	Qualifier
WF014	Client ID: BKT00101 Laboratory ID: RA870002 Collection Date: 1/10/96 Type: Trip Blank Volatiles	ND	None
WF014	Client ID: 31T00201 Laboratory ID: RA870018 Collection Date: 1/11/96 Type: Trip Blank Volatiles	ND	None
WF014	Client ID: BKR00101 Laboratory ID: RA870001 Collection Date: 1/10/96 Type: Rinsate Volatiles Di-n-butylphthalate Pesticides & PCBs	ND 5 ug/L ND	None 10U ug/L ¹ None
WF015	Client ID: COT00101 Laboratory ID: RA908003 Collection Date: 1/18/96 Type: Trip Blank Volatiles	ND	None
WF015	Client ID: COR00101 Laboratory ID: RA908001 Collection Date: 1/18/96 Type: Rinsate Volatiles Di-n-butylphthalate Pesticides & PCBs	ND 5 ug/L ND	None 10U ug/L ¹ None
WF015	Client ID: COF00101 Laboratory ID: RA908002 Collection Date: 1/18/96 Type: Source Blank Volatiles Di-n-butylphthalate Pesticides & PCBs	ND 7 ug/L ND	None None None

¹ = sample result was modified based on an associated method blank concentration.

Note: see detailed data validation report for the discrete qualifiers.

Table X
Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike and Laboratory Duplicate Samples
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes								
SDG	Client ID	Analyte	Criteria		% Recovery		RPD	Qualifier
			% Recovery	RPD	MS	MSD		
WF006	02S00401	Calcium	-	±2205 mg/Kg	-	-	9780 mg/Kg	J
		Nickel	-	±17.6 mg/Kg	-	-	40.8 mg/Kg	J
		Antimony	75-125	-	73.8	-	-	J
		Manganese	75-125	-	73.8	-	-	J
		Cyanide	-	-	-	-	-	None
		TRPH	-	-	-	-	-	None
WF007	10S00101	Antimony	75-125	-	65.6	-	-	J
		Barium	75-125	±88.10 mg/Kg	171.0	-	1221 mg/Kg	J
		Manganese	75-125	±6.6 mg/Kg	130.0	-	34.30 mg/Kg	J
		Lead	75-125	-	128.7	-	-	J
		Selenium	75-125	-	56.1	-	-	J
		Cyanide	-	-	-	-	-	None
TRPH	-	-	-	-	-	None		
WF008	15S02001	Antimony	75-125	-	68.2	-	-	J
		Mercury	75-125	-	125.3	-	-	J
		Cyanide	-	-	-	-	-	None
WF009	15S00101	Antimony	75-125	-	53.5	-	-	J
WF010	31S01501	Antimony	75-125	-	73.8	-	-	None
		Cyanide	-	-	-	-	-	None
WF11A	09W00101	All metals	-	-	-	-	-	None
		Cyanide	-	-	-	-	-	None
		TRPH	-	-	-	-	-	None
WF11B	10S00201	All metals	-	-	-	-	-	None
		Cyanide	-	-	-	-	-	None
		TRPH	-	-	-	-	-	None

Table X
Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike and Laboratory Duplicate Samples
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes								
SDG	Client ID	Analyte	Criteria		% Recovery		RPD	Qualifier
			% Recovery	RPD	MS	MSD		
WF012	31S00501	All metals	-	-	-	-	-	None
		All TCLP metals	-	-	-	-	-	None
		Cyanide	-	-	-	-	-	None
WF013	16S01001	Aluminum	-	≤35	-	-	71.0	J
		Iron	-	≤35	-	-	42.3	J
		Lead	75-125	-	127	-	-	J
		Cyanide	-	-	-	-	-	None
WF014	BKS00201	Aluminum	-	≤35	-	-	35.6	J
		Cyanide	-	-	-	-	-	None
WF015	COS00101	Lead	75-125	-	-46.5	-	-	J
		Cyanide	-	-	-	-	-	None

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF006	Client ID	02S00401	02S00401D	
	Laboratory ID	G8864007	G8864008	
	Collection Date	12/5/95	12/5/95	
	Aluminum	9580 mg/Kg	7580 mg/Kg	23
	Arsenic	3.9 mg/Kg	4.0 mg/Kg	3
	Barium	27.7 mg/Kg	15.9 mg/Kg	54
	Beryllium	0.31 mg/Kg	0.13 mg/Kg	81
	Calcium	14900 mg/Kg	9900 mg/Kg	40
	Chromium	13.6 mg/Kg	14.0 mg/Kg	3
	Cobalt	0.53 mg/Kg	ND	Not calculable
	Copper	4.3 mg/Kg	3.8 mg/Kg	12
	Iron	4010 mg/Kg	3880 mg/Kg	3
	Lead	10.9 mg/Kg	11.6 mg/Kg	6
	Magnesium	926 mg/Kg	403 mg/Kg	79
	Manganese	188 mg/Kg	164 mg/Kg	14
	Mercury	0.03 mg/Kg	0.05 mg/Kg	50
	Nickel	3.9 mg/Kg	3.8 mg/Kg	1
	Potassium	377 mg/Kg	142 mg/Kg	91
	Sodium	104 mg/Kg	70.2 mg/Kg	38
	Vanadium	12.9 mg/Kg	11.7 mg/Kg	10
Zinc	13.1 mg/Kg	12.5 mg/Kg	5	
Cyanide	0.15 mg/Kg	ND	Not calculable	
WF006	Client ID	09S00301	09S00301D	
	Laboratory ID	G8876010	G8876011	
	Collection Date	12/6/96	12/6/96	
	Aluminum	25200 mg/Kg	33100 mg/Kg	27
	Arsenic	8.5 mg/Kg	7.1 mg/Kg	18
	Barium	8.9 mg/Kg	21.7 mg/Kg	83
	Beryllium	0.12 mg/Kg	0.22 mg/Kg	59
	Calcium	176 mg/Kg	384 mg/Kg	74
	Chromium	21.7 mg/Kg	29.5 mg/Kg	30
	Cobalt	0.52 mg/Kg	0.55 mg/Kg	6
	Copper	6.8 mg/Kg	9.0 mg/Kg	28
	Iron	17800 mg/Kg	26500 mg/Kg	40
	Lead	11.2 mg/Kg	6.6 mg/Kg	52
	Magnesium	143 mg/Kg	227 mg/Kg	45
	Manganese	28.2 mg/Kg	52.9 mg/Kg	61
	Mercury	0.01 mg/Kg	0.01 mg/Kg	0
	Nickel	ND	6.1 mg/Kg	Not calculable
	Potassium	ND	212 mg/Kg	Not calculable
	Selenium	0.33 mg/Kg	ND	Not calculable
	Sodium	8.4 mg/Kg	10.4 mg/Kg	21
Vanadium	43.5 mg/Kg	65.1 mg/Kg	40	
Zinc	6.3 mg/Kg	14.4 mg/Kg	78	
Cyanide	ND	ND	-	
TRPH	ND	ND	-	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF007	Client ID	10S00101	10S00101D	
	Laboratory ID	G8889002	G8889003	
	Collection Date	12/7/95	12/7/95	
	Aluminum	8760 mg/Kg	8920 mg/Kg	2
	Arsenic	2.5 mg/Kg	2.6 mg/Kg	4
	Barium	361 mg/Kg	1320 mg/Kg	114
	Beryllium	0.13 mg/Kg	0.13 mg/Kg	0
	Cadmium	0.91 mg/Kg	ND	Not calculable
	Calcium	23200 mg/Kg	17800 mg/Kg	26
	Chromium	18.2 mg/Kg	16.8 mg/Kg	8
	Cobalt	0.83 mg/Kg	2.0 mg/Kg	82
	Copper	7.9 mg/Kg	7.9 mg/Kg	0
	Iron	6520 mg/Kg	6780 mg/Kg	4
	Lead	38.0 mg/Kg	33.1 mg/Kg	14
	Magnesium	5910 mg/Kg	5600 mg/Kg	5
	Manganese	56.6 mg/Kg	66.0 mg/Kg	15
	Mercury	0.07 mg/Kg	0.07 mg/Kg	0
	Nickel	6.8 mg/Kg	3.0 mg/Kg	77
	Potassium	219 mg/Kg	ND	Not calculable
	Sodium	35.6 mg/Kg	46.2 mg/Kg	26
	Vanadium	18.9 mg/Kg	18.7 mg/Kg	1
Zinc	37.7 mg/Kg	34.1 mg/Kg	5	
Cyanide	0.10 mg/Kg	0.20 mg/Kg	67	
TRPH	240 mg/Kg	180 mg/Kg	29	
WF007	Client ID	14S00101	14S00101D	
	Laboratory ID	G8895007	G8895008	
	Collection Date	12/8/95	12/8/95	
	Aluminum	11600 mg/Kg	11500 mg/Kg	1
	Arsenic	1.5 mg/Kg	1.9 mg/Kg	23
	Barium	23.3 mg/Kg	26.6 mg/Kg	13
	Beryllium	0.15 mg/Kg	0.16 mg/Kg	6
	Calcium	120 mg/Kg	183 mg/Kg	6
	Chromium	7.8 mg/Kg	7.8 mg/Kg	0
	Cobalt	1.8 mg/Kg	1.6 mg/Kg	12
	Copper	3.8 mg/Kg	4.3 mg/Kg	12
	Iron	6310 mg/Kg	6630 mg/Kg	5
	Lead	7.7 mg/Kg	11.9 mg/Kg	42
	Magnesium	177 mg/Kg	162 mg/Kg	9
	Manganese	521 mg/Kg	597 mg/Kg	14
	Mercury	0.04 mg/Kg	0.04 mg/Kg	0
	Nickel	4.1 mg/Kg	4.6 mg/Kg	12
Potassium	144 mg/Kg	ND	Not calculable	
Sodium	16.4 mg/Kg	14.0 mg/Kg	16	
Vanadium	16.8 mg/Kg	17.4 mg/Kg	6	
Zinc	6.0 mg/Kg	6.6 mg/Kg	10	
Cyanide	0.07 mg/Kg	ND	Not calculable	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF008	Client ID	15S02001	15S02001D	
	Laboratory ID	G8913002	G8913003	
	Collection Date	12/9/95	12/9/95	
	Aluminum	4630 mg/Kg	5470 mg/Kg	17
	Arsenic	1.2 mg/Kg	1.1 mg/Kg	9
	Barium	5.6 mg/Kg	6.6 mg/Kg	16
	Beryllium	0.13 mg/Kg	0.13 mg/Kg	0
	Calcium	22.2 mg/Kg	25.2 mg/Kg	13
	Chromium	3.0 mg/Kg	3.7 mg/Kg	21
	Copper	1.9 mg/Kg	2.4 mg/Kg	23
	Iron	2500 mg/Kg	2950 mg/Kg	17
	Lead	5.9 mg/Kg	5.9 mg/Kg	0
	Magnesium	85.0 mg/Kg	107 mg/Kg	23
	Manganese	75.2 mg/Kg	87.1 mg/Kg	15
	Mercury	0.02 mg/Kg	0.02 mg/Kg	0
	Nickel	2.4 mg/Kg	9.1 mg/Kg	117
	Selenium	0.26 mg/Kg	ND	Not calculable
Vanadium	5.7 mg/Kg	7.1 mg/Kg	22	
Zinc	3.0 mg/Kg	4.1 mg/Kg	31	
Cyanide	ND	ND	-	
WF008	Client ID	15S01701	15S01701D	
	Laboratory ID	G8913013	G8913014	
	Collection Date	12/10/95	12/10/95	
	Aluminum	13700 mg/Kg	9290 mg/Kg	38
	Arsenic	3.7 mg/Kg	4.3 mg/Kg	15
	Barium	4.4 mg/Kg	3.8 mg/Kg	15
	Beryllium	0.11 mg/Kg	0.11 mg/Kg	0
	Calcium	23.7 mg/Kg	20.4 mg/Kg	15
	Chromium	14.8 mg/Kg	14.0 mg/Kg	6
	Copper	2.6 mg/Kg	2.5 mg/Kg	4
	Iron	11900 mg/Kg	10400 mg/Kg	13
	Lead	4.7 mg/Kg	4.1 mg/Kg	14
	Magnesium	51.2 mg/Kg	41.8 mg/Kg	20
	Manganese	10.8 mg/Kg	6.8 mg/Kg	45
	Nickel	ND	3.0 mg/Kg	Not calculable
	Selenium	ND	0.25 mg/Kg	Not calculable
	Vanadium	35.9 mg/Kg	31.8 mg/Kg	12
Zinc	1.5 mg/Kg	1.1 mg/Kg	31	
Cyanide	ND	ND	-	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF009	Client ID	15S00101	15S00101D	
	Laboratory ID	G8914002	G8914003	
	Collection Date	12/11/95	12/11/95	
	Aluminum	9280 mg/Kg	10800 mg/Kg	15
	Arsenic	2.0 mg/Kg	1.9 mg/Kg	5
	Barium	6.6 mg/Kg	7.8 mg/Kg	17
	Beryllium	0.12 mg/Kg	0.13 mg/Kg	8
	Calcium	21.6 mg/Kg	23.9 mg/Kg	10
	Chromium	8.4 mg/Kg	8.0 mg/Kg	5
	Copper	3.4 mg/Kg	3.9 mg/Kg	14
	Iron	5120 mg/Kg	5700 mg/Kg	11
	Lead	4.7 mg/Kg	3.6 mg/Kg	26
	Magnesium	109 mg/Kg	132 mg/Kg	19
	Manganese	36.4 mg/Kg	39.9 mg/Kg	9
	Mercury	0.02 mg/Kg	0.02 mg/Kg	0
	Nickel	5.0 mg/Kg	2.4 mg/Kg	70
	Potassium	169 mg/Kg	ND	Not calculable
Vanadium	13.3 mg/Kg	15.1 mg/Kg	13	
Zinc	4.1 mg/Kg	5.0 mg/Kg	22	
Cyanide	ND	ND	-	
WF010	Client ID	31S01501	31S01501D	
	Laboratory ID	G8938002	G8938003	
	Collection Date	12/13/95	12/13/95	
	Aluminum	9620 mg/Kg	8270 mg/Kg	15
	Arsenic	1.4 mg/Kg	1.9 mg/Kg	30
	Barium	14.6 mg/Kg	12.2 mg/Kg	18
	Beryllium	0.17 mg/Kg	0.15 mg/Kg	13
	Calcium	112 mg/Kg	103 mg/Kg	8
	Chromium	6.7 mg/Kg	6.0 mg/Kg	11
	Cobalt	0.80 mg/Kg	1.2 mg/Kg	40
	Copper	5.5 mg/Kg	4.2 mg/Kg	27
	Iron	4730 mg/Kg	4380 mg/Kg	8
	Lead	5.3 mg/Kg	5.4 mg/Kg	2
	Magnesium	154 mg/Kg	114 mg/Kg	30
	Manganese	183 mg/Kg	172 mg/Kg	6
	Mercury	0.01 mg/Kg	0.01 mg/Kg	0
	Nickel	3.9 mg/Kg	3.4 mg/Kg	13
Potassium	ND	197 mg/Kg	Not calculable	
Vanadium	12.8 mg/Kg	11.3 mg/Kg	12	
Zinc	6.8 mg/Kg	5.0 mg/Kg	30	
Cyanide	ND	ND	-	
WF11A	Client ID	09W00101	09W00101D	
	Laboratory ID	RA903001	RA903002	
	Collection Date	1/5/96	1/5/96	
	Aluminum	123 mg/L	129 mg/L	5
	Arsenic	0.60 mg/L	ND	Not calculable
	Barium	1.1 mg/L	1.3 mg/L	17
	Calcium	760 mg/L	726 mg/L	5
	Iron	118 mg/L	105 mg/L	12
	Magnesium	234 mg/L	236 mg/L	1
	Manganese	12.2 mg/L	12.0 mg/L	2
	Potassium	313 mg/L	298 mg/L	2
Sodium	904 mg/L	893 mg/L	1	
Zinc	5.4 mg/L	3.8 mg/L	34	
Cyanide	ND	ND	-	
TRPH	ND	ND	-	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF11B	Client ID	10S00201	10S00201D	
	Laboratory ID	RA847002	RA847003	
	Collection Date	1/5/96	1/5/96	
	Aluminum	8960 mg/Kg	5890 mg/Kg	41
	Arsenic	3.6 mg/Kg	2.4 mg/Kg	40
	Barium	9.2 mg/Kg	8.1 mg/Kg	13
	Beryllium	0.10 mg/Kg	0.06 mg/Kg	50
	Cadmium	1.4 mg/Kg	1.3 mg/Kg	7
	Calcium	1320 mg/Kg	779 mg/Kg	51
	Chromium	16.0 mg/Kg	12.2 mg/Kg	27
	Cobalt	0.79 mg/Kg	0.82 mg/Kg	4
	Copper	10.8 mg/Kg	11.5 mg/Kg	6
	Iron	9660 mg/Kg	8650 mg/Kg	11
	Lead	32.5 mg/Kg	29.0 mg/Kg	11
	Magnesium	200 mg/Kg	100 mg/Kg	66
	Manganese	39.3 mg/Kg	36.4 mg/Kg	8
	Nickel	2.0 mg/Kg	ND	Not calculable
	Potassium	69.4 mg/Kg	ND	Not calculable
	Sodium	181 mg/Kg	192 mg/Kg	6
	Vanadium	24.5 mg/Kg	20.8 mg/Kg	16
Zinc	50.0 mg/Kg	42.9 mg/Kg	15	
Cyanide	0.20 mg/Kg	0.13 mg/Kg	42	
TRPH	105 mg/Kg	66.1 mg/Kg	46	
WF012	Client ID	31S00501	31S00501D	
	Laboratory ID	RA855011	RA855012	
	Collection Date	1/7/96	1/7/96	
	Aluminum	4500 mg/Kg	6050 mg/Kg	29
	Arsenic	1.3 mg/Kg	1.2 mg/Kg	8
	Barium	6.6 mg/Kg	8.6 mg/Kg	26
	Calcium	143 mg/Kg	146 mg/Kg	2
	Chromium	2.8 mg/Kg	3.8 mg/Kg	30
	Cobalt	ND	1.2 mg/Kg	Not calculable
	Copper	2.2 mg/Kg	3.0 mg/Kg	31
	Iron	2470 mg/Kg	2840 mg/Kg	14
	Lead	3.2 mg/Kg	2.9 mg/Kg	10
	Magnesium	80.1 mg/Kg	138 mg/Kg	53
	Manganese	87.0 mg/Kg	95.3 mg/Kg	9
	Nickel	1.9 mg/Kg	2.2 mg/Kg	15
	Potassium	81.9 mg/Kg	115 mg/Kg	34
	Selenium	0.18 mg/Kg	ND	Not calculable
	Sodium	192 mg/Kg	175 mg/Kg	9
	Vanadium	5.9 mg/Kg	7.2 mg/Kg	20
	Zinc	3.9 mg/Kg	5.2 mg/Kg	28
Barium, TCLP	0.393 mg/L	0.574 mg/L	37	
Chromium, TCLP	0.0017U mg/L	0.0018 mg/L	Not calculable	
Selenium, TCLP	0.0217U mg/L	0.2351 mg/L	Not calculable	
Cyanide	0.09 mg/Kg	ND	Not calculable	
WF012	Client ID	11S00601	11S00601D	
	Laboratory ID	RA855001	RA855002	
Collection Date	1/7/96	11/7/96		
Lead	19.3 mg/Kg	25.0 mg/Kg	26	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF013	Client ID	16S00101	16S00101D	
	Laboratory ID	RA856001	RA856018	
	Collection Date	1/8/96	1/8/96	
	Aluminum	4250 mg/Kg	5480 mg/Kg	25
	Arsenic	0.94 mg/Kg	1.2 mg/Kg	24
	Barium	13.2 mg/Kg	13.6 mg/Kg	3
	Beryllium	0.09 mg/Kg	ND	Not calculable
	Cadmium	0.28 mg/Kg	0.30 mg/Kg	7
	Calcium	210 mg/Kg	173 mg/Kg	19
	Chromium	4.0 mg/Kg	5.8 mg/Kg	37
	Copper	4.8 mg/Kg	3.0 mg/Kg	46
	Iron	2340 mg/Kg	2910 mg/Kg	22
	Lead	7.8 mg/Kg	7.5 mg/Kg	4
	Magnesium	103 mg/Kg	150 mg/Kg	37
	Manganese	185 mg/Kg	151 mg/Kg	20
	Nickel	ND	1.9 mg/Kg	Not calculable
	Potassium	99.6 mg/Kg	141 mg/Kg	34
	Selenium	0.19 mg/Kg	ND	Not calculable
	Sodium	129 mg/Kg	108 mg/Kg	18
	Vanadium	6.8 mg/Kg	8.6 mg/Kg	23
Zinc	6.4 mg/Kg	6.9 mg/Kg	8	
Cyanide	0.12 mg/Kg	0.12 mg/Kg	0	
WF013	Client ID	16S01001	16S01001D	
	Laboratory ID	RA856014	RA856015	
	Collection Date	1/9/96	1/9/96	
	Aluminum	2000 mg/Kg	1780 mg/Kg	12
	Arsenic	0.76 mg/Kg	0.64 mg/Kg	17
	Barium	4.9 mg/Kg	4.0 mg/Kg	20
	Cadmium	ND	0.23 mg/Kg	Not calculable
	Calcium	101 mg/Kg	99.8 mg/Kg	1
	Chromium	3.9 mg/Kg	3.3 mg/Kg	16
	Copper	10.2 mg/Kg	8.6 mg/Kg	17
	Iron	1470 mg/Kg	1310 mg/Kg	12
	Lead	13.5 mg/Kg	12.4 mg/Kg	9
	Magnesium	38.5 mg/Kg	29.9 mg/Kg	25
	Manganese	5.6 mg/Kg	4.9 mg/Kg	13
	Mercury	0.20 mg/Kg	0.17 mg/Kg	16
	Potassium	ND	77.6 mg/Kg	Not calculable
	Selenium	0.13 mg/Kg	ND	Not calculable
	Silver	4.1 mg/Kg	3.6 mg/Kg	13
	Sodium	139 mg/Kg	118 mg/Kg	16
	Vanadium	3.4 mg/Kg	3.2 mg/Kg	6
Zinc	4.1 mg/Kg	3.4 mg/Kg	19	
Cyanide	0.10 mg/Kg	0.17 mg/Kg	52	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF014	Client ID	BKS00201	BKS00201D	
	Laboratory ID	RA870008	RA870009	
	Collection Date	1/10/96	1/10/96	
	Aluminum	6640 mg/Kg	4230 mg/Kg	44
	Arsenic	1.6 mg/Kg	0.99 mg/Kg	47
	Barium	11.4 mg/Kg	8.9 mg/Kg	34
	Beryllium	0.05 mg/Kg	ND	Not calculable
	Cadmium	0.21 mg/Kg	ND	Not calculable
	Calcium	132 mg/Kg	215 mg/Kg	48
	Chromium	3.4 mg/Kg	2.0 mg/Kg	52
	Cobalt	1.0 mg/Kg	ND	Not calculable
	Copper	3.4 mg/Kg	2.3 mg/Kg	39
	Iron	3340 mg/Kg	2220 mg/Kg	40
	Lead	5.9 mg/Kg	5.1 mg/Kg	15
	Magnesium	124 mg/Kg	72.5 mg/Kg	52
	Manganese	249 mg/Kg	217 mg/Kg	14
	Mercury	0.04 mg/Kg	0.05 mg/Kg	1
	Nickel	2.6 mg/Kg	ND	Not calculable
	Potassium	96.8 mg/Kg	65.8 mg/Kg	38
	Selenium	0.16 mg/Kg	0.14 mg/Kg	13
Sodium	184 mg/Kg	346 mg/Kg	61	
Thallium	0.16 mg/Kg	ND	Not calculable	
Vanadium	8.1 mg/Kg	5.0 mg/Kg	47	
Zinc	5.6 mg/Kg	3.2 mg/Kg	55	
Cyanide	0.11 mg/Kg	ND	Not calculable	
WF014	Client ID	31B00201	31B00201D	
	Laboratory ID	RA870014	RA870015	
	Collection Date	1/11/96	1/11/96	
	Aluminum	4360 mg/Kg	4050 mg/Kg	7
	Arsenic	1.0 mg/Kg	1.2 mg/Kg	18
	Barium	4.7 mg/Kg	4.3 mg/Kg	9
	Beryllium	0.05 mg/Kg	ND	Not calculable
	Cadmium	0.21 mg/Kg	0.34 mg/Kg	47
	Calcium	107 mg/Kg	121 mg/Kg	12
	Chromium	2.6 mg/Kg	2.1 mg/Kg	21
	Cobalt	0.76 mg/Kg	ND	Not calculable
	Copper	8.5 mg/Kg	8.4 mg/Kg	1
	Iron	2960 mg/Kg	2750 mg/Kg	7
	Lead	2.9 mg/Kg	2.9 mg/Kg	0
	Magnesium	81.1 mg/Kg	72.0 mg/Kg	12
	Manganese	8.0 mg/Kg	7.5 mg/Kg	7
	Mercury	0.04 mg/Kg	0.04 mg/Kg	0
	Nickel	1.8 mg/Kg	1.6 mg/Kg	12
	Potassium	88.8 mg/Kg	114 mg/Kg	25
	Sodium	175 mg/Kg	183 mg/Kg	5
Vanadium	6.0 mg/Kg	5.3 mg/Kg	12	
Zinc	7.1 mg/Kg	6.4 mg/Kg	10	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF015	Client ID	COS00101	COS00101D	
	Laboratory ID	RA908004	RA908005	
	Collection Date	1/18/96	1/18/96	
	Aluminum	1770 mg/Kg	1620 mg/Kg	9
	Arsenic	0.57 mg/Kg	0.29 mg/Kg	65
	Barium	17.3 mg/Kg	11.6 mg/Kg	39
	Beryllium	0.07 mg/Kg	0.10 mg/Kg	35
	Calcium	521 mg/Kg	200 mg/Kg	89
	Chromium	2.0 mg/Kg	1.5 mg/Kg	29
	Copper	5.1 mg/Kg	5.0 mg/Kg	2
	Iron	906 mg/Kg	919 mg/Kg	1.4
	Lead	19.4 mg/Kg	8.9 mg/Kg	74
	Magnesium	142 mg/Kg	51.4 mg/Kg	94
	Manganese	4.9 mg/Kg	5.6 mg/Kg	13
	Sodium	120 mg/Kg	95.6 mg/Kg	23
	Vanadium	2.6 mg/Kg	2.8 mg/Kg	7
	Zinc	11.5 mg/Kg	3.3 mg/Kg	111
Cyanide	0.12 mg/Kg	0.20 mg/Kg	50	

**Table XII
Summary of Analytes Exceeding Instrument Calibration
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Inorganic Analytes					
SDG	Date	Analyte	Criteria		Qualifier
			Initial Calibration r	Continuing Calibration %R	
WF006	All	All metals	-	-	None
	All	Cyanide	-	-	None
	All	TRPH	-	-	None
WF007	All	All metals	-	-	None
	All	Cyanide	-	-	None
	All	TRPH	-	-	None
WF008	All	All metals	-	-	None
	All	Cyanide	-	-	None
WF009	All	All metals	-	-	None
	All	Cyanide	-	-	None
WF010	All	All metals	-	-	None
	All	Cyanide	-	-	None
WF11A	All	All metals	-	-	None
	All	Cyanide	-	-	None
	All	TRPH	-	-	None
WF11B	All	All metals	-	-	None
	All	Cyanide	-	-	None
	All	TRPH	-	-	None
WF012	All	All metals	-	-	None
	All	All TCLP metals	-	-	None
	All	Cyanide	-	-	None
WF013	All	All metals	-	-	None
	All	Cyanide	-	-	None
WF014	All	All metals	-	-	None
	All	Cyanide	-	-	None
WF015	All	All metals	-	-	None
	All	Cyanide	-	-	None

Notes: r = correlation coefficient for initial calibrations

%R = percent recovery for continuing calibrations

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample because QC criteria were not met (validation "J").

UJ = the analyte was not detected above the reported sample IDL. However, the reported sample is approximate; the analyte concentration may not reliably be presumed to be less than the IDL value.

R = the sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Table XIII
Summary of Method Blank Contamination
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF006	Aluminum	-5.056 mg/Kg	All soil samples in SDG WF006
	Calcium	-5.002 mg/Kg	
	Copper	0.482 mg/Kg	
	Iron	-1.408 mg/Kg	
	Magnesium	-5.504 mg/Kg	
	Selenium	0.660 mg/Kg	
	Sodium	2.840 mg/Kg	
	Zinc	0.344 mg/Kg	
	Aluminum	-7.772 mg/Kg	All soil samples in SDG WF006
	Cobalt	-0.518 mg/Kg	
	Iron	-1.702 mg/Kg	
	Magnesium	-5.232 mg/Kg	
	Copper	2.690 ug/L	All water samples in SDG WF006
	Iron	-5.220 ug/L	
Magnesium	-37.720 ug/L		
Mercury	-0.029 ug/L		
Selenium	2.300 ug/L		
Sodium	51.840 ug/L		
Cyanide	ND	All samples in SDG WF006	
TRPH	ND		All samples in SDG WF006
WF007	Barium	0.174 mg/Kg	All soil samples in SDG WF007
	Calcium	6.280 mg/Kg	
	Iron	1.776 mg/Kg	
	Sodium	6.856 mg/Kg	
	Aluminum	47.800 ug/L	All water samples in SDG WF007
	Beryllium	0.250 ug/L	
	Calcium	38.580 ug/L	
	Cobalt	-2.750 ug/L	
	Copper	6.560 ug/L	
	Iron	15.910 ug/L	
	Nickel	12.410 ug/L	
	Sodium	-320.390 ug/L	
	Zinc	2.210 ug/L	
	Cyanide	ND	
TRPH	ND	All samples in SDG WF007	
WF008	Aluminum	10.014 mg/Kg	All soil samples in SDG WF008
	Beryllium	0.068 mg/Kg	
	Copper	0.454 mg/Kg	
	Iron	3.440 mg/Kg	
	Sodium	-72.604 mg/Kg	
	Aluminum	5.768 mg/Kg	All soil samples in SDG WF008
	Beryllium	0.060 mg/Kg	
	Cobalt	-0.428 mg/Kg	
	Copper	0.728 mg/Kg	
	Iron	1.184 mg/Kg	
	Nickel	2.284 mg/Kg	
	Sodium	-74.238 mg/Kg	
	Thallium	-0.470 mg/Kg	

Table XIII
Summary of Method Blank Contamination
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF008	Aluminum	47.800 ug/L	All water samples in SDG WF008
	Beryllium	0.250 ug/L	
	Calcium	38.580 ug/L	
	Cobalt	-2.750 ug/L	
	Copper	6.560 ug/L	
	Iron	15.910 ug/L	
	Nickel	12.410 ug/L	
	Sodium	-320.390 ug/L	
	Zinc	2.210 ug/L	
	Cyanide	ND	All samples in SDG WF008
WF009	Aluminum	10.014 mg/Kg	All soil samples in SDG WF009
	Beryllium	0.068 mg/Kg	
	Copper	0.454 mg/Kg	
	Iron	3.440 mg/Kg	
	Sodium	-72.604 mg/Kg	
	Aluminum	5.768 mg/Kg	All soil samples in SDG WF009
	Beryllium	0.068 mg/Kg	
	Cobalt	-0.428 mg/Kg	
	Copper	0.728 mg/Kg	
	Iron	1.184 mg/Kg	
	Nickel	2.284 mg/Kg	All water samples in SDG WF009
	Sodium	-74.238 mg/Kg	
	Thallium	-0.470 mg/Kg	
	Aluminum	47.800 ug/L	
	Beryllium	0.250 ug/L	
	Calcium	38.580 ug/L	
	Cobalt	-2.750 ug/L	
	Copper	6.560 ug/L	
Iron	15.910 ug/L		
Nickel	12.410 ug/L	All samples in SDG WF009	
Sodium	-320.390 ug/L		
Zinc	2.210 ug/L		
Cyanide	ND		
WF010	Aluminum	6.602 mg/Kg	All soil samples in SDG WF010
	Beryllium	0.066 mg/Kg	
	Copper	0.482 mg/Kg	
	Iron	1.828 mg/Kg	
	Mercury	-0.008 mg/Kg	
	Sodium	-74.902 mg/Kg	All water samples in SDG WF010
	Aluminum	47.800 ug/L	
	Beryllium	0.250 ug/L	
	Calcium	38.580 ug/L	
	Cobalt	-2.750 ug/L	
Copper	6.560 ug/L	All samples in SDG WF010	
Iron	15.910 ug/L		
Nickel	12.410 ug/L		
Sodium	-320.390 ug/L		
Zinc	2.210 ug/L		
Cyanide	ND		

Table XIII
Summary of Method Blank Contamination
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF11A	Iron Nickel Sodium Zinc	14.610 ug/L 11.200 ug/L 22.840 ug/L 2.170 ug/L	All samples in SDG WF11A
	Cyanide TRPH	ND ND	All samples in SDG WF11A All samples in SDG WF11A
WF11B	Iron Nickel Sodium Zinc	14.610 ug/L 11.200 ug/L 22.840 ug/L 2.170 ug/L	All water samples in SDG WF11B
	Aluminum Calcium Iron Sodium Zinc Cyanide TRPH	2.922 mg/Kg 10.253 mg/Kg 1.620 mg/Kg 11.866 mg/Kg 0.512 mg/Kg ND ND	All soil samples in SDG WF11B All samples in SDG WF11B All samples in SDG WF11B
WF012	Iron Nickel Sodium Zinc	14.610 ug/L 11.200 ug/L 22.840 ug/L 2.170 ug/L	All water samples in SDG WF12
	Barium Calcium Iron Sodium Zinc Arsenic, TCLP Barium, TCLP Lead, TCLP Silver, TCLP	0.081 mg/Kg 6.408 mg/Kg 0.684 mg/Kg 9.938 mg/Kg 0.321 mg/Kg -0.01539 mg/L 0.00054 mg/L -0.02157 mg/L -0.00215 mg/L	All soil samples in SDG WF12 All samples in SDG WF12
WF013	Iron Nickel Sodium Zinc	14.610 ug/L 11.200 ug/L 22.840 ug/L 2.170 ug/L	All water samples in SDG WF13
	Barium Calcium Iron Lead Magnesium Potassium Sodium Zinc	0.082 mg/Kg 9.329 mg/Kg 0.799 mg/Kg 0.120 mg/Kg 4.111 mg/Kg 56.814 mg/Kg 8.614 mg/Kg 0.240 mg/Kg	All soil samples in SDG WF13

Table XIII
Summary of Method Blank Contamination
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF014	Iron	14.610 ug/L	All water samples in SDG WF14
	Nickel	11.200 ug/L	
	Sodium	22.840 ug/L	
	Zinc	2.170 ug/L	
	Cyanide	2.034 ug/L	All water samples in SDG WF14
	Beryllium	-0.049 mg/Kg	All soil samples in SDG WF14
	Calcium	15.945 mg/Kg	
	Iron	0.701 mg/Kg	
	Manganese	0.103 mg/Kg	
	Sodium	14.786 mg/Kg	
	Zinc	0.601 mg/Kg	
WF015	Iron	4.210 ug/L	All water samples in SDG WF15
	Sodium	30.690 ug/L	
	Thallium	0.700 ug/L	
	Zinc	1.400 ug/L	
	Cyanide	2.034 ug/L	
	Aluminum	2.553 mg/Kg	All soil samples in SDG WF15
	Barium	0.093 mg/Kg	
	Beryllium	0.043 mg/Kg	
	Calcium	6.248 mg/Kg	
	Iron	0.759 mg/Kg	
	Sodium	4.452 mg/Kg	
	Zinc	0.365 mg/Kg	

**Table XIV
Summary of Field Blank Contamination
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Inorganic Analytes

SDG	Parameter	Concentration	Qualifier
WF006	Client ID: 01R00101		
	Laboratory ID: G8876012		
	Collection Date: 12/6/95		
	Type: Rinsate		
	Calcium	178 ug/L	J
	Sodium	60.6 ug/L	UJ
	Zinc	2.9 ug/L	J
Cyanide	ND	None	
TRPH	ND	None	
WF006	Client ID: 01F00101		
	Laboratory ID: G8776013		
	Collection Date: 12/6/95		
	Type: Source Blank		
	Copper	3.3 ug/L	UJ
	Sodium	113 ug/L	UJ
	Cyanide	ND	None
TRPH	ND	None	
WF007	Client ID: 10R00101		
	Laboratory ID: G8889009		
	Collection Date: 12/7/95		
	Type: Rinsate		
	Aluminum	52.3 ug/L	UJ
	Barium	0.70 ug/L	J
	Beryllium	0.25 ug/L	UJ
	Calcium	23.0 ug/L	UJ
	Copper	7.1 ug/L	UJ
	Iron	67.3 ug/L	UJ
	Zinc	17.6 ug/L	J
Cyanide	ND	None	
TRPH	ND	None	
WF008	Client ID: 15R00101		
	Laboratory ID: G8913020		
	Collection Date: 12/11/95		
	Type: Rinsate		
	Aluminum	54.6 ug/L	UJ
	Barium	1.0 ug/L	J
	Beryllium	0.21 ug/L	UJ
	Calcium	22.6 ug/L	UJ
	Copper	5.0 ug/L	UJ
	Iron	45.4 ug/L	UJ
Zinc	1.5 ug/L	UJ	
Cyanide	ND	None	

Table XIV
Summary of Field Blank Contamination
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes

SDG	Parameter	Concentration	Qualifier
WF009	Client ID: 15R00201		
	Laboratory ID: G8914012		
	Collection Date: 12/11/95		
	Type: Rinsate		
	Aluminum	69.8 ug/L	UJ
	Barium	1.0 ug/L	J
	Beryllium	0.29 ug/L	UJ
	Calcium	58.5 ug/L	UJ
	Copper	6.5 ug/L	UJ
	Iron	29.2 ug/L	UJ
Nickel	48.7 ug/L	U	
Zinc	2.7 ug/L	J	
	Cyanide	ND	None
WF010	Client ID: 31R00101		
	Laboratory ID: G8924006		
	Collection Date: 12/12/965		
	Type: Rinsate		
	Aluminum	56.5 ug/L	UJ
	Barium	0.86 ug/L	J
	Beryllium	0.42 ug/L	UJ
	Calcium	18.7 ug/L	UJ
	Copper	5.2 ug/L	UJ
	Iron	35.6 ug/L	UJ
Zinc	3.2 ug/L	UJ	
WF11B	Client ID: 12R00101		
	Laboratory ID: RA847012		
	Collection Date: 1/5/96		
	Type: Rinsate		
	Barium	0.30 ug/L	J
	Calcium	42.3 ug/L	J
	Iron	11.6 ug/L	UJ
	Sodium	24.6 ug/L	UJ
	Zinc	2.2 ug/L	UJ
		Cyanide	ND
	TRPH	ND	None
WF012	Client ID: 31R00201		
	Laboratory ID: RA855021		
	Collection Date: 1/8/96		
	Type: Rinsate		
	Copper	1.3 ug/L	UJ
Iron	21.2 ug/L	UJ	
Sodium	40.3 ug/L	UJ	
Zinc	3.0 ug/L	UJ	
WF013	Client ID: 16R00101		
	Laboratory ID: RA856017		
	Collection Date: 1/9/96		
	Type: Rinsate		
	Iron	7.0 ug/L	UJ
	Sodium	30.0 ug/L	UJ
	Zinc	3.4ug/L	UJ

Table XIV
Summary of Field Blank Contamination
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes

SDG	Parameter	Concentration	Qualifier
WF014	Client ID: BKR00101		
	Laboratory ID: RA870001		
	Collection Date: 1/10/96		
	Type: Rinsate		
	Calcium	42.3 ug/L	J
	Iron	7.8 ug/L	UJ
WF015	Client ID: COR00101		
	Laboratory ID: RA908001		
	Collection Date: 1/18/96		
	Type: Rinsate		
	Iron	9.1 ug/L	UJ
	Lead	0.60 ug/L	J
WF015	Client ID: COF00101		
	Laboratory ID: RA908002		
	Collection Date: 1/18/96		
	Type: Source Blank		
	Iron	8.9 ug/L	UJ
	Sodium	55.0 ug/L	UJ
WF015	Client ID: COF00101		
	Laboratory ID: RA908002		
	Collection Date: 1/18/96		
	Type: Source Blank		
	Iron	8.9 ug/L	UJ
	Sodium	55.0 ug/L	UJ
WF015	Client ID: COF00101		
	Laboratory ID: RA908002		
	Collection Date: 1/18/96		
	Type: Source Blank		
	Iron	8.9 ug/L	UJ
	Sodium	55.0 ug/L	UJ
WF015	Client ID: COF00101		
	Laboratory ID: RA908002		
	Collection Date: 1/18/96		
	Type: Source Blank		
	Iron	8.9 ug/L	UJ
	Sodium	55.0 ug/L	UJ
WF015	Client ID: COF00101		
	Laboratory ID: RA908002		
	Collection Date: 1/18/96		
	Type: Source Blank		
	Iron	8.9 ug/L	UJ
	Sodium	55.0 ug/L	UJ

Table XV
Sample Event PARCC Summary
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton, Florida

SDG	Fraction	Precision ¹	Accuracy ²	Representativeness	Completeness (%)	Comparability
WF006	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
	TRPH	Acceptable	Acceptable	Acceptable	100	Acceptable
WF007	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
	TRPH	Acceptable	Acceptable	Acceptable	100	Acceptable
WF008	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
WF009	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	99.5 ³	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
WF010	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
WF11A	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
	TRPH	Acceptable	Acceptable	Acceptable	100	Acceptable
WF11B	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
	TRPH	Acceptable	Acceptable	Acceptable	100	Acceptable
WF012	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
WF013	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	94.4 ³	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
WF014	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	99.7 ³	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable

Table XV
Sample Event PARCC Summary
Surface Soil Investigation, Phase IIB
NAS Whiting Field, Milton, Florida

SDG	Fraction	Precision ¹	Accuracy ²	Representativeness	Completeness (%)	Comparability
WF015	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	80.0 ³	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable

¹Cumulative of sampling and analytical components.

²Analytical component.

³A few samples have results whose concentrations were rejected.

Notes: All completeness is expressed as the ratio of number of sample results considered usable (i.e., not qualified as rejected) to the total number of sample results.

% = percent

TRPH = Total Recoverable Petroleum Hydrocarbons

APPENDIX A

**Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida
PARCC Summary Tables**

Draft Version

12/12/97

APPENDIX A

Table of Contents

Groundwater and Subsurface Soil Investigation, Phase IIB NAS Whiting Field, Milton, Florida

Table	Title	Page No.
I	Sample Delivery Group Versus Sample Identification	A-1
II	Summary of Rejected Data (Organics)	A-42
III	Summary of Rejected Data (Inorganics)	A-45
<u>Organics</u>		
IV	Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike/Matrix Spike Duplicates	A-47
V	Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples	A-52
VI	Summary of Surrogate Recoveries	A-60
VII	Summary of Compounds Exceeding Instrument Calibration	A-68
VIII	Summary of Method Blank Contamination	A-76
IX	Summary of Field Blank Contamination	A-84
<u>Inorganics</u>		
X	Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike and Laboratory Duplicate Samples. .	A-100
XI	Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples	A-102
XII	Summary of Analytes Exceeding Instrument Calibration	A-112
XIII	Summary of Method Blank Contamination	A-114
XIV	Summary of Field Blank Contamination	A-130
XV	Sample Event PARCC Summary	A-135

Table 1

SDG#: WF022		VALIDATION SAMPLE TABLE						LDC#: 1932A	
Project Name: NAS Whiting Field			Parameters/Analytical Method					Job#: 8532-20	
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides /PCBs	Metals	Cyanide
BKT01001	RB858001	TB	water	7-16-96	X				
BKR01001	RB858002	R	water	7-16-96	X	X	X	X	X
BKG00101	RB858003		water	7-16-96	X	X	X	X	X
BKG00101D	RB858004	FD	water	7-16-96	X	X	X	X	X
BKG00102	RB858005		water	7-16-96	X	X	X	X	X
BKG00102F	RB858006		water	7-16-96				X	
BKG00103	RB858007		water	7-16-96	X	X	X	X	X
BKG00202	RB858008		water	7-17-96	X	X	X	X	X
BKG00201	RB858009		water	7-17-96	X	X	X	X	X
BKF01001	RB858010	SB	water	7-17-96	X	X	X	X	X
17T01101	RB873001	TB	water	7-18-96	X				
17G00102	RB873002		water	7-18-96	X	X	X	X	X
17G00101	RB873003		water	7-18-96	X	X	X	X	X
17G00201	RB873004		water	7-18-96	X	X	X	X	X
17G00301	RB873005		water	7-18-96	X	X	X	X	X
17G00201F	RB873006		water	7-18-96				X	
01G00101	RB873007		water	7-19-96	X	X	X	X	X
01G00102	RB873008		water	7-19-96	X	X	X	X	X
01G00102D	RB873009		water	7-19-96	X	X	X	X	X
BKG00101MS	RB858003MS	MS	water	7-16-96	X	X	X	X	X
BKG00101MSD	RB858003MSD	MSD	water	7-16-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF023

VALIDATION SAMPLE TABLE

LDC#: 1942A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides /PCBs	Metals	Cyanide
01T01201	RB887001	TB	water	7-22-96	X				
01G00401	RB887002		water	7-22-96	X	X	X	X	X
01G00201	RB887003		water	7-22-96	X	X	X	X	X
01G00201F	RB887004		water	7-22-96				X	
01R01101	RB887005	R	water	7-23-96	X	X	X	X	X
01G00301	RB887006		water	7-23-96	X	X	X	X	X
BKG00301	RB887007		water	7-23-96	X	X	X	X	X
02G00201	RB887008		water	7-23-96	X	X	X	X	X
02G00101	RB887009		water	7-23-96	X	X	X	X	X
02G00101F	RB887010		water	7-23-96				X	
18G00301	RB887011		water	7-24-96	X	X	X	X	X
02G00301	RB887012		water	7-24-96	X	X	X	X	X
02G00301D	RB887013	FD	water	7-24-96	X	X	X	X	X
16T01301	RB887014		water	7-25-96	X				
16G00701	RB887015		water	7-25-96	X	X	X	X	X
16G00702	RB887016		water	7-25-96	X	X	X	X	X
16G00702DL	RB887016DL		water	7-25-96	X				
16G00703	RB887017		water	7-25-96	X	X	X	X	X
16G00703DL	RB887017DL		water	7-25-96	X				
18G00201	RB887018		water	7-26-96	X	X	X	X	X
02G00301MS	RB887012MS	MS	water	7-24-96	X	X	X	X	X
02G00301MSD	RB887012MSD	MSD	water	7-24-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF024

VALIDATION SAMPLE TABLE

LDC#: 1943A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides /PCBs	Metals	Cyanide
18T01401	RB920001	TB	water	7-29-96	X				
18G00101	RB920002		water	7-29-96	X	X	X	X	X
15G00401	RB920003		water	7-30-96	X	X	X	X	X
BKG00203	RB920004		water	7-30-96	X	X	X	X	X
15R01201	RB920005	R	water	7-31-96	X	X	X	X	X
BKG00203F	RB920006		water	7-30-96				X	
15G00702	RB920007		water	7-31-96	X	X	X	X	X
15G00702F	RB920008		water	7-31-96				X	
15G00701	RB920009		water	7-31-96	X	X	X	X	X
15G00701D	RB920010	FD	water	7-31-96	X	X	X	X	X
15G00701MS	RB920009MS	MS	water	7-31-96	X	X	X	X	X
15G00701MSD	RB920009MSD	MSD	water	7-31-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF025

VALIDATION SAMPLE TABLE

LDC#: 1956A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides /PCBs	Metals	Cyanide
15T01501	RB956001	TB	water	8-5-96	X				
15G00703	RB956002		water	8-5-96	X	X	X	X	X
15G00503	RB956003		water	8-6-96	X	X	X	X	X
15G00503DL	RB956003DL		water	8-6-96	X				
15G00502	RB956004		water	8-6-96	X	X	X	X	X
15G00501	RB956005		water	8-6-96	X	X	X	X	X
15G00601	RB956006		water	8-7-96	X	X	X	X	X
15G00603	RB956007		water	8-7-96	X	X	X	X	X
15G00601D	RB956008	FD	water	8-7-96	X	X	X	X	X
15G00503F	RB956009		water	8-6-96				X	
15G00501F	RB956010		water	8-6-96				X	
15R01301	RB956011	R	water	8-7-96	X	X	X	X	X
15T01601	RB956012	TB	water	8-8-96	X				
15G00301	RB956013		water	8-8-96	X	X	X	X	X
15G00302	RB956014		water	8-8-96	X	X	X	X	X
15G00303	RB956015		water	8-9-96	X	X	X	X	X
15G00101	RB956016		water	8-8-96	X	X	X	X	X
15G00203	RB956017		water	8-9-96	X	X	X	X	X
15G00301F	RB956018		water	8-8-96				X	
15G00203F	RB956019		water	8-9-96				X	
15G00601MS	RB956006MS	MS	water	8-7-96	X	X	X	X	X
15G00601MSD	RB956006MSD	MSD	water	8-7-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF026

VALIDATION SAMPLE TABLE

LDC#: 1957A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides /PCBs	Metals	Cyanide
15T01701	RB980001	TB	water	8-12-96	X				
15G00202	RB980002		water	8-12-96	X	X	X	X	X
15G00201	RB980003		water	8-13-96	X	X	X	X	X
15G00802	RB980004		water	8-13-96	X	X	X	X	X
15G00802R	RB980004R		water	8-13-96		X			
15G00801	RB980005		water	8-13-96	X	X	X	X	X
16G00201	RB980006		water	8-14-96	X	X	X	X	X
15G00803	RB980007		water	8-14-96	X	X	X	X	X
16G00803D	RB980008	FD	water	8-14-96	X	X	X	X	X
15G00202F	RB980009		water	8-12-96				X	
15G00201F	RB980010		water	8-13-96				X	
15G00802F	RB980011		water	8-13-96				X	
15R01401	RB980012	R	water	8-14-96	X	X	X	X	X
15G00803F	RB980013		water	8-14-96				X	
16G00201F	RB980014		water	8-14-96				X	
16T01801	RB980015	TB	water	8-15-96	X				
16G00202	RB980016		water	8-15-96	X	X	X	X	X
16G00202DL	RB980016DL		water	8-15-96	X				
16G00203	RB980017		water	8-15-96	X	X	X	X	X
16G00602	RB980018		water	8-15-96	X	X	X	X	X
16G00601	RB980019		water	8-16-96	X	X	X	X	X
16G00403	RB980020		water	8-16-96	X	X	X	X	X
16G00403DL	RB980020DL		water	8-16-96	X				
16G00403D	RB980021		water	8-16-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF026

VALIDATION SAMPLE TABLE

LDC#: 1957A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides /PCBs	Metals	Cyanide
16G00403DDL	RB980021DL		water	8-16-96	X				
16G00601F	RB980022		water	8-16-96				X	
16G00403F	RB980023		water	8-16-96				X	
15G00803MS	RB980007MS	MS	water	8-14-96	X	X	X	X	X
15G00803MSD	RB980007MSD	MSD	water	8-14-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF025		VALIDATION SAMPLE TABLE			LDC#: 1970A
Project Name: NAS Whiting Field		Parameters/Analytical Method			Job#: 8532-20
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	Pesticides/PCBs
15G00502RE	RB956004RE		water	8-6-96	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF027

VALIDATION SAMPLE TABLE

LDC#: 1970B

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides /PCBs	Metals	Cyanide
16T01901	RC016001	TB	water	8-19-96	X				
16G00401	RC016002		water	8-19-96	X	X	X	X	X
16G00402	RC016003		water	8-19-96	X	X	X	X	X
16G00101	RC016004		water	8-19-96	X	X	X	X	X
16G00301	RC016005		water	8-20-96	X	X	X	X	X
16G00302	RC016006		water	8-20-96	X	X	X	X	X
16G00304	RC016007		water	8-20-96	X	X	X	X	X
16G00303	RC016008		water	8-21-96	X	X	X	X	X
16G00501	RC016009		water	8-21-96	X	X	X	X	X
16G00303F	RC016010		water	8-21-96				X	
16G00501F	RC016011		water	8-21-96				X	
16R01501	RC016012	R	water	8-21-96	X	X	X	X	X
16G00501D	RC016013	FD	water	8-21-96	X	X	X	X	X
66T02001	RC016014	TB	water	8-22-96	X				
66G02101	RC016015		water	8-22-96	X	X	X	X	X
66G02103	RC016016		water	8-22-96	X	X	X	X	X
66G02102	RC016017		water	8-22-96	X	X	X	X	X
09G00101	RC016018		water	8-23-96	X	X	X	X	X
09G00301	RC016019		water	8-23-96	X	X	X	X	X
09G00301D	RC016020	FD	water	8-23-96	X	X	X	X	X
66G02102F	RC016021		water	8-23-96				X	
09G00301F	RC016022		water	8-23-96				X	
16G00501MS	RC016009MS	MS	water	8-21-96	X	X	X	X	X
16G00501MSD	RC016009MSD	MSD	water	8-21-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF028		VALIDATION SAMPLE TABLE						LDC#: 1974A	
Project Name: NAS Whiting Field			Parameters/Analytical Method				Job#: 8532-20		
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides /PCBs	Metals	Cyanide
10T02101	RC044001	TB	water	8-26-96	X				
09G00201	RC044002		water	8-26-96	X	X	X	X	X
10G00101	RC044003		water	8-26-96	X	X	X	X	X
10G00201	RC044004		water	8-26-96	X	X	X	X	X
11G00402	RC044005		water	8-26-96	X	X	X	X	X
11G00102	RC044006		water	8-27-96	X	X	X	X	X
11G00401	RC044007		water	8-27-96	X	X	X	X	X
11T02201	RC044008	TB	water	8-28-96	X				
11G00301	RC044009		water	8-28-96	X	X	X	X	X
11G00101	RC044010		water	8-28-96	X	X	X	X	X
11G00201	RC044011		water	8-28-96	X	X	X	X	X
12G00101	RC044012		water	8-27-96	X	X	X	X	X
12G00201	RC044013		water	8-27-96	X	X	X	X	X
11G00201F	RC044014		water	8-28-96				X	
11G00301F	RC044015		water	8-28-96				X	
11R01601	RC044016		water	8-28-96	X	X	X	X	X
12G00101D	RC044017	FD	water	8-27-96	X	X	X	X	X
11G00201D	RC044018	FD	water	8-28-96	X	X	X	X	X
12G00101MS	RC044012MS	MS	water	8-27-96	X	X	X	X	X
12G00101MSD	RC044012MSD	MSD	water	8-27-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF029		VALIDATION SAMPLE TABLE						LDC#: 1989A	
Project Name: NAS Whiting Field			Parameters/Analytical Method				Job#: 8532-20		
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides /PCBs	Metals	Cyanide
13T02301	RC092001	TB	water	9-9-96	X				
13G00101	RC092002		water	9-9-96	X	X	X	X	X
13G00102	RC092003		water	9-9-96	X	X	X	X	X
13G00201	RC092004		water	9-10-96	X	X	X	X	X
13G00103	RC092005		water	9-10-96	X	X	X	X	X
14G00201	RC092006		water	9-10-96	X	X	X	X	X
14G00101	RC092007		water	9-11-96	X	X	X	X	X
13R01701	RC092008	R	water	9-11-96	X	X	X	X	X
14G00101D	RC092009	FD	water	9-11-96	X	X	X	X	X
13G00103F	RC092010		water	9-10-96				X	
66T02401	RC092011	TB	water	9-12-96	X				
66G00901	RC092012		water	9-12-96	X	X	X	X	X
66G00904	RC092013		water	9-12-96	X	X	X	X	X
66G00902	RC092014		water	9-13-96	X	X	X	X	X
66G00903	RC092015		water	9-13-96	X	X	X	X	X
66G00903F	RC092016		water	9-13-96				X	
14G00101MS	RC092007MS	MS	water	9-11-96	X	X	X	X	X
14G00101MSD	RC092007MSD	MSD	water	9-11-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

SDG#: WF030

VALIDATION SAMPLE TABLE

LDC#: 2000A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides /PCBs	Metals	Cyanide
66T02501	RC121001	TB	water	9-16-96	X				
66G00801	RC121002		water	9-16-96	X	X	X	X	X
66G00802	RC121003		water	9-16-96	X	X	X	X	X
66G00803	RC121004		water	9-17-96	X	X	X	X	X
66G00804	RC121005		water	9-17-96	X	X	X	X	X
66G00602	RC121006		water	9-17-96	X	X	X	X	X
66G00601	RC121007		water	9-18-96	X	X	X	X	X
66G00603	RC121008		water	9-18-96	X	X	X	X	X
66G00804F	RC121009		water	9-17-96				X	
66R01801	RC121010		water	9-18-96	X	X	X	X	X
66G00601D	RC121011	FD	water	9-18-96	X	X	X	X	X
66T02601	RC121012	TB	water	9-19-96	X				
66G00604	RC121013		water	9-19-96	X	X	X	X	X
66G02201	RC121014		water	9-19-96	X	X	X	X	X
66G02202	RC121015		water	9-19-96	X	X	X	X	X
66G02203	RC121016		water	9-20-96	X	X	X	X	X
66G02203D	RC121017	FD	water	9-20-96	X	X	X	X	X
66G00601MS	RC121007MS	MS	water	9-18-96	X	X	X	X	X
66G00601MSD	RC121007MSD	MSD	water	9-18-96	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF031		VALIDATION SAMPLE TABLE						LDC#: 2031A	
Project Name: NAS Whiting Field			Parameters/Analytical Method				Job#: 8532-20		
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA	SVOA	Pesticides /PCBs	Metals	Cyanide
05T02701	MB928001	TB	water	9-23-96	X				
05G00801	MB928002		water	9-23-96	X	X	X	X	X
05G00802	MB928003		water	9-23-96	X	X	X	X	X
05G00901	MB928004		water	9-24-96	X	X	X	X	X
05G00902	MB928005		water	9-24-96	X	X	X	X	X
05G01002	MB928006		water	9-24-96	X	X	X	X	X
05G01001	MB928007		water	9-25-96	X	X	X	X	X
05G00301	MB928008		water	9-25-96	X	X	X	X	X
05G00301RE	MB928008RE		water	9-25-96		X			
05G00801F	MB928009		water	9-23-96				X	
05G00902F	MB928010		water	9-24-96				X	
05R01901	MB928011	R	water	9-25-96	X	X	X	X	X
05G01001D	MB928012	FD	water	9-25-96	X	X	X	X	X
33T02801	MB958001	TB	water	9-26-96	X				
05G00101	MB958002		water	9-26-96	X	X	X	X	X
33G00501	MB958003		water	9-26-96	X	X	X	X	X
33G00201	MB958004		water	9-26-96	X	X	X	X	X
33G00101	MB958005		water	9-27-96	X	X	X	X	X
33G00301	MB958006		water	9-27-96	X	X	X	X	X
33G00301D	MB958007	FD	water	9-27-96	X	X	X	X	X
05G01001MS	MB928007MS	MS	water	9-25-96	X	X	X	X	X
05G01001MSD	MB928007MSD	MSD	water	9-25-96	X	X	X		
05G01001DUP	MB928007DUP	DUP	water	9-25-96				X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF031B

VALIDATION SAMPLE TABLE

LDC#: 2121A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 7560-32

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (CLP-1.9)	SVOA (CLP-1.9)	Pesticides /PCBs (CLP-1.9)	Metals (CLP-2.1)	Cyanide
05G01002	MC447001		water	11-21-96	X	X	X	X	X
16T04001	MC447002	TB	water	11-21-96	X				

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF032

VALIDATION SAMPLE TABLE

LDC#: 2046A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (CLP-1.9)	SVOA (CLP-1.9)	Pesticides /PCBs (CLP-1.9)	Metals	Cyanide
06T02901	MC011001	TB	water	9-30-96	X				
33G00401	MC011002		water	9-30-96	X	X	X	X	X
06G00102	MC011003		water	10-1-96	X	X	X	X	X
06G00101	MC011004		water	10-1-96	X	X	X	X	X
06G00301	MC011005		water	10-2-96	X	X	X	X	X
06R02001	MC011006	R	water	10-2-96	X	X	X	X	X
29G00501	MC011007		water	10-2-96	X	X	X	X	X
29G00501D	MC011008	FD	water	10-2-96	X	X	X	X	X
29T03001	MC037001	TB	water	10-3-96	X				
29G00101	MC037002		water	10-3-96	X	X	X	X	X
66G01201	MC037003		water	10-3-96	X	X	X	X	X
66G00102	MC037004		water	10-4-96	X	X	X	X	X
29G00501MS	MC011007MS	MS	water	10-2-96	X	X	X	X	X
29G00501MSD	MC011007MSD	MSD	water	10-2-96	X	X	X		
29G00501DUP	MC011007DUP	DUP	water	10-2-96				X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF033		VALIDATION SAMPLE TABLE						LDC#: 2069A	
Project Name: NAS Whiting Field			Parameters/Analytical Method				Job#: 8532-20		
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (CLP-1.9)	SVOA (CLP-1.9)	Pesticides /PCBs (CLP-1.9)	Metals	Cyanide
29T03101	MC085001	TB	water	10-7-96	X				
26G00401	MC085002		water	10-7-96	X	X	X	X	X
26G00301	MC085003		water	10-8-96	X	X	X	X	X
66G00202	MC085004		water	10-8-96	X	X	X	X	X
29G00201	MC085005		water	10-8-96	X	X	X	X	X
66G01901	MC085006		water	10-9-96	X	X	X	X	X
66R02101	MC085007	R	water	10-9-96	X	X	X	X	X
66T03201	MC118001	TB	water	10-10-96	X				
66G00201	MC118002		water	10-9-96	X	X	X	X	X
66G00201D	MC118003	FD	water	10-9-96	X	X	X	X	X
07G00101	MC118004		water	10-10-96	X	X	X	X	X
30G00501	MC118005		water	10-10-96	X	X	X	X	X
66G00301	MC118006		water	10-11-96	X	X	X	X	X
66G00201MS	MC118002MS	MS	water	10-9-96	X	X	X	X	X
66G00201MSD	MC118002MSD	MSD	water	10-9-96	X	X	X		
66G00201DUP	MC118002DUP	DUP	water	10-9-96				X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF034

VALIDATION SAMPLE TABLE

LDC#: 2070A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (CLP-1.9)	SVOA (CLP-1.9)	Pesticides /PCBs (CLP-1.9)	Metals	Cyanide
66T03301	MC153001	TB	water	10-14-96	X				
66G02001	MC153002		water	10-14-96	X	X	X	X	X
66G00302	MC153003		water	10-15-96	X	X	X	X	X
66G01801	MC153004		water	10-16-96	X	X	X	X	X
30G00301	MC153005		water	10-16-96	X	X	X	X	X
30G00401	MC153006		water	10-16-96	X	X	X	X	X
66R02201	MC153007	R	water	10-16-96	X	X	X	X	X
30G00301D	MC153008	FD	water	10-16-96	X	X	X	X	X
66T03401	MC176001	TB	water	10-17-96	X				
66G01101	MC176002		water	10-17-96	X	X	X	X	X
66G01301	MC176003		water	10-17-96	X	X	X	X	X
66G00501	MC176004		water	10-18-96	X	X	X	X	X
66G00501F	MC176005		water	10-18-96				X	
30G00301MS	MC153005MS	MS	water	10-16-96	X	X	X	X	X
30G00301MSD	MC153005MSD	MSD	water	10-16-96	X	X	X		
30G00301DUP	MC153005DUP	DUP	water	10-16-96				X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF035

VALIDATION SAMPLE TABLE

LDC#: 2076A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 8532-20

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (CLP-1.9)	SVOA (CLP-1.9)	Pesticides /PCBs (CLP-1.9)	Metals	Cyanide
66T03501	MC214001	TB	water	10-21-96	X				
66G00401	MC214002		water	10-21-96	X	X	X	X	X
66G01601	MC214003		water	10-22-96	X	X	X	X	X
66G01501	MC214004		water	10-22-96	X	X	X	X	X
66G01701	MC214005		water	10-23-96	X	X	X	X	X
66R02301	MC214006	R	water	10-23-96	X	X	X	X	X
66G01701D	MC214007	FD	water	10-23-96	X	X	X	X	X
66T03601	MC231001	TB	water	10-24-96	X				
66G00101	MC231002		water	10-24-96	X	X	X	X	X
08G00101	MC231003		water	10-24-96	X	X	X	X	X
66G01001	MC231004		water	10-25-96	X	X	X	X	X
66G01701MS	MC214005MS	MS	water	10-23-96	X	X	X	X	X
66G01701MSD	MC214005MSD	MSD	water	10-23-96	X	X	X		
66G01701DUP	MC214005DUP	DUP	water	10-23-96				X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF036		VALIDATION SAMPLE TABLE						LDC#: 2077A	
Project Name: NAS Whiting Field			Parameters/Analytical Method				Job#: 8532-20		
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (CLP-1.9)	SVOA (CLP-1.9)	Pesticides /PCBs (CLP-1.9)	Metals	Cyanide
66T03701	MC262001	TB	water	10-28-96	X				
66G00701	MC262002		water	10-29-96	X	X	X	X	X
54G00201	MC262003		water	10-29-96	X	X	X	X	X
54G00101	MC262004		water	10-30-96	X	X	X	X	X
31G00201	MC262005		water	10-30-96	X	X	X	X	X
31G00201F	MC262006		water	10-30-96				X	
54R02401	MC262007	R	water	10-30-96	X	X	X	X	X
54G00101D	MC262008	FD	water	10-30-96	X	X	X	X	X
31T03801	MC284001	TB	water	10-31-96	X				
31G00301	MC284002		water	10-31-96	X	X	X	X	X
31G00402	MC284003		water	10-31-96	X	X	X	X	X
31G00403	MC284004		water	11-1-96	X	X	X	X	X
54G00101MS	MC262004MS	MS	water	10-30-96	X	X	X	X	X
54G00101MSD	MC262004MSD	MSD	water	10-30-96	X	X	X		
54G00101DUP	MC262004DUP	DUP	water	10-30-96				X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF037		VALIDATION SAMPLE TABLE						LDC#: 2071A	
Project Name: NAS Whiting Field			Parameters/Analytical Method				Job#: 8532-20		
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (CLP-1.9)	SVOA (CLP-1.9)	Pesticides /PCBs (CLP-1.9)	Metals	Cyanide
15T03901	MC424001	TB	water	11-18-96	X				
15G00502	MC424002		water	11-18-96	X				
15G00503	MC424003		water	11-18-96	X				
16G00202	MC424004		water	11-19-96	X				
16G00203	MC424005		water	11-19-96	X				
15G00802	MC424006		water	11-20-96	X				
15G00803	MC424007		water	11-20-96	X				
15G00803D	MC424008	FD	water	11-20-96	X				
15R02501	MC424009	R	water	11-20-96	X				
15F00201	MC424010		water	11-20-96	X	X	X	X	X
16G00702	MC448001		water	11-21-96	X				
16G00703	MC448002		water	11-21-96	X				
16G00403	MC448003		water	11-22-96	X				
16T04001	MC448004	TB	water	11-21-96	X				
15G00803MS	MC424007MS	MS	water	11-20-96	X				
15G00803MSD	MC424007MSD	MSD	water	11-20-96	X				

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF038

VALIDATION SAMPLE TABLE

LDC#: 2099A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 7560-32

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (CLP-1.9)
36T04101	MC687001	TB	water	12-17-96	X
36BO0101	MC687002		soil	12-17-96	X
36BO0102	MC687003		soil	12-17-96	X
36BO0103	MC687004		soil	12-17-96	X
36BO0201	MC687005		soil	12-17-96	X
36BO0202	MC687006		soil	12-17-96	X
36BO0203	MC687007		soil	12-17-96	X
36BO0301	MC687008		soil	12-17-96	X
36BO0302	MC687009		soil	12-17-96	X
36BO0303	MC687010		soil	12-17-96	X
36BO0303D	MC687011	FD	soil	12-17-96	X
36BO0401	MC687012		soil	12-18-96	X
36BO0401DL	MC687012DL		soil	12-18-96	X
36BO0402	MC687013		soil	12-18-96	X
36BO0403	MC687014		soil	12-18-96	X
36BO0403D	MC687015	FD	soil	12-18-96	X
36RO2601	MC687016	R	water	12-18-96	X
36BO0303MS	MC687011MS	MS	soil	12-17-96	X
36BO0303MSD	MC687011MSD	MSD	soil	12-17-96	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

SDG#: WF039

VALIDATION SAMPLE TABLE

LDC#: 2102A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 7560-32

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (CLP-1.9)
35TO4201	MC698001	TB	water	12-19-96	X
35BO0101	MC698002		soil	12-20-96	X
35BO0102	MC698003		soil	12-20-96	X
35BO0102DL	MC698003DL		soil	12-20-96	X
35BO0103	MC698004		soil	12-20-96	X
35BO0104	MC698005		soil	12-20-96	X
35BO0105	MC698006		soil	12-20-96	X
35BO0106	MC698007		soil	12-21-96	X
35BO0201	MC698008		soil	12-21-96	X
35BO0202	MC698009		soil	12-21-96	X
35BO0203	MC698010		soil	12-21-96	X
35RO2701	MC698011	R	water	12-21-96	X
35BO0301	MC698012		soil	12-21-96	X
35BO0302	MC698013		soil	12-21-96	X
35BO0303	MC698014		soil	12-21-96	X
35BO0302D	MC698015	FD	soil	12-21-96	X
35BO0203D	MC698016	FD	soil	12-21-96	X
35BO0203MS	MC698010MS	MS	soil	12-21-96	X
35BO0203MSD	MC698010MSD	MSD	soil	12-21-96	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF040

VALIDATION SAMPLE TABLE

LDC#: 2120A

Project Name: NAS Whiting Field

Parameters/Analytical Method

Job#: 7560-32

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (CLP-1.9)
35TO4301	MC783001	TB	water	1-7-97	X
35BO0401	MC783002		soil	1-7-97	X
35BO0402	MC783003		soil	1-7-97	X
35BO0403	MC783004		soil	1-7-97	X
35BO0501	MC783005		soil	1-7-97	X
35BO0501DL	MC783005DL		soil	1-7-97	X
35BO0502	MC783006		soil	1-7-97	X
35BO0503	MC783007		soil	1-7-97	X
35BO0201	MC783008		soil	1-8-97	X
35BO0202	MC783009		soil	1-8-97	X
35BO0203	MC783010		soil	1-8-97	X
35BO0101	MC783011		soil	1-8-97	X
35BO0102	MC783012		soil	1-8-97	X
35BO0103	MC783013		soil	1-8-97	X
35BO0301	MC783014		soil	1-9-97	X
35BO0302	MC783015		soil	1-9-97	X
35BO0303	MC783016		soil	1-9-97	X
35R02801	MC783017	R	water	1-9-97	X
35BO0203D	MC783018	FD	soil	1-8-97	X
35BO0103D	MC783019	FD	soil	1-8-97	X
35BO0203MS	MC783010MS	MS	soil	1-8-97	X
35BO0203MSD	MC783010MSD	MSD	soil	1-8-97	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF041

VALIDATION SAMPLE TABLE

LDC#: 2323A

Project Name: NAS Whiting

Parameters/Analytical Method

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)	SVOA (1.9)	Pesticides /PCBs (1.9)	Metals (2.1)
35T04501	MD908001	TB	water	6-11-97	X			
35F00301	MD908002		water	6-11-97	X	X	X	X
35R03001	MD908003	R	water	6-11-97	X	X	X	X
35G00101	MD908004		water	6-11-97	X	X	X	X
35G00101D	MD908005	FD	water	6-11-97	X	X	X	X
35G00101DRE	MD908005RE	FD	water	6-11-97		X		
35G00103	MD908006		water	6-11-97	X	X	X	X
35G00103F	MD908007		water	6-11-97				X
35G00102	MD908008		water	6-12-97	X	X	X	X
37G00102	MD908009		water	6-12-97	X	X	X	X
37T04601	MD926001	TB	water	6-12-97	X			
36G00101	MD926002		water	6-12-97	X	X	X	X
36G00101F	MD926003		water	6-12-97				X
37G00101	MD926004		water	6-12-97	X	X	X	X
36G00102	MD926005		water	6-13-97	X	X	X	X
36G00102RE	MD926005RE		water	6-13-97		X		
36G00103	MD926006		water	6-13-97	X	X	X	X
36G00103RE	MD926006RE		water	6-13-97		X		
35T04701	MD950001	TB	water	6-15-97	X			
35G00202	MD950002		water	6-15-97	X	X	X	X
35G00202D	MD950003	FD	water	6-15-97	X	X	X	X
35G00203	MD950004		water	6-15-97	X	X	X	X
35G00201	MD950005		water	6-16-97	X	X	X	X
35G00201F	MD950006		water	6-16-97				X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF041

VALIDATION SAMPLE TABLE

LDC#: 2323A

Project Name: NAS Whiting

Parameters/Analytical Method

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)	SVOA (1.9)	Pesticides /PCBs (1.9)	Metals (2.1)
13T04801	MD985001	TB	water	6-16-97	X			
13G00301	MD985002		water	6-16-97	X	X	X	X
13G00301F	MD985003		water	6-16-97				X
13G00401	MD985004		water	6-16-97	X	X	X	X
35G00101MS	MD908004MS	MS	water	6-11-97	X	X	X	X
35G00101MSD	MD908004MSD	MSD	water	6-11-97	X	X	X	
35G00101DUP	MD908004DUP	DUP	water	6-11-97				X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF042

VALIDATION SAMPLE TABLE

LDC#: 2311A

Project Name: NAS Whiting

Parameters/Analytical Method

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)
05T04901	ME007001	TB	water	6-18-97	X
05G00301	ME007002		water	6-17-97	X
05G00901	ME007003		water	6-18-97	X
05G00902	ME007004		water	6-19-97	X
05G00902D	ME007005	FD	water	6-19-97	X
05R03101	ME007006	R	water	6-17-97	X
05T05001	ME021001		water	6-20-97	X
05G01001	ME021002		water	6-20-97	X
05G01002	ME021003		water	6-20-97	X
05G00902MS	ME007004MS	MS	water	6-19-97	X
05G00902MSD	ME007004MSD	MSD	water	6-19-97	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF043		VALIDATION SAMPLE TABLE				LDC#: 2315A
Project Name: NAS Whiting		Parameters/Analytical Method				
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)	
05T05101	ME042001	TB	water	6-23-97	X	
05R03201	ME042002	R	water	6-23-97	X	
05G00801	ME042003		water	6-24-97	X	
05G00802	ME042004		water	6-24-97	X	
05G00802D	ME042005	FD	water	6-24-97	X	
33T05201	ME053001	TB	water	6-24-97	X	
33G00501	ME053002		water	6-24-97	X	
33G00101	ME053003		water	6-24-97	X	
33G00201	ME053004		water	6-25-97	X	
33G00301	ME053005		water	6-25-97	X	
33G00301DL	ME053005DL		water	6-25-97	X	
33T05301	ME073001	TB	water	6-25-97	X	
06G00102	ME073002		water	6-26-97	X	
06G00301	ME073003		water	6-26-97	X	
33G00401	ME073004		water	6-26-97	X	
30T05401	ME087001	TB	water	6-26-97	X	
07G00101	ME087002		water	6-26-97	X	
07G00101D	ME087003	FD	water	6-26-97	X	
30G00501	ME087004		water	6-26-97	X	
30G00301	ME087005		water	6-27-97	X	
30G00401	ME087006		water	6-27-97	X	
05G00802MS	ME042004MS	MS	water	6-24-97	X	
05G00802MSD	ME042004MSD	MSD	water	6-24-97	X	

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF044		VALIDATION SAMPLE TABLE			LDC#: 2322A
Project Name: NAS Whiting		Parameters/Analytical Method			
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)
06T05501	ME100001	TB	water	6-29-97	X
06R03301	ME100002	R	water	6-29-97	X
66G00201	ME100003		water	6-29-97	X
06G00101	ME100004		water	6-29-97	X
66G00202	ME100005		water	6-30-97	X
66T05601	ME110001	TB	water	6-30-97	X
66G01201	ME110002		water	6-30-97	X
66G01201D	ME110003	FD	water	6-30-97	X
66G00102	ME110004		water	7-1-97	X
66G01301	ME110005		water	7-1-97	X
66T05701	ME133001	TB	water	7-2-97	X
66G00401	ME133002		water	7-2-97	X
66G02001	ME133003		water	7-2-97	X
66T05801	ME135001	TB	water	7-2-97	X
66G00603	ME135002		water	7-2-97	X
66G00603D	ME135003	FD	water	7-2-97	X
66G00604	ME135004		water	7-2-97	X
66G00601	ME135005		water	7-3-97	X
66G00602	ME135006		water	7-3-97	X
66G01201MS	ME110002MS	MS	water	6-30-97	X
66G01201MSD	ME110002MSD	MSD	water	6-30-97	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF045

VALIDATION SAMPLE TABLE

LDC#: 2345A

Project Name: NAS Whiting

Parameters/Analytical Method

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)	SVOA (1.9)	Pesticides /PCBs (1.9)	Metals (2.1)	Cyanide
OWT05901	ME149001	TB	water	7-7-97	X				
OWR03401	ME149002	R	water	7-7-97	X	X	X	X	X
OWG00501	ME149003		water	7-8-97	X	X	X	X	X
OWG00502	ME149004		water	7-8-97	X	X	X	X	X
OWG00502D	ME149005	FD	water	7-8-97	X	X	X	X	X
OWG00503	ME149006		water	7-8-97	X	X	X	X	X
OWG00503F	ME149007		water	7-8-97				X	
OWT06001	ME159001	TB	water	7-8-97	X				
OWG00101	ME159002		water	7-9-97	X	X	X	X	X
OWG00101RE	ME159002RE		water	7-9-97		X			
OWG00102	ME159003		water	7-9-97	X	X	X	X	X
OWG00102RE	ME159003RE		water	7-9-97		X			
OWG00103	ME159004		water	7-9-97	X	X	X	X	X
OWG00103RE	ME159004RE		water	7-9-97		X			
66T06101	ME175001	TB	water	7-9-97	X				
66G02301	ME175002		water	7-9-97	X	X	X	X	X
66G02301RE	ME175002RE		water	7-9-97		X			
66G02302	ME175003		water	7-9-97	X	X	X	X	X
66G02303	ME175004		water	7-10-97	X	X	X	X	X
OWT06201	ME190001	TB	water	7-10-97	X				
OWG00302	ME190002		water	7-10-97	X	X	X	X	X
OWG00302D	ME190003	FD	water	7-10-97	X	X	X	X	X
OWG00303	ME190004		water	7-10-97	X	X	X	X	X
OWG00301	ME190005		water	7-11-97	X	X	X	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF045		VALIDATION SAMPLE TABLE						LDC#: 2345A	
Project Name: NAS Whiting			Parameters/Analytical Method						
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)	SVOA (1.9)	Pesticides /PCBs (1.9)	Metals (2.1)	Cyanide
OWG00301F	ME190006		water	7-11-97				X	
OWT06401	ME226001	TB	water	7-14-97	X				
OWT06401DL	ME226001DL		water	7-14-97	X				
OWG00401	ME226002		water	7-14-97	X	X	X	X	X
OWG00201	ME226003		water	7-15-97	X	X	X	X	X
OWG00502MS	ME149004MS	MS	water	7-8-97	X	X	X	X	X
OWG00502MSD	ME149004MSD	MSD	water	7-8-97	X	X	X		
OWG00502DUP	ME149004DUP	DUP	water	7-8-97				X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF046

VALIDATION SAMPLE TABLE

LDC#: 2377A

Project Name: NAS Whiting

Parameters/Analytical Method

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)	SVOA (1.9)	Pesticides /PCBs (1.9)	Metals (4.0)	Cyanide
OWT06501	ME241001	TB	water	7-15-97	X				
31R03301	ME241002	R	water	7-15-97	X	X	X	X	X
31G00101	ME241003		water	7-15-97	X	X	X	X	X
31G00101D	ME241004	FD	water	7-15-97	X	X	X	X	X
OWT06601	ME261001	TB	water	7-16-97	X				
31G00401	ME261002		water	7-16-97	X	X	X	X	X
31G00402	ME261003		water	7-16-97	X				
31G00403	ME261004		water	7-16-97	X				
31G00301	ME261005		water	7-16-97	X				
31T06701	ME305001	TB	water	7-21-97	X				
31G00201	ME305002		water	7-21-97	X				
31G00101MS	ME241003MS	MS	water	7-15-97	X	X	X	X	
31G00101MSD	ME241003MSD	MSD	water	7-15-97	X	X	X		
31G00101DUP	ME241003DUP	DUP	water	7-15-97				X	

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF047

VALIDATION SAMPLE TABLE

LDC#: 2346A

Project Name: NAS Whiting

Parameters/Analytical Method

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA OLV01.0	Metals (2.1)
39W028	ME243001		water	7-15-97	X	
39W027	ME243002		water	7-15-97	X	
39W024	ME243003		water	7-15-97	X	
39W032	ME243004		water	7-15-97	X	X
39W034	ME243005		water	7-15-97	X	X
39W034D	ME243006		water	7-15-97	X	X
39W031	ME243007		water	7-15-97	X	
STOR_BLK	ME243008		water	7-17-97	X	
39T10001	ME244001	TB	water	7-15-97	X	
39W001	ME244002		water	7-15-97	X	
39W002	ME244003		water	7-15-97	X	X
39W003	ME244004		water	7-15-97	X	
39W004	ME244005		water	7-15-97	X	
39W005	ME244006		water	7-15-97	X	
39W006	ME244007		water	7-15-97	X	
39W007	ME244008		water	7-15-97	X	
39W008	ME244009		water	7-15-97	X	
39W014	ME267001		water	7-16-97	X	
39W015	ME267002		water	7-16-97	X	
39W016	ME267003		water	7-16-97	X	X
39W012	ME267004		water	7-16-97	X	
39W012D	ME267005	FD	water	7-16-97	X	
39W013	ME267006		water	7-16-97	X	
39W017	ME267007		water	7-16-97	X	

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF047		VALIDATION SAMPLE TABLE				LDC#: 2346A	
Project Name: NAS Whiting			Parameters/Analytical Method				
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA OLV01.0	Metals (2.1)	
STOR_BLK2	ME267008		water	7-18-97	X		
39W034MS	ME243005MS	MS	water	7-15-97	X	X	
39W034MSD	ME243005MSD	MSD	water	7-15-97	X		
39W034DUP	ME243005DUP	DUP	water	7-15-97		X	

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF048

VALIDATION SAMPLE TABLE

LDC#: 2338A

Project Name: NAS Whiting

Parameters/Analytical Method

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)
39D002	ME245001		soil	7-15-97	X
39D001	ME245002		soil	7-15-97	X
39D007	ME245003		soil	7-15-97	X
39D023	ME264001		soil	7-16-97	X
39D026	ME264002		soil	7-16-97	X
39D016	ME264003		soil	7-16-97	X
39D013	ME264004		soil	7-16-97	X
39D019	ME264005		soil	7-17-97	X
39D018	ME264006		soil	7-17-97	X
39D018D	ME264007	FD	soil	7-17-97	X
39D022	ME264008		soil	7-17-97	X
39R03401	ME264009	R	water	7-16-97	X
39D018MS	ME264006MS	MS	soil	7-17-97	X
39D018MSD	ME264006MSD	MSD	soil	7-17-97	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF049

VALIDATION SAMPLE TABLE

LDC#: 2347A

Project Name: NAS Whiting

Parameters/Analytical Method

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)	SVOA (1.9)
39T10201	ME262001	TB	water	7-15-97	X	
39W023	ME262002		water	7-16-97	X	
39W026	ME262003		water	7-16-97	X	
39W025	ME262004		water	7-16-97	X	
39W029	ME262005		water	7-16-97	X	
39W030	ME262006		water	7-16-97	X	
39U001	ME262007		water	7-16-97	X	X
39W018	ME263001		water	7-17-97	X	
39W019	ME263002		water	7-17-97	X	
39W020	ME263003		water	7-17-97	X	
39W021	ME263004		water	7-17-97	X	
39W021D	ME263005	FD	water	7-17-97	X	
39W022	ME263006		water	7-17-97	X	
39T10401	ME263007	TB	water	7-17-97	X	
39W021MS	ME263004MS	MS	water	7-17-97	X	
39W021MSD	ME263004MSD	MSD	water	7-17-97	X	

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF051

VALIDATION SAMPLE TABLE

LDC#: 2360A

Project Name: NAS Whiting

Parameters/Analytical Method

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)	Metals (CLP)
16T06801	ME306001	TB	water	7-21-97	X	
16R03501	ME306002	R	water	7-21-97	X	
16G00401	ME306003		water	7-22-97	X	
16G00401D	ME306004	FD	water	7-22-97	X	
16G00402	ME306005		water	7-22-97	X	
16G00403	ME306006		water	7-22-97	X	
16T06901	ME322001	TB	water	7-22-97	X	
16G00302	ME322002		water	7-22-97	X	X
16G00303	ME322003		water	7-22-97	X	X
16G00202	ME322004		water	7-23-97	X	X
16G00203	ME322005		water	7-23-97	X	X
16T07001	ME340001	TB	water	7-23-97	X	
16G00601	ME340002		water	7-23-97	X	X
16G00601F	ME340003		water	7-23-97		X
16G00602	ME340004		water	7-23-97	X	X
16R03601	MW340005	R	water	7-23-97		X
16G00304	ME340006		water	7-24-97	X	X
16G00304F	ME340007		water	7-24-97		X
16G00301	ME340008		water	7-24-97	X	X
16G00101	ME340009		water	7-24-97	X	X
16G00101D	ME340010	FD	water	7-24-97	X	X
16T07101	ME348001	TB	water	7-25-97	X	
16G00702	ME348002		water	7-25-97	X	X
16G00702DL	ME348002DL		water	7-25-97	X	

TB = Trip Blank, R = Rinstate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

SDG#: WF051

VALIDATION SAMPLE TABLE

LDC#: 2360A

Project Name: NAS Whiting

Parameters/Analytical Method

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)	Metals (CLP)
16G00703	ME348003		water	7-25-97	X	X
16G00703DL	ME348003DL		water	7-25-97	X	
16G00701	ME348004		water	7-25-97	X	X
16G00401MS	ME306003MS	MS	water	7-22-97	X	
16G00401MSD	ME306003MSD	MSD	water	7-22-97	X	

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF052		VALIDATION SAMPLE TABLE			LDC#: 2354A
Project Name: NAS Whiting		Parameters/Analytical Method			
Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (OLV01.0)
39018	ME346001		water	7-25-97	X
39019	ME346002		water	7-25-97	X
39020	ME346003		water	7-25-97	X
39021	ME346004		water	7-25-97	X
39020D	ME346005	FD	water	7-25-97	X
39029	ME346006		water	7-25-97	X
39T10501	ME346007	TB	water	7-25-97	X
STORAGEBLK	ME346008		water	7-26-97	X
39020MS	ME346003MS	MS	water	7-25-97	X
39020MSD	ME346003MSD	MSD	water	7-25-97	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF053

VALIDATION SAMPLE TABLE

LDC#: 2384A

Project Name: NAS Whiting

Parameters/Analytical Method

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)	Metals (2.1)
15T07201	ME367001	TB	water	7-27-97	X	
15R03701	ME367002	R	water	7-27-97	X	X
15G00601	ME367003		water	7-27-97	X	X
15G00602	ME367004		water	7-27-97	X	X
15G00602D	ME367005	FD	water	7-27-97	X	X
15T07301	ME377001	TB	water	7-28-97	X	
15G00201	ME377002		water	7-28-97	X	X
15G00101	ME377003		water	7-28-97	X	X
15G00202	ME377004		water	7-29-97	X	X
15G00203	ME377005		water	7-29-97	X	X
15T07401	ME390001	TB	water	7-29-97	X	
15G00301	ME390002		water	7-29-97	X	X
15G00302	ME390003		water	7-29-97	X	X
15G00701	ME390004		water	7-30-97	X	X
15G00702	ME390005		water	7-30-97	X	X
15T07501	ME404001	TB	water	7-30-97	X	
15G00401	ME404002		water	7-30-97	X	X
15G00703	ME404003		water	7-30-97	X	X
15G00703D	ME404004	FD	water	7-30-97	X	X
15G00501	ME404005		water	7-31-97	X	X
15G00501F	ME404006		water	7-31-97		X
15G00502	ME404007		water	7-31-97	X	X
15G00503	ME404008		water	7-31-97	X	X
15G00602MS	ME367004MS	MS	water	7-27-97	X	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF053

VALIDATION SAMPLE TABLE

LDC#: 2384A

Project Name: NAS Whiting

Parameters/Analytical Method

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)	Metals (2.1)
15G00602MSD	ME367004MSD	MSD	water	7-27-97	X	
15G00602DUP	ME367004DUP	DUP	water	7-27-97		X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF054

VALIDATION SAMPLE TABLE

LDC#: 2399A

Project Name: NAS Whiting

Parameters/Analytical Method

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)	Metals (2.1)
15T07601	ME441001	TB	water	8-4-97	X	
15G00801	ME441002		water	8-4-97	X	X
15G00801D	ME441003	FD	water	8-4-97	X	X
15G00802	ME441004		water	8-4-97	X	X
15R03801	ME441005	R	water	8-5-97	X	X
15G00803	ME441006		water	8-5-97	X	X
15G00303	ME441007		water	8-5-97	X	X
30T07701	ME450001	TB	water	8-5-97	X	
30R03901	ME450002	R	water	8-6-97	X	X
30G00302	ME450003		water	8-6-97	X	X
15G00801MS	ME441002MS	MS	water	8-4-97	X	X
15G00801MSD	ME441002MSD	MSD	water	8-4-97	X	
15G00801DUP	ME441002DUP	DUP	water	8-4-97		X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table 1

SDG#: WF055

VALIDATION SAMPLE TABLE

LDC#: 2511A

Project Name: NAS Whiting

Parameters/Analytical Method

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (1.9)
OWT08001	MF004001	TB	water	10-27-97	X
OWR04101	MF004002	R	water	10-27-97	X
OWG00401	MF004003		water	10-27-97	X
OWG00401D	MF004004		water	10-27-97	X
13R04201	MF004005	R	water	10-28-97	X
13G00401	MF004006		water	10-28-97	X
OWG00401MS	MF004003MS	MS	water	10-27-97	X
OWG00401MSD	MF004003MSD	MSD	water	10-27-97	X

TB = Trip Blank, R = Rinsate, SB = Source Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate

Table II
Summary of Rejected Data (Organics)
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds				
SDG	Fraction	Sample	Compound	Reason
WF022	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF023	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF024	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF025	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF026	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF027	Volatiles	16G00501 16G00501D 16R01501 66G02101 66G02103 66T02001	2-Butanone 2-Butanone 2-Butanone 2-Butanone 2-Butanone 2-Butanone	Initial & Continuing Calibration (RAF)
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF028	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF029	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF030	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF031	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF031B	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF032	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	29G00501 29G00501D	Heptachlor epoxide Heptachlor epoxide	Target compound identification (RT)
WF033	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF034	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF035	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-

Table II
Summary of Rejected Data (Organics)
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds

SDG	Fraction	Sample	Compound	Reason
WF036	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF037	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF038	Volatiles	All samples	No rejected results	-
WF039	Volatiles	All samples	No rejected results	-
WF040	Volatiles	All samples	No rejected results	-
WF041	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF042	Volatiles	All samples	No rejected results	-
WF043	Volatiles	All samples	No rejected results	-
WF044	Volatiles	All samples	No rejected results	-
WF045	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF046	Volatiles	All samples	No rejected results	-
	Semivolatiles	All samples	No rejected results	-
	Pesticides & PCBs	All samples	No rejected results	-
WF047	Volatiles	39T10001	Acetone & 2-Butanone	Initial & Continuing Calibration (RRF)
		39W001	Acetone & 2-Butanone	
		39W002	Acetone & 2-Butanone	
		39W003	Acetone & 2-Butanone	
		39W004	Acetone & 2-Butanone	
		39W005	Acetone & 2-Butanone	
		39W006	Acetone & 2-Butanone	
		39W007	Acetone & 2-Butanone	
		39W008	2-Butanone	
		39W012	Acetone & 2-Butanone	
		39W012D	Acetone & 2-Butanone	
		39W013	Acetone & 2-Butanone	
		39W014	Acetone & 2-Butanone	
		39W015	Acetone & 2-Butanone	
		39W016	Acetone & 2-Butanone	
		39W017	Acetone & 2-Butanone	
		39W024	2-Butanone	
		39W027	2-Butanone	
		39W028	2-Butanone	
		39W031	2-Butanone	
39W032	Acetone & 2-Butanone			
39W034	2-Butanone			
39W034D	Acetone & 2-Butanone			
STOR_BLK	2-Butanone			
STOR_BLK2	2-Butanone			
WF048	Volatiles	All samples	No rejected results	-

Table II
Summary of Rejected Data (Organics)
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds				
SDG	Fraction	Sample	Compound	Reason
WF049	Volatiles	39T10201 39T10401 39W016 39W019 39W020 39W021 39W021D 39W022 39W023 39W025 39W026 39W029 39W030	Acetone & 2-Butanone Acetone & 2-Butanone Acetone 2-Butanone Acetone & 2-Butanone Acetone & 2-Butanone Acetone & 2-Butanone Acetone & 2-Butanone Acetone & 2-Butanone Acetone & 2-Butanone Acetone & 2-Butanone 2-Butanone 2-Butanone	Initial & Continuing Calibration (RRF)
WF049	Semivolatiles	All samples	No rejected results	-
WF051	Volatiles	All samples	No rejected results	-
WF052	Volatiles	39G016 39G019 39G020 39G020D 39G021 39G029 39R10501 STORAGE BLK	Acetone & 2-Butanone Acetone	Initial & Continuing Calibration (RRF)
WF053	Volatiles	All samples	No rejected results	-
WF054	Volatiles	All samples	No rejected results	-
WF055	Volatiles	All samples	No rejected results	-

Table III
Summary of Rejected Data (Inorganics)
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes				
SDG	Fraction	Sample	Analyte	Reason
WF045	All metals Cyanide	All samples All samples	No rejected results No rejected results	- -
WF046	All metals Cyanide	All samples All samples	No rejected results No rejected results	- -
WF047	All metals	All samples	No rejected results	-
WF051	All metals	All samples	No rejected results	-
WF053	All metals	All samples	No rejected results	-
WF054	All metals	All samples	No rejected results	-

Table IV
Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike/Matrix Spike Duplicates
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds								
SDG	Client ID	Compound	Criteria		% Recovery		RPD	Qualifier
			% Recovery	RPD	MS	MSD		
WF022	BKG00101	Volatiles	-	-	-	-	-	None
		<u>Semivolatiles</u>						
		4-Chloro-3-methylphenol	23-97	-	108	115	-	J (all detects)
		4-Nitrophenol	10-80	-	88	93	-	J (all detects)
		2,4-Dinitrotoluene	24-96	-	100	108	-	J (all detects)
		Pentachlorophenol	9-103	-	106	118	-	J (all detects)
		Pesticides/PCBs	-	-	-	-	None	
WF023	02G00301	Volatiles	-	-	-	-	-	None
		<u>Semivolatiles</u>						
		4-Nitrophenol	10-80	-	88	82	-	J (all detects)
		2,4-Dinitrotoluene	24-96	-	97	-	-	J (all detects)
		Pentachlorophenol	9-103	-	139	122	-	J (all detects)
				Pesticides/PCBs	-	-	-	-
WF024	15G00701	Volatiles	-	-	-	-	-	None
		<u>Semivolatiles</u>						
		4-Nitrophenol	10-80	-	100	102	-	J (all detects)
		2,4-Dinitrotoluene	24-96	-	102	106	-	J (all detects)
		Pentachlorophenol	9-103	-	147	148	-	J (all detects)
				Pesticides/PCBs	-	-	-	-
WF025	15G00601	Volatiles	-	-	-	-	-	None
		<u>Semivolatiles</u>						
		4-Nitrophenol	10-80	-	99	102	-	J (all detects)
		2,4-Dinitrotoluene	24-96	-	101	103	-	J (all detects)
		Pentachlorophenol	9-103	-	124	130	-	J (all detects)
				Pesticides/PCBs	-	-	-	-

Table IV
Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike/Matrix Spike Duplicates
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds								
SDG	Client ID	Compound	Criteria		% Recovery		RPD	Qualifier
			% Recovery	RPD	MS	MSD		
WF026	15G00803	Volatiles	-	-	-	-	-	None
		<u>Semivolatiles</u>						
		4-Chloro-3-methylphenol	23-97	-	99	-	-	J (all detects)
		4-Nitrophenol	10-80	-	108	114	-	J (all detects)
		Pentachlorophenol	9-103	-	140	144	-	J (all detects)
		2,4-Dinitrotoluene	24-96	-	-	100	-	J (all detects)
		Pesticides/PCBs	-	-	-	-	None	
WF027	16G00501	<u>Volatiles</u>						
		Benzene	-	≤11	-	-	12	J
		<u>Semivolatiles</u>						
		4-Nitrophenol	10-80	-	91	91	-	J (all detects)
		Pentachlorophenol	9-103	-	104	104	-	J (all detects)
		Pesticides/PCBs	-	-	-	-	None	
WF028	12G00101	Volatiles	-	-	-	-	-	None
		<u>Semivolatiles</u>						
		4-Nitrophenol	10-80	-	83	-	-	J (all detects)
		Pesticides/PCBs	-	-	-	-	None	
WF029	14G00101	Volatiles	-	-	-	-	-	None
		<u>Semivolatiles</u>						
		4-Nitrophenol	10-80	-	88	91	-	J (all detects)
		Pentachlorophenol	9-103	-	-	106	-	J (all detects)
		Pesticides/PCBs	-	-	-	-	None	
WF030	66G00601	Volatiles	-	-	-	-	-	None
		<u>Semivolatiles</u>						
		4-Nitrophenol	10-80	-	85	89	-	J (all detects)
		Pesticides/PCBs	-	-	-	-	None	

Table IV
Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike/Matrix Spike Duplicates
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds								
SDG	Client ID	Compound	Criteria		% Recovery		RPD	Qualifier
			% Recovery	RPD	MS	MSD		
WF031	05G01001	Volatiles	-	-	-	-	-	None
		<u>Semivolatiles</u>						
		Phenol	-	≤42	-	-	50	None
		2-Chlorophenol	-	≤40	-	-	50	None
		4-Chloro-3-methylphenol	-	≤42	-	-	51	None
		4-Nitrophenol	10-80	≤50	-	95	58	None
		Pentachlorophenol	-	≤50	-	-	52	None
		1,4-Dichlorobenzene	-	≤28	-	-	45	J
		N-Nitroso-di-n-propylamine	-	≤38	-	-	56	J
		1,2,4-Trichlorobenzene	-	≤28	-	-	41	J
		Acenaphthene	-	≤31	-	-	84	J
		2,4-Dinitrotoluene	-	≤38	-	-	52	J
		Pyrene	-	≤31	-	-	54	J
		Pesticides/PCBs	-	-	-	-	None	
WF031B	None	Volatiles	-	-	-	-	-	-
		Semivolatiles	-	-	-	-	-	-
		Pesticides/PCBs	-	-	-	-	-	-
WF032	29G00501	Volatiles	-	-	-	-	-	None
		Semivolatiles	-	-	-	-	-	None
		Pesticides/PCBs	-	-	-	-	-	None
WF033	66G00201	Volatiles						
		1,1-Dichloroethene	-	≤14	-	-	16	None
		<u>Semivolatiles</u>						
		4-Nitrophenol	10-80	-	-	83	-	None
		Pesticides & PCBs	-	-	-	-	-	None
WF034	30G00301	Volatiles	-	-	-	-	-	None
		<u>Semivolatiles</u>						
		Acenaphthene	46-118	≤31	44	-	37	None
		1,4-Dichlorobenzene	-	≤28	-	-	33	None
		1,2,4-Trichlorobenzene	-	≤28	-	-	34	None
		2,4-Dinitrotoluene	-	≤38	-	-	40	None
		Pyrene	-	≤31	-	-	36	None

Table IV
Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike/Matrix Spike Duplicates
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds								
SDG	Client ID	Compound	Criteria		% Recovery		RPD	Qualifier
			% Recovery	RPD	MS	MSD		
WF034 cont.	30G00301	Pesticides/PCBs	-	-	-	-	-	None
WF035	66G01701	Volatiles	-	-	-	-	-	None
		Semivolatiles	-	-	-	-	-	None
		Pesticides/PCBs	-	-	-	-	-	None
WF036	54G00101	Volatiles	-	-	-	-	-	None
		Semivolatiles	-	-	-	-	-	None
		4-Nitrophenol	10-80	-	101	81	-	None
		1,4-Dichlorobenzene	-	≤28	-	-	30	J
		1,2,4-Trichlorobenzene	-	≤28	-	-	36	J
		Pesticides/PCBs	-	-	-	-	-	None
WF037	15G00803	Volatiles	-	-	-	-	-	None
WF038	36BO0303	Volatiles	-	-	-	-	-	None
WF039	35BO0203	Volatiles	-	-	-	-	-	None
WF040	37BO0203	Volatiles	-	-	-	-	-	None
WF041	35G00101	Volatiles	-	-	-	-	-	None
		Semivolatiles	-	-	-	-	-	None
		Pesticides & PCBs	-	-	-	-	-	-
		Aldrin	40-120	-	124	121	-	J (all detects)
WF042	05G00902	Volatiles	-	-	-	-	-	None
WF043	05G00802	Volatiles	-	-	-	-	-	None
WF044	66G01201	Volatiles	-	-	-	-	-	None
		Trichloroethene	-	≤14	-	-	40	None
WF045	OWG00502	Volatiles	-	-	-	-	-	None
		Semivolatiles	-	-	-	-	-	-
		4-Nitrophenol	10-80	-	96	109	-	J (all detects)
		2,4-Dinitrotoluene	24-96	-	-	100	-	J (all detects)

**Table IV
Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike/Matrix Spike Duplicates
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds								
SDG	Client ID	Compound	Criteria		% Recovery		RPD	Qualifier
			% Recovery	RPD	MS	MSD		
WF045 cont.	OWG00502	<u>Pesticides & PCBs</u>						
		gamma-BHC	-	≤15	-	-	28	J
		Heptachlor	-	≤20	-	-	24	J
		Aldrin	40-120	≤22	-	128	29	J
		Dieldrin	52-126	≤18	-	134	22	J
		Endrin	56-121	≤21	-	144	22	J
WF046	31G00101	Volatiles	-	-	-	-	-	None
		<u>Semivolatiles</u>						
		4-Nitrophenol	10-80	-	88	96	-	J (all detects)
		<u>Pesticides & PCBs</u>						
		Endrin	56-121	-	127	-	-	J (all detects)
WF047	39W034	Volatiles	-	-	-	-	-	None
WF048	39D018	Volatiles	-	-	-	-	-	None
WF049	39W021	Volatiles	-	-	-	-	-	None
	None	Semivolatiles	-	-	-	-	-	None
WF051	16G00401	Volatiles	-	-	-	-	-	None
WF052	39020	Volatiles	-	-	-	-	-	None
WF053	15G00602	Volatiles	-	-	-	-	-	None
WF054	15G00801	Volatiles	-	-	-	-	-	None
WF055	13G00401	Volatiles	-	-	-	-	-	None

Table V
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Organic Compounds			RPD
WF022	Client ID	BKG00101	BKG00101D	Not calculable
	Laboratory ID	RB858003	RB858004	
	Collection Date	7/16/96	7/16/96	
	Acetone	ND	8 ug/L	
WF022	Client ID	01G00102	01G00102D	67
	Laboratory ID	RB873008	RB873009	
	Collection Date	7/19/96	7/19/96	
	Acetone	4 ug/L	2 ug/L	
WF023	Client ID	02G00301	02G00301D	Not calculable
	Laboratory ID	RB887012	RB887013	
	Collection Date	7/24/96	7/24/96	
	Acetone	ND	10 ug/L	
WF024	Client ID	15G00701	15G00701D	Not calculable
	Laboratory ID	RB920009	RB920010	
	Collection Date	7/31/96	7/31/96	
	Acetone	2	ND	
WF025	Client ID	15G00601	15G00601D	46
	Laboratory ID	RB956006	RB956008	
	Collection Date	8/7/96	8/7/96	
	Acetone	5 ug/L	8 ug/L	
	1,2-Dichloroethene (total)	1 ug/L	1 ug/L	
	Chlorobenzene	5 ug/L	5 ug/L	
	Ethylbenzene	10U ug/L	1 ug/L	
	1,4-Dichlorobenzene	12 ug/L	12 ug/L	
	Naphthalene	4 ug/L	4 ug/L	
	Diethylphthalate	1 ug/L	1 ug/L	
WF026	Client ID	15G00803	15G00803D	133
	Laboratory ID	RB980007	RB980008	
	Collection Date	8/14/96	8/14/96	
	Acetone	25 ug/L	5 ug/L	
WF026	Client ID	15G00803	15G00803D	Not calculable
	Laboratory ID	RB980007	RB980008	
	Collection Date	8/14/96	8/14/96	
	2-Butanone	7 ug/L	10U ug/L	
WF026	Client ID	15G00803	15G00803D	0
	Laboratory ID	RB980007	RB980008	
	Collection Date	8/14/96	8/14/96	
	Trichloroethene	4 ug/L	4 ug/L	
WF026	Client ID	15G00803	15G00803D	67
	Laboratory ID	RB980007	RB980008	
	Collection Date	8/14/96	8/14/96	
	Bis(2-ethylhexyl)phthalate	2 ug/L	1 ug/L	
WF026	Client ID	15G00803	15G00803D	68
	Laboratory ID	RB980007	RB980008	
	Collection Date	8/14/96	8/14/96	
	4,4'-DDT	0.16 ug/L	0.079 ug/L	

Table V
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Organic Compounds			RPD
WF026	Client ID	16G00403	16G00403D	
	Laboratory ID	RB980020	RB980021	
	Collection Date	8/16/96	8/16/96	
	Acetone	3 ug/L	2 ug/L	40
	1,2-Dichloroethene (total)	1 ug/L	2 ug/L	67
	Benzene	600 ug/L	600 ug/L	0
	Phenol	8 ug/L	8 ug/L	0
	Naphthalene	1 ug/L	2 ug/L	67
Bis(2-ethylhexyl)phthalate	1 ug/L	10U ug/L	Not calculable	
Pesticides/PCBs	ND	ND	None	
WF026	Client ID	16G00403DL	16G00403DDL	
	Laboratory ID	RB980020DL	RB9890021DL	
	Collection Date	8/16/96	8/16/96	
Acetone	18 ug/L	24 ug/L	29	
Benzene	700 ug/L	740 ug/L	6	
WF027	Client ID	16G00501	16G00501D	
	Laboratory ID	RC016009	RC016013	
	Collection Date	8/21/96	8/21/96	
	Volatiles	ND	ND	None
	Bis(2-ethylhexyl)phthalate	2 ug/L	10U ug/L	Not calculable
Pesticides/PCBs	ND	ND	None	
WF027	Client ID	09G00301	09G00301D	
	Laboratory ID	RC016019	RC016020	
	Collection Date	8/23/96	8/23/96	
	Acetone	46 ug/L	18 ug/L	88
	2-Butanone	2 ug/L	10U ug/L	Not calculable
Semivolatiles	ND	ND	None	
Pesticides/PCBs	ND	ND	None	
WF028	Client ID	11G00201	11G00201D	
	Laboratory ID	RC044011	RC044018	
	Collection Date	8/28/96	8/28/96	
	Acetone	5 ug/L	11 ug/L	75
	Phenol	4 ug/L	6 ug/L	40
Bis(2-ethylhexyl)phthalate	5 ug/L	4 ug/L	22	
Pesticides/PCBs	ND	ND	None	
WF028	Client ID	12G00101	12G00101D	
	Laboratory ID	RC044012	RC044017	
	Collection Date	8/27/96	8/27/96	
	Acetone	3 ug/L	6 ug/L	67
Bis(2-ethylhexyl)phthalate	2 ug/L	2 ug/L	0	
Pesticides/PCBs	ND	ND	None	

Table V
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Organic Compounds			RPD
WF029	Client ID	14G00101	14G00101D	
	Laboratory ID	RC092007	RC092009	
	Collection Date	9/11/96	9/11/96	
	Acetone	8 ug/L	4 ug/L	67
	Carbon disulfide	3 ug/L	10U ug/L	Not calculable
WF030	Client ID	66G00601	66G00601D	
	Laboratory ID	RC121007	RC121011	
	Collection Date	9/18/96	9/18/96	
	Acetone	2 ug/L	8 ug/L	120
	Methylene chloride	2 ug/L	10U ug/L	Not calculable
WF030	Client ID	66G02203	66G02203D	
	Laboratory ID	RC121016	RC121017	
	Collection Date	9/20/96	9/20/96	
	Acetone	4 ug/L	10U ug/L	Not calculable
	Bis(2-ethylhexyl)phthalate	2 ug/L	10U ug/L	Not calculable
WF031	Client ID	05G01001	05G01001D	
	Laboratory ID	MB928007	MB928012	
	Collection Date	9/25/96	9/25/96	
	Volatiles	ND	ND	None
	Semivolatiles	ND	ND	None
WF031	Client ID	33G00301	33G00301D	
	Laboratory ID	MB958006	MB958007	
	Collection Date	9/27/96	9/27/96	
	1,1-Dichloroethene	5 ug/L	6 ug/L	18
	1,2-Dichloroethene (total)	4 ug/L	3 ug/L	29
WF031	Client ID	33G00301	33G00301D	
	Laboratory ID	MB958006	MB958007	
	Collection Date	9/27/96	9/27/96	
	Trichloroethene	300 ug/L	300 ug/L	0
	Di-n-butylphthalate	1 ug/L	1 ug/L	0
WF031	Client ID	33G00301	33G00301D	
	Laboratory ID	MB958006	MB958007	
	Collection Date	9/27/96	9/27/96	
	Pesticides/PCBs	ND	ND	None

Table V
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Organic Compounds			RPD
WF032	Client ID Laboratory ID Collection Date Volatiles Semivolatiles Pesticides/PCBs	29G00501 MC011007 10/2/96 ND ND ND	29G00501D MC011008 10/2/96 ND ND ND	 None None None
WF033	Client ID Laboratory ID Collection Date Trichloroethene Toluene Semivolatiles Pesticides/PCBs	66G00201 MC118002 10/9/96 1 ug/L 1 ug/L ND ND	66G00201D MC118003 10/9/96 1 ug/L 1 ug/L ND ND	 0 0 None None
WF034	Client ID Laboratory ID Collection Date 1,2-Dichloroethene (total) Trichloroethene Di-n-butylphthalate Pesticides/PCBs	30G00301 MC153005 10/16/96 31 ug/L 340 ug/L 2 ug/L ND	30G00301D MC153008 10/16/96 31 ug/L 340 ug/L 10U ug/L ND	 0 0 Not calculable None
WF035	Client ID Laboratory ID Collection Date Volatiles Di-n-butylphthalate Pesticides/PCBs	66G01701 MC214005 10/23/96 ND 3 ug/L ND	66G01701D MC214007 10/23/96 ND 2 ug/L ND	 None 40 None
WF036	Client ID Laboratory ID Collection Date Volatiles Diethylphthalate Di-n-butylphthalate Pesticides/PCBs	54G00101 MC262004 10/30/96 ND 1 ug/L 1 ug/L ND	54G00101D MC262008 10/30/96 ND 10U ug/L 10U ug/L ND	 None Not calculable Not calculable None
WF037	Client ID Laboratory ID Collection Date Trichloroethene	15G00803 MC424007 11/20/96 5 ug/L	15G00803D MC424008 11/20/96 5 ug/L	 0
WF038	Client ID Laboratory ID Collection Date Volatiles	36BO0303 MC687010 12/17/96 ND	36BO0303D MC687011 12/17/96 ND	 None

Table V
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Organic Compounds			RPD
WF038	Client ID Laboratory ID Collection Date Volatiles	36B00403 MC687014 12/18/96 ND	36B00403D MC687015 12/18/96 ND	None
WF039	Client ID Laboratory ID Collection Date Volatiles	35B00302 MC698013 12/21/96 ND	35B00302D MC698015 12/21/96 ND	None
WF039	Client ID Laboratory ID Collection Date Volatiles	35B00203 MC698010 12/21/96 ND	35B00203D MC698016 12/21/96 ND	None
WF040	Client ID Laboratory ID Collection Date Acetone Methylene chloride	37B00203 MC783010 1/8/97 14 ug/Kg 2 ug/Kg	37B00203D MC783018 1/8/97 12 ug/Kg 10 ug/Kg	15 133
WF040	Client ID Laboratory ID Collection Date Acetone Methylene chloride	37B00103 MC783013 1/8/97 18 ug/Kg 3 ug/Kg	37B00103D MC783019 1/8/97 22 ug/Kg 11 ug/Kg	20 114
WF041	Client ID Laboratory ID Collection Date Volatiles 1,1-Dichloroethene 1,1,1-Trichloroethane Xylene (total) Semivolatiles Pesticides & PCBs	35G00101 MD908004 6/11/97 6 ug/L 2 ug/L 2 ug/L ND ND	35G00101D MD908005 6/11/97 7 ug/L 2 ug/L 1 ug/L ND ND	15 0 67 - -
WF041	Client ID Laboratory ID Collection Date Volatiles Chloroform Semivolatiles Bis(2-ethylhexyl)phthalate Pesticides & PCBs	35G00202 MD950002 6/15/97 3 ug/L 10U ug/L ND	35G00202D MD950003 6/15/97 3 ug/L 5 ug/L ND	0 Not calculable -
WF042	Client ID Laboratory ID Collection Date Volatiles	05G00902 ME007004 6/19/97 ND	05G00902D ME007005 6/19/97 ND	-

Table V
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Organic Compounds			RPD
WF043	Client ID	05G00802	05G00802D	
	Laboratory ID	ME042004	ME042005	
	Collection Date	6/24/97	6/24/97	
	<u>Volatiles</u>			
	Benzene	1 ug/L	10U ug/L	Not calculable
WF043	Client ID	07G00101	07G00101D	
	Laboratory ID	ME087002	ME087003	
	Collection Date	6/26/97	6/26/97	
	Acetone	540 ug/L	490 ug/L	10
	Benzene	3900 ug/L	4400 ug/L	12
WF044	Client ID	66G01201	66G01201D	
	Laboratory ID	ME110002	ME110003	
	Collection Date	6/30/97	6/30/97	
	<u>Volatiles</u>			
	1,1-Dichloroethene	3 ug/L	2 ug/L	40
WF044	Client ID	66G00603	66G00603D	
	Laboratory ID	ME135002	ME135003	
	Collection Date	7/2/97	7/2/97	
	<u>Volatiles</u>			
	Trichloroethene	1 ug/L	1 ug/L	0
WF045	Client ID	OWG00502	OWG00502D	
	Laboratory ID	ME149004	ME149005	
	Collection Date	7/8/97	7/8/97	
	<u>Volatiles</u>			
	Acetone	3 ug/Kg	2 ug/Kg	40
WF045	Client ID	OWG00302	OWG00302D	
	Laboratory ID	ME190002	ME190003	
	Collection Date	7/10/97	7/10/97	
	<u>Volatiles</u>			
	Di-n-butylphthalate	4 ug/L	6 ug/L	40
WF046	Client ID	31G00101	31G00101D	
	Laboratory ID	ME241003	ME241004	
	Collection Date	7/15/97	7/15/97	
	<u>Volatiles</u>			
	Di-n-butylphthalate	6 ug/L	3 ug/L	67

Table V
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Organic Compounds			RPD
WF047	Client ID Laboratory ID Collection Date Volatiles Acetone Carbon disulfide	39W034 ME243005 7/15/97 4 ug/L 1U ug/L	39W034D ME243006 7/15/97 5U ug/L 1 ug/L	Not calculable Not calculable
WF047	Client ID Laboratory ID Collection Date Volatiles Methylene chloride Benzene	39W012 ME267004 7/16/97 2U ug/L 2 ug/L	39W012D ME267005 7/16/97 1 ug/L 2 ug/L	Not calculable 0
WF048	Client ID Laboratory ID Collection Date Volatiles Acetone Trichloroethene	39D018 ME264006 7/17/97 27 ug/Kg 2 ug/Kg	39D018D ME264007 7/17/97 27 ug/Kg 2 ug/Kg	0 0
WF049	Client ID Laboratory ID Collection Date Volatiles	39W021 ME263004 7/17/97 ND	39W021D ME263005 7/17/97 ND	-
WF051	Client ID Laboratory ID Collection Date Volatiles Acetone	16G00401 ME306003 7/22/97 18 ug/L	16G00401D ME306003 7/22/97 14 ug/L	25
WF051	Client ID Laboratory ID Collection Date Volatiles	16G00101 ME340009 7/24/97 ND	16G00101D ME340010 7/24/97 ND	-
WF052	Client ID Laboratory ID Collection Date Volatiles	39020 ME346004 7/25/97 ND	39020D ME346005 7/25/97 ND	-
WF053	Client ID Laboratory ID Collection Date Volatiles Trichloroethene	15G00602 ME367004 7/27/97 2 ug/L	15G00602D ME367005 7/27/97 2 ug/L	0
WF053	Client ID Laboratory ID Collection Date Volatiles 1,2-Trichloroethene (total) Trichloroethene 1,1-Dichloroethene	15G00703 ME404003 7/30/97 1 ug/L 36 ug/L 2 ug/L	15G00703D ME404004 7/30/97 2 ug/L 38 ug/L 10U ug/L	67 5 Not calculable

Table V
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Organic Compounds			RPD
WF054	Client ID Laboratory ID Collection Date Volatiles Chlorobenzene	15G00801 ME441002 8/4/97 4 ug/L	15G00801D ME441003 8/4/97 4 ug/L	0
WF055	Client ID Laboratory ID Collection Date Volatiles	OWG00401 MF004003 10/27/97 ND	OWG00401D MF004004 10/27/97 ND	-

Table VI
Summary of Surrogate Recoveries
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds						
SDG	Client ID	Compound	Percent Recovery	QC Limits	# of Samples	Qualifier
WF022	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
		<u>Pesticides/PCBs</u>			10	
	BKR01001	Decachlorobiphenyl	58	60-150		J
		Decachlorobiphenyl	58	60-150		J
	BKG00101	Tetrachloro-m-xylene	59	60-150		J
		Tetrachloro-m-xylene	57	60-150		J
	BKG00102	Decachlorobiphenyl	37	60-150		J
		Decachlorobiphenyl	37	60-150		J
	BKG00103	Decachlorobiphenyl	40	60-150		J
		Decachlorobiphenyl	41	60-150		J
	BKG00202	Decachlorobiphenyl	47	60-150		J
		Decachlorobiphenyl	47	60-150		J
	BKG00201	Decachlorobiphenyl	43	60-150		J
		Decachlorobiphenyl	43	60-150		J
	BKF01001	Tetrachloro-m-xylene	59	60-150		J
		Tetrachloro-m-xylene	59	60-150		J
		Decachlorobiphenyl	51	60-150		J
		Decachlorobiphenyl	47	60-150		J
	17G00101	Decachlorobiphenyl	58	60-150		J
		Decachlorobiphenyl	56	60-150		J
	17G00201	Decachlorobiphenyl	22	60-150		J
		Decachlorobiphenyl	21	60-150		J
01G00102D	Decachlorobiphenyl	59	60-150		J	
	Decachlorobiphenyl	56	60-150		J	
WF023	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
		<u>Pesticides/PCBs</u>			5	
	01G00201	Decachlorobiphenyl	32	60-150		J
		Decachlorobiphenyl	28	60-150		J
	01G00301	Decachlorobiphenyl	49	60-150		J
		Decachlorobiphenyl	47	60-150		J
	02G00101	Decachlorobiphenyl	41	60-150		J
		Decachlorobiphenyl	42	60-150		J
	16G00703	Decachlorobiphenyl	59	60-150		J
		Decachlorobiphenyl	55	60-150		J
	18G00301	Decachlorobiphenyl	48	60-150		J
		Decachlorobiphenyl	46	60-150		J

**Table VI
Summary of Surrogate Recoveries
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida**

Organic Compounds						
SDG	Client ID	Compound	Percent Recovery	QC Limits	# of Samples	Qualifier
WF024	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
	BKG00203	<u>Pesticides/PCBs</u>			1	
		Decachlorobiphenyl	52	60-150	-	J
		Decachlorobiphenyl	48	60-150	-	J
WF025	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
	15G00101	<u>Pesticides/PCBs</u>			5	
		Decachlorobiphenyl	21	60-150	-	J
	15G00303	Decachlorobiphenyl	20	60-150	-	J
		Tetrachloro-m-xylene	57	60-150	-	J
	15G00502	Tetrachloro-m-xylene	58	60-150	-	J
		Tetrachloro-m-xylene	155	60-150	-	J (all detects)
	15R01301	Tetrachloro-m-xylene	162	60-150	-	J (all detects)
	15G00502RE	Decachlorobiphenyl	59	60-150	-	J
Decachlorobiphenyl		53	60-150	-	J	
	Decachlorobiphenyl	54	60-150	-	J	
WF026	All	Volatiles	All within QC limits	-	-	None
	15G00802	<u>Semivolatiles</u>			2	
		2-Fluorobiphenyl	161	43-116	-	J (all detects) all B/N
	15G00802R	Terphenyl-d14	163	33-141	-	J (all detects) all B/N
		2-Fluorobiphenyl	182	43-116	-	J (all detects) all B/N
	Terphenyl-d14	153	33-141	-	J (all detects) all B/N	

Table VI
Summary of Surrogate Recoveries
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds						
SDG	Client ID	Compound	Percent Recovery	QC Limits	# of Samples	Qualifier
WF026 cont.	15G00201	<u>Pesticides/PCBs</u>			9	
		Decachlorobiphenyl	52	60-150		
	15G00202	Decachlorobiphenyl	50	60-150		
		Decachlorobiphenyl	58	60-150		
	15G00801	Decachlorobiphenyl	58	60-150		
		Decachlorobiphenyl	43	60-150		
	15G00803	Decachlorobiphenyl	38	60-150		
		Decachlorobiphenyl	58	60-150		
	16G00201	Decachlorobiphenyl	58	60-150		
		Decachlorobiphenyl	43	60-150		
	16G00203	Decachlorobiphenyl	37	60-150		
		Decachlorobiphenyl	44	60-150		
	16G00403	Decachlorobiphenyl	43	60-150		
		Decachlorobiphenyl	40	60-150		
	16G00403D	Decachlorobiphenyl	39	60-150		
		Decachlorobiphenyl	47	60-150		
16G00601	Decachlorobiphenyl	46	60-150			
	Decachlorobiphenyl	25	60-150			
WF027	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
	16G00304	<u>Pesticides/PCBs</u>			2	
		Decachlorobiphenyl	46	60-150		
		Decachlorobiphenyl	43	60-150		
		Decachlorobiphenyl	58	60-150		
66G02103	Decachlorobiphenyl	58	60-150			
WF028	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
	10G00101	<u>Pesticides/PCBs</u>			5	
		Decachlorobiphenyl	50	60-150		
	11G00101	Decachlorobiphenyl	48	60-150		
		Decachlorobiphenyl	47	60-150		
	11G00301	Decachlorobiphenyl	47	60-150		
		Decachlorobiphenyl	25	60-150		
	11G00401	Decachlorobiphenyl	24	60-150		
		Decachlorobiphenyl	29	60-150		
11G00201D	Decachlorobiphenyl	29	60-150			
	Decachlorobiphenyl	59	60-150			

Table VI
Summary of Surrogate Recoveries
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds						
SDG	Client ID	Compound	Percent Recovery	QC Limits	# of Samples	Qualifier
WF029	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
		<u>Pesticides/PCBs</u>			3	
	13G00101	Decachlorobiphenyl	23	60-150		J
		Decachlorobiphenyl	23	60-150		J
	66G00901	Decachlorobiphenyl	43	60-150		J
		Decachlorobiphenyl	42	60-150		J
	66G00903	Decachlorobiphenyl	52	60-150		J
		Decachlorobiphenyl	52	60-150		J
WF030	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
		<u>Pesticides/PCBs</u>			1	
	66G00804	Decachlorobiphenyl	31	60-150		J
		Decachlorobiphenyl	31	60-150		J
WF031	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
		<u>Pesticides/PCBs</u>			3	
	05G00301	Tetrachloro-m-xylene	56	60-150		J
		Tetrachloro-m-xylene	52	60-150		J
	05G00101	Decachlorobiphenyl	164	60-150		J (all detects)
	05G01002	Tetrachloro-m-xylene	57	60-150		J
WF031B	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
	All	Pesticides/PCBs	All within QC limits	-	-	None
WF032	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
		<u>Pesticides/PCBs</u>			1	
	29G00101	Tetrachloro-m-xylene	54	60-150		J
		Tetrachloro-m-xylene	56	60-150		J

Table VI
Summary of Surrogate Recoveries
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds						
SDG	Client ID	Compound	Percent Recovery	QC Limits	# of Samples	Qualifier
WF033	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
	07G00101	Pesticides/PCBs			3	
	30G00501	Tetrachloro-m-xylene	174	60-150		J (all detects)
	66G00201D	Tetrachloro-m-xylene	59	60-150		J
		Tetrachloro-m-xylene	25	60-150		J
		Tetrachloro-m-xylene	36	60-150		J
WF034	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
	66G01801	Pesticides/PCBs			1	
		Tetrachloro-m-xylene	164	60-150		J (all detects)
WF035	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
	08G00101	Pesticides/PCBs			1	
		Tetrachloro-m-xylene	59	60-150		J
WF036	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
	54G00101	Pesticides/PCBs			1	
		Tetrachloro-m-xylene	57	60-150		J
		Tetrachloro-m-xylene	52	60-150		J
WF037	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
	All	Pesticides/PCBs	All within QC limits	-	-	None
WF038	All	Volatiles	All within QC limits	-	-	None
WF039	All	Volatiles	All within QC limits	-	-	None
WF040	All	Volatiles	All within QC limits	-	-	None

Table VI
Summary of Surrogate Recoveries
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds						
SDG	Client ID	Compound	Percent Recovery	QC Limits	# of Samples	Qualifier
WF041	All	Volatiles	All within QC limits	-	-	None
	All	Semivolatiles	All within QC limits	-	-	None
		Pesticides & PCBs			2	
	35G00201	Decachlorobiphenyl	58	60-150		J
	36G00103	Tetrachloro-m-xylene	57	60-150		J
		Tetrachloro-m-xylene	58	60-150		J
WF042	All	Volatiles	-	-	-	None
WF043	All	Volatiles	-	-	-	None
WF044	All	Volatiles	-	-	-	None
WF045	All	Volatiles	-	-	-	None
		Semivolatiles			3	
	OWG00101	2-Fluorophenol	0	21-110	J (all detects) R (all non-detects)	
		Phenol-d5	0	10-110		
		2-Chlorophenol-d4	0	33-110		
		1,2-Dichlorobenzene-d4	0	16-110		
		Nitrobenzene-d5	0	35-114		
		2-Fluorobiphenyl	0	43-116		
		2,4,6-Tribromophenol	0	10-123		
	Terphenyl-d14	0	33-141			
	OWG00102	2-Fluorophenol	0	21-110	J (all detects) R (all non-detects)	
		Phenol-d5	0	10-110		
		2-Chlorophenol-d4	0	33-110		
		1,2-Dichlorobenzene-d4	0	16-110		
		Nitrobenzene-d5	0	35-114		
		2-Fluorobiphenyl	0	43-116		
		2,4,6-Tribromophenol	0	10-123		
Terphenyl-d14	0	33-141				

Table VI
Summary of Surrogate Recoveries
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds						
SDG	Client ID	Compound	Percent Recovery	QC Limits	# of Samples	Qualifier
WF045 cont.	OWG00103	2-Fluorophenol	0	21-110		J (all detects) R (all non-detects)
		Phenol-d5	0	10-110		
		2-Chlorophenol-d4	0	33-110		
		1,2-Dichlorobenzene-d4	0	16-110		
		Nitrobenzene-d5	0	35-114		
		2-Fluorobiphenyl	0	43-116		
		2,4,6-Tribromophenol	0	10-123		
		Terphenyl-d14	0	33-141		
	OWG00101	Pesticides & PCBs			4	
		Tetrachloro-m-xylene	45	60-150		J
		Tetrachloro-m-xylene	52	60-150		J
OWG00103	Tetrachloro-m-xylene	59	60-150		J	
OWG00302	Tetrachloro-m-xylene	54	60-150		J	
	Tetrachloro-m-xylene	52	60-150		J	
OWG00302D	Tetrachloro-m-xylene	53	60-150		J	
	Tetrachloro-m-xylene	52	60-150		J	
WF046	All	Volatiles	-	-	-	None
	All	Semivolatiles	-	-	-	None
		Pesticides & PCBs			2	
	31G00101	Tetrachloro-m-xylene	48	60-150		J
		Tetrachloro-m-xylene	55	60-150		J
	31R03301	Tetrachloro-m-xylene	59	60-150		J
WF047	All	Volatiles	-	-	-	None
WF048	All	Volatiles	-	-	-	None
WF049	All	Volatiles	-	-	-	None
	All	Semivolatiles	-	-	-	None
WF051	All	Volatiles	-	-	-	None
WF052	All	Volatiles	-	-	-	None
WF053	All	Volatiles	-	-	-	None
WF054	All	Volatiles	-	-	-	None

Table VI
Summary of Surrogate Recoveries
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds

SDG	Client ID	Compound	Percent Recovery	QC Limits	# of Samples	Qualifier
WF055	All	Volatiles	-	-	-	None

Notes: J = estimated value
 UJ = undetected, but number that is reported as the quantification limit is an estimated value.

Table VII
Summary of Compounds Exceeding Instrument Calibration
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds					
SDG	Date	Compound	Initial Calibration %RSD	Continuing Calibration %D	Qualifier
WF022	6/25/96	<u>Volatiles</u>			
		Acetone	30.2	-	J
	7/19/96	Chloromethane	-	28.8	J
		Chloroethane	-	48.7	J
	7/22/96	Chloroethane	-	30.6	J
	8/13/96	<u>Semivolatiles</u>			
		4,6-Dinitro-2-methylphenol	-	27.2	J
	8/14/96	Pentachlorophenol	-	25.4	J
		4-Chloroaniline	-	31.6	J
		2,4-Dinitrophenol	-	27.6	J
All	4,6-Dinitro-2-methylphenol	-	33.8	J	
	Pesticides/PCBs	-	-	None	
WF023	6/25/96	<u>Volatiles</u>			
		Acetone	30.2	-	J
	7/25/96	Acetone	-	33.2	J
	7/31/96	Acetone	-	30.4	J
		Methylene chloride	-	31.7	J
		Carbon disulfide	-	27.2	J
	8/1/96	Chloroethane	-	27.5	J
		Carbon disulfide	-	27.5	J
		Methylene chloride	-	37.8	J
	8/20/96	<u>Semivolatiles</u>			
		4-Nitroaniline	-	37.8	J
		Chrysene	-	27.8	J
	8/21/96	4-Nitroaniline	-	31.5	J
		Chrysene	-	28.5	J
		Benzo(g,h,i)perylene	-	32.7	J
8/25/96	4,4'-DDT	23.6	-	J	
WF024	6/25/96	<u>Volatiles</u>			
		Acetone	30.2	-	J
	8/5/96	Acetone	33.8	-	J
	8/2/96	Chloroethane	-	29.5	J
		Carbon disulfide	-	30.8	J
		Methylene chloride	-	41.0	J
	8/21/96	<u>Semivolatiles</u>			
		4-Nitroaniline	-	28.7	J
		Chrysene	-	29.5	J
		Indeno(1,2,3-cd)pyrene	-	28.1	J
		Dibenz(a,h)anthracene	-	34.0	J
		Benzo(g,h,i)perylene	-	37.6	J
All	Pesticides/PCBs	-	-	None	

Table VII
Summary of Compounds Exceeding Instrument Calibration
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds						
SDG	Date	Compound	Initial Calibration %RSD	Continuing Calibration %D	Qualifier	
WF025	8/5/96	<u>Volatiles</u>				
		Acetone	33.8	-	J	
	8/14/96	Chloromethane	26.7	-	J	
		Chloroethane	28.5	-	J	
		Acetone	29.7	-	J	
	9/9/96	<u>Semivolatiles</u>				
		2,4-Dinitrophenol	-	29.9	J	
		4-Nitroaniline	-	27.6	J	
		4,6-Dinitro-2-methylphenol	-	30.7	J	
		Pyrene	-	30.0	J	
		3,3'-Dichlorobenzidine	-	37.0	J	
		2,4-Dinitrophenol	-	35.6	J	
		4-Nitroaniline	-	29.4	J	
		4,6-Dinitro-2-methylphenol	-	32.0	J	
		Pentachlorophenol	-	27.8	J	
	3,3'-Dichlorobenzidine	-	27.8	J		
8/25/96	4,4'-DDT	23.6	-	J		
WF026	8/5/96	<u>Volatiles</u>				
		Acetone	33.8	-	J	
	8/19/96	Chloromethane	-	46.5	J	
		Chloroethane	-	77.1	J	
		1,1-Dichloroethane	-	28.6	J	
		2-Butanone	-	30.3	J	
	8/20/96	Chloromethane	-	32.5	J	
		Chloroethane	-	32.4	J	
	8/22/96	Acetone	-	37.9	J	
		Carbon disulfide	-	28.0	J	
		2-Butanone	-	27.8	J	
	9/10/96	<u>Semivolatiles</u>				
		2,4-Dinitrophenol	-	35.6	J	
		4-Nitroaniline	-	29.4	J	
		4,6-Dinitro-2-methylphenol	-	32.0	J	
		Pentachlorophenol	-	27.8	J	
		3,3'-Dichlorobenzidine	-	27.8	J	
	9/10/96	4-Chloroaniline	-	36.8	J	
		3-Nitroaniline	-	37.9	J	
		2,4-Dinitrophenol	-	29.3	J	
		4-Nitroaniline	-	49.5	J	
		4,6-Dinitro-2-methylphenol	-	29.4	J	
		Pentachlorophenol	-	29.6	J	
3,3'-Dichlorobenzidine		-	54.1	J		
9/14/96	<u>Pesticides & PCBs</u>					
	alpha-BHC	22.2	-	J		
	delta-BHC	22.1	-	J		

Table VII
Summary of Compounds Exceeding Instrument Calibration
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds						
SDG	Date	Compound	Initial Calibration %RSD	Continuing Calibration %D	Qualifier	
WF027	9/1/96	Volatiles				
		2-Butanone	39.1	-	J	
	2-Butanone	0.014 (RRF)	-	J (detects) / R (ND)		
	8/5/96	Acetone	33.6	-	J	
	9/2/96	Acetone	-	102.4	J	
		2-Butanone	-	36.3	J	
	8/22/96	Acetone	-	37.9	J	
		Carbon disulfide	-	28.0	J	
		2-Butanone	-	27.8	J	
	8/29/96	Bromomethane	-	31.0	J	
		Chloroethane	-	63.9	J	
		Acetone	-	37.2	J	
	9/2/96	Chloromethane	-	32.4	J	
		Chloroethane	-	28.4	J	
		Acetone	-	49.2	J	
		2-Butanone	-	38.7	J	
		4-Methyl-2-pentanone	-	35.7	J	
		2-Hexanone	-	38.9	J	
		2-Butanone	-	0.019 (RRF)	J (detects) / R (ND)	
	9/3/96	Chloromethane	-	27.4	J	
		Acetone	-	34.7	J	
		2-Butanone	-	32.6	J	
		4-Methyl-2-pentanone	-	32.9	J	
		2-Hexanone	-	38.9	J	
	9/10/96	<u>Semivolatiles</u>				
		4-Chloroaniline	-	36.8	J	
		3-Nitroaniline	-	37.9	J	
		2,4-Dinitrophenol	-	29.3	J	
		4-Nitroaniline	-	49.5	J	
		4,6-Dinitro-2-methylphenol	-	29.4	J	
Pentachlorophenol		-	29.5	J		
3,3'-Dichlorobenzidine	-	54.1	J			
9/20/96	3,3'-Dichlorobenzidine	-	30.4	J		
All	Pesticides/PCBs	-	-	None		
WF028	8/5/96	Volatiles				
		Acetone	33.8	-	J	
	9/2/96	Chloromethane	-	32.4	J	
		Chloroethane	-	28.4	J	
		Acetone	-	49.2	J	
		2-Butanone	-	38.7	J	
		4-Methyl-2-pentanone	-	35.7	J	
		2-Hexanone	-	38.9	J	
	9/3/96	Chloromethane	-	27.4	J	
		Acetone	-	34.7	J	
		2-Butanone	-	32.6	J	
		4-Methyl-2-pentanone	-	32.9	J	
		2-Hexanone	-	38.9	J	

Table VII
Summary of Compounds Exceeding Instrument Calibration
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds					
SDG	Date	Compound	Initial Calibration %RSD	Continuing Calibration %D	Qualifier
WF028 cont.	9/6/96	Chloromethane	-	35.4	J
		Acetone	-	41.0	J
		2-Butanone	-	41.8	J
		1,2-Dichloropropane	-	27.6	J
		4-Methyl-2-pentanone	-	40.5	J
		2-Hexanone	-	43.3	J
		Bromoform	-	26.2	J
	1,1,2,2-Tetrachloroethane	-	26.5	J	
		<u>Semivolatiles</u>			
	9/20/96	3,3'-Dichlorobenzidine	-	30.4	J
	9/26/96	Benzo(k)fluoroanthene	-	28.5	J
	All	Pesticides/PCBs	-	-	None
WF029		<u>Volatiles</u>			
	9/17/96	Chloromethane	-	38.1	J
		Methylene chloride	-	33.6	J
	9/18/96	2-Hexanone	-	26.5	J
		<u>Semivolatiles</u>			
	9/26/96	Benzo(k)fluoroanthene	-	28.5	J
	9/26/96	Benzo(k)fluoroanthene	-	25.6	J
	All	Pesticides/PCBs	-	-	None
WF030		<u>Volatiles</u>			
	9/20/96	Methylene chloride	-	35.2	J
	9/23/96	Methylene chloride	-	30.2	J
		<u>Semivolatiles</u>			
	10/16/96	2,4-Dinitrophenol	-	25.8	J
		4-Nitrophenol	-	28.0	J
	All	Pesticides/PCBs	-	-	None
WF031	All	Volatiles	-	-	None
	All	Semivolatiles	-	-	None
	11/5/96	<u>Pesticides & PCBs</u> delta-BHC	21.2	-	J
WF031B	All	Volatiles	-	-	None
		<u>Semivolatiles</u>			
	11/28/96	Di-n-octylphthalate	-	25.3	J
		<u>Pesticides & PCBs</u>			
	12/9-10/97	Alpha-BHC	23.9	-	J
WF032		<u>Volatiles</u>			
	10/10/96	1,1,2,2-Tetrachloroethane	-	27.8	J
		<u>Semivolatiles</u>			
	11/3/96	Hexachlorobutadiene	-	33.5	J
		Hexachlorocyclopentadiene	-	31.5	J
		Di-n-octylphthalate	-	27.0	J
		<u>Pesticides & PCBs</u>			
	11/5/96	delta-BHC	21.2	-	J

Table VII
Summary of Compounds Exceeding Instrument Calibration
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds					
SDG	Date	Compound	Initial Calibration %RSD	Continuing Calibration %D	Qualifier
WF033	10/16/96	<u>Volatiles</u> Acetone	-	25.3	J
	11/4/96	<u>Semivolatiles</u> Hexachlorobutadiene	-	31.2	J
		Hexachlorocyclopentadiene	-	27.9	J
	All	Pesticides/PCBs	-	-	None
WF034	All	<u>Volatiles</u>	-	-	None
	11/26/96	<u>Semivolatiles</u> Di-n-octylphthalate	-	33.9	J
		All	Pesticides/PCBs	-	-
WF035	All	<u>Volatiles</u>	-	-	None
	11/26/96	<u>Semivolatiles</u> Bis(2-ethylhexyl)phthalate	-	25.6	J
		Di-n-octylphthalate	-	32.1	J
	11/27/96	Di-n-octylphthalate	-	30.0	J
	11/5/96	<u>Pesticides & PCBs</u> delta-BHC	21.2	-	J
WF036	All	<u>Volatiles</u>	-	-	None
		<u>Semivolatiles</u> Di-n-octylphthalate	-	30.0	J
		Di-n-octylphthalate	-	25.3	J
		<u>Pesticides & PCBs</u> alpha-BHC	23.9	-	J
WF037	All	<u>Volatiles</u>	-	-	None
	11/28/96	<u>Semivolatiles</u> Di-n-octylphthalate	-	25.3	J
		12/9-10/96	<u>Pesticides & PCBs</u> alpha-BHC	23.9	-
WF038	12/26/96	<u>Volatiles</u> Acetone	-	30.6	J
WF039	12/26/96	<u>Volatiles</u> Acetone	-	30.6	J
WF040	All	<u>Volatiles</u>	-	-	None
WF041	All	<u>Volatiles</u>	-	-	None
	All	<u>Semivolatiles</u>	-	-	None
	6/11-12/97	<u>Pesticides & PCBs</u> Methoxychlor	24.2	-	J
delta-BHC		21.5	-	J	
WF042	All	<u>Volatiles</u>	-	-	None
WF043	All	<u>Volatiles</u>	-	-	None

Table VII
Summary of Compounds Exceeding Instrument Calibration
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds					
SDG	Date	Compound	Initial Calibration %RSD	Continuing Calibration %D	Qualifier
WF044	7/7/97	Volatiles Bromomethane	-	33.5	J
WF045	All	Volatiles	-	-	None
	All	Semivolatiles	-	-	None
	7/31/97	<u>Pesticides & PCBs</u>			
		alpha-BHC	20.3	-	J
alpha-BHC		24.2	-	J	
	gamma-BHC	21.9	-	J	
WF046	All	Volatiles	-	-	None
	All	Semivolatiles	-	-	None
	7/31/97	<u>Pesticides & PCBs</u>			
		alpha-BHC	20.3	-	J
alpha-BHC		24.2	-	J	
	gamma-BHC	21.9	-	J	
WF047	7/21/97	Volatiles Acetone	35.4	-	J
	7/21/97	Acetone	0.023 RRF	-	J (all detects) R (all non-detects)
		2-Butanone	0.030 RRF	-	J (all detects) R (all non-detects)
	7/28/97	Bromomethane	-	34.6	J
		Acetone	-	35.1	J
	7/29/97	Bromomethane	-	30.5	J
		Acetone	-	30.9	J
	7/21/97	Acetone	-	0.020 (RRF)	J (all detects) R (all non-detects)
		2-Butanone	-	0.030 (RRF)	J (all detects) R (all non-detects)
	7/22/97	Acetone	-	0.020 (RRF)	J (all detects) R (all non-detects)
		2-Butanone	-	0.030 (RRF)	J (all detects) R (all non-detects)
	7/28/97	Acetone	-	0.015 (RRF)	J (all detects) R (all non-detects)
		2-Butanone	-	0.026 (RRF)	J (all detects) R (all non-detects)
	7/29/97	Acetone	-	0.015 (RRF)	J (all detects) R (all non-detects)
		2-Butanone	-	0.026 (RRF)	J (all detects) R (all non-detects)
	WF048	7/25/97	Volatiles Bromomethane	36.5	-
7/26/97		Bromomethane	-	28.7	J

Table VII
Summary of Compounds Exceeding Instrument Calibration
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds					
SDG	Date	Compound	Initial Calibration %RSD	Continuing Calibration %D	Qualifier
WF049	7/21/97	<u>Volatiles</u> Acetone	35.4	-	J
	7/21/97	Acetone	0.023 (RRF)	-	J (all detects) R (all non-detects)
		2-Butanone	0.030 (RRF)	-	J (all detects) R (all non-detects)
	7/28/97	Bromomethane	-	34.6	J
		Acetone	-	35.1	J
	7/22/97	Acetone	-	0.020 (RRF)	J (all detects) R (all non-detects)
		2-Butanone	-	0.030 (RRF)	J (all detects) R (all non-detects)
	7/28/97	Acetone	-	0.015 (RRF)	J (all detects) R (all non-detects)
		2-Butanone	-	0.026 (RRF)	J (all detects) R (all non-detects)
	All	Semivolatiles	-	-	None
WF051	All	Volatiles	-	-	None
WF052	7/21/97	<u>Volatiles</u> Acetone	35.4	-	J
	7/21/97	Acetone	0.023 (RRF)	-	J (all detects) R (all non-detects)
		2-Butanone	0.030 (RRF)	-	J (all detects) R (all non-detects)
	7/29/97	Bromomethane	-	30.5	J
		Acetone	-	30.9	J
	7/29/97	Acetone	-	0.016 (RRF)	J (all detects) R (all non-detects)
2-Butanone		-	0.026 (RRF)	J (all detects) R (all non-detects)	
WF053	8/8/97	<u>Volatiles</u> Acetone	-	36.4	J
		Acetone	-	36.4	J
WF054	8/19/97	<u>Volatiles</u> Acetone	39.1	-	J
	8/8/97	Acetone	-	36.4	J
	8/19/97	Acetone	-	30.3	J

**Table VII
 Summary of Compounds Exceeding Instrument Calibration
 Groundwater and Subsurface Soil Investigation, Phase IIB
 NAS Whiting Field, Milton Florida**

Organic Compounds

SDG	Date	Compound	Initial Calibration %RSD	Continuing Calibration %D	Qualifier
WF055	All	Volatiles	-	-	None

Notes: %RSD = percent Relative Standard Deviation for initial calibrations

%D = percent Difference for continuing calibrations

J = the compound was positively identified; the associated numerical value is the approximate concentration of the compound in the sample, either because its concentration was lower than the QL (laboratory "J" flag), or because QC criteria were not met (validation "J").

UJ = the compound was not detected above the reported sample QL. However, the reported sample QL is approximate; the compound concentration may not reliably be presumed to be less than the QL value.

R = the sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the compound cannot be verified.

Table VIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Compound	Concentration	Associated Samples
WF022	<u>Volatiles</u> Acetone	8 ug/L	BKT01001 BKR01001 BKG00101 BKG00101D BKG00102 BKG00103
	Methylene chloride Acetone	1 ug/L 16 ug/L	BKG00202 BKG00201 BKF01001
	Acetone	14 ug/L	17T01101 17G00102 17G00101 17G00201 17G00301 01G00101 01G00102 01G00102D
	Semivolatiles Pesticides/PCBs	ND ND	- -
WF023	<u>Volatiles</u> Methylene chloride Acetone	2 ug/L 15 ug/L	01T01201 01G00401 01G00201 01G00301 BKG00301 02G00201 02G00101 18G00301 02G00301 02G00301D
	Semivolatiles Pesticides/PCBs	ND ND	- +
WF024	<u>Volatiles</u> Acetone	2 ug/L	18T01401 18G00101 15G00401 BKG00203 15R01201 15G00701
	Semivolatiles Pesticides/PCBs	ND ND	- -
WF025	<u>Volatiles</u> Acetone	3 ug/L	15G00503DL 15R01301 15T01601 15G00301 15G00302 15G00303 15G00101 15G00203
	Semivolatiles Pesticides/PCBs	ND ND	- -

Table VIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Compound	Concentration	Associated Samples
WF026	<u>Volatiles</u> Acetone	11 ug/L	15T01701 15G00202 15G00201 15G00802 15G00801 16G00201 15G00803D 15R01401
	Acetone	4 ug/L	15G00803 16T01801 16G00202 16G00203
	Acetone	5 ug/L	16G00202DL 16G00602 16G00601 16G00403 16G00403DL 16G00403D 16G00403DDL
	Semivolatiles	ND	-
	Pesticides/PCBs	ND	-
WF027	<u>Volatiles</u> Acetone	5 ug/L	16G00401 16G00402 16G00101 16G00301
	Acetone	5 ug/L	09G00301
	Acetone	6 ug/L	16G00501
	Trichloroethene	1 ug/L	16R01501
	Xylenes (total)	2 ug/L	16G00501D 66T02001 66G02101 66G02103
Acetone	11 ug/L	16G00303 66G02102 09G00101 09G00301D	
Semivolatiles	ND	-	
Pesticides/PCBs	ND	-	
WF028	<u>Volatiles</u> Acetone	5 ug/L	10T02101 09G00201 10G00201 11G00102 11G00401 11T02201 11G00301
	Acetone	11 ug/L	10G00101 11G00402 11G00201 12G00201

Table VIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Compound	Concentration	Associated Samples
WF028 cont.	Acetone	5 ug/L	11G00101
	Carbon disulfide	6 ug/L	12G00101 11R01601 12G00101D 11G00201D
	Semivolatiles	ND	-
	Pesticides/PCBs	ND	-
WF029	<u>Volatiles</u>		13T02301
	Acetone	3 ug/L	13G00101 13R01701
	Acetone	3 ug/L	13G00102 13G00201 13G00103 14G00201 14G00101 14G00101D 66T02401 66G00901 66G00904 66G00902 66G00903
	<u>Semivolatiles</u>		
	Bis(2-ethylhexyl)phthalate	1 ug/L	All samples in SDG WF029
	Pesticides/PCBs	ND	-
WF030	<u>Volatiles</u>		66T02501
	Acetone	3 ug/L	66G00801 66G00802 66G00803 66G00804
	<u>Semivolatiles</u>		
	Bis(2-ethylhexyl)phthalate	2 ug/L	All samples in SDG WF030
	Pesticides/PCBs	ND	-
WF031	<u>Volatiles</u>	ND	-
	<u>Semivolatiles</u>		
	Di-n-butylphthalate	3 ug/L	05G00801
	Bis(2-ethylhexyl)phthalate	3 ug/L	05G00802 05G00901 05G00902
	Di-n-butylphthalate	2 ug/L	05G01001
	Bis(2-ethylhexyl)phthalate	2 ug/L	05G00301 05R01901 05G01001D
Di-n-butylphthalate	2 ug/L	05G00101 33G00501 33G00201 33G00101 33G00301 33G00301D	
	Pesticides/PCBs	ND	-

Table VIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Compound	Concentration	Associated Samples
WF031B	Volatiles Semivolatiles Pesticides/PCBs	ND ND ND	- - -
WF032	Volatiles <u>Semivolatiles</u> Di-n-butylphthalate Di-n-butylphthalate Pesticides/PCBs	ND 1 ug/L 3 ug/L ND	- 33G00401 06G00102 06G00101 06G00301 06R02001 29G00501 29G00501D 29G00101 66G01201 66G00102 -
WF033	Volatiles Semivolatiles Pesticides/PCBs	ND ND ND	- - -
WF034	Volatiles <u>Semivolatiles</u> Bis(2-ethylhexyl)phthalate Pesticides/PCBs	ND 2 ug/L ND	- 66G01101 66G01301 66G00501 -
WF035	Volatiles Semivolatiles Pesticides/PCBs	ND ND ND	- - -
WF036	Volatiles <u>Semivolatiles</u> Di-n-butylphthalate Pesticides/PCBs	ND 2 ug/L ND	- 66G00701 54G00201 54G00101 31G00201 54R02401 54G00101D -
WF037	Volatiles <u>Semivolatiles</u> Di-n-butylphthalate Pesticides/PCBs	ND 4 ug/L ND	- All samples in SDG WF037 -

Table VIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Compound	Concentration	Associated Samples
WF038	Volatiles Acetone	7 ug/Kg	36BO0101 36BO0102 36BO0103 36BO0201 36BO0202 36BO0203 36BO0301 36BO0302 36BO0303 36BO0303D 36BO0401 36BO0402 36BO0403 36BO0403D
WF039	Volatiles Acetone Methylene chloride	7 ug/Kg 4 ug/Kg	35BO0203D 35BO0102DL 35BO0105 35BO0201
WF040	Volatiles Acetone Bromomethane Acetone	3 ug/L 2 ug/L 3 ug/Kg	All water samples in SDG WF040 35BO0402 35BO0501 35BO0501DL 35BO0502 37BO0201 37BO0202 37BO0101 37BO0102 37BO0103 37BO0301 37BO0302 37BO0303 37BO0203D 37BO0103D
WF041	Volatiles Pesticides & PCBs Semivolatiles Di-n-butylphthalate Bis(2-ethylhexyl)phthalate	ND ND 1 ug/L 2 ug/L	- - 13G00301 13G00401
WF042	Volatiles	ND	-
WF043	Volatiles Acetone	6 ug/L	33T05301 06G00102 06G00301 33G00401
WF044	Volatiles Acetone	3 ug/L	66T05601 66G01201 66G01201D 66G00102 66G01301

Table VIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Compound	Concentration	Associated Samples
WF046	<u>Volatiles</u> 2-Butanone	4 ug/L	All samples in SDG WF046
	<u>Semivolatiles</u> Di-n-butylphthalate	3 ug/L	31R03301 31G00101 31G00101D
	Pesticides & PCBs	ND	-
WF047	<u>Volatiles</u> Acetone	4 ug/L	39W028 39W027 39W024 39W032 39W034D 39W031 39T10001 39W001 39W002 39W003 39W004 39W005
WF048	<u>Volatiles</u> 2-Butanone	4 ug/L	39R03401
	Acetone	3 ug/Kg	39D002 39D001 39D007 39D023 39D026 39D016 39D013 39D019 39D018 39D018D 39D022
	2-Butanone	4 ug/Kg	
WF049	<u>Volatiles</u> 2-Butanone	4 ug/L	39U001
	<u>Semivolatiles</u>	ND	-
WF051	<u>Volatiles</u> 2-Butanone	4 ug/L	16T06801 16R03501
WF052	<u>Volatiles</u>	ND	-
WF053	<u>Volatiles</u> Methylene chloride	8 ug/L	15G00602D 15T07501 15G00401 15G00703 15G00703D 15G00501 15G00502 15G00503
WF054	<u>Volatiles</u> Acetone	4 ug/L	30T07701 30R03901 30G00302

Table VIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Compound	Concentration	Associated Samples
WF054 cont.	Methylene chloride	8 ug/L	15T07601 15G00801 15G00801D 15G00802 15R03801 15G00803 15G00303
WF055	Volatiles	ND	-

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Parameter	Concentration	Qualifier
WF022	Client ID: BKF01001		
	Laboratory ID: RB858010		
	Collection Date: 7/17/96		
	Type: Source blank		
	<u>Volatiles</u>		
	Acetone	4 ug/L	10U ug/L ¹
	<u>Semivolatiles</u>		
	Di-n-butylphthalate	6 ug/L	None
	Pesticides/PCBs	ND	None
WF022	Client ID: BKR01001		
	Laboratory ID: RB858002		
	Collection Date: 7/16/96		
	Type: Equipment rinsate		
	Volatiles	ND	None
	<u>Semivolatiles</u>		
	Di-n-butylphthalate	5 ug/L	None
	Bis(2-ethylhexyl)phthalate	2 ug/L	None
	Pesticides/PCBs	ND	None
WF022	Client ID: BKT01001		
	Laboratory ID: RB858001		
	Collection Date: 7/16/96		
	Type: Trip blank		
	<u>Volatiles</u>		
	Acetone	3 ug/L	10U ug/L ¹
WF022	Client ID: 17T01101		
	Laboratory ID: RB873001		
	Collection Date: 7/18/96		
	Type: Trip blank		
	<u>Volatiles</u>		
	Acetone	8 ug/L	10U ug/L ¹
WF023	Client ID: 01R01101		
	Laboratory ID: RB887005		
	Collection Date: 7/23/96		
	Type: Equipment rinsate		
	<u>Volatiles</u>		
	Acetone	4 ug/L	None
	<u>Semivolatiles</u>		
	Di-n-butylphthalate	6 ug/L	None
	Pesticides/PCBs	ND	None
WF023	Client ID: 01T01201		
	Laboratory ID: RB887001		
	Collection Date: 7/22/96		
	Type: Trip blank		
	<u>Volatiles</u>		
	Methylene chloride	2 ug/L	10U ug/L ¹
	Acetone	3 ug/L	10U ug/L ¹

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds

SDG	Parameter	Concentration	Qualifier
WF023	Client ID: 16T01301 Laboratory ID: RB887014 Collection Date: 7/25/96 Type: Trip blank		
	<u>Volatiles</u> Acetone	2 ug/L	None
WF024	Client ID: 18T01401 Laboratory ID: RB92001 Collection Date: 7/29/96 Type: Trip blank		
	<u>Volatiles</u> Methylene chloride	2 ug/L	None
	Acetone	4 ug/L	10U ug/L ¹
	Chloroform	1 ug/L	None
WF024	Client ID: 15R01201 Laboratory ID: RB920005 Collection Date: 7/31/96 Type: Equipment rinsate		
	<u>Volatiles</u> Acetone	6 ug/L	10U ug/L ¹
	<u>Semivolatiles</u> Di-n-butylphthalate	6 ug/L	None
	Pesticides/PCBs	ND	None
WF025	Client ID: 15R01301 Laboratory ID: RB956011 Collection Date: 8/7/96 Type: Equipment rinsate		
	<u>Volatiles</u>	ND	None
	<u>Semivolatiles</u> Di-n-butylphthalate	6 ug/L	None
	Pesticides/PCBs	ND	None
WF025	Client ID: 15T01501 Laboratory ID: RB956001 Collection Date: 8/5/96 Type: Trip blank		
	<u>Volatiles</u> Methylene chloride	2 ug/L	None
	Acetone	4 ug/L	None
WF025	Client ID: 15T01601 Laboratory ID: RB956012 Collection Date: 8/8/96 Type: Trip blank		
	<u>Volatiles</u> Methylene chloride	1 ug/L	None
	Acetone	2 ug/L	10U ug/L

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Parameter	Concentration	Qualifier
WF026	Client ID: 15T01701 Laboratory ID: RB980001 Collection Date: 8/12/96 Type: Trip blank		
	Volatiles Methylene chloride	1 ug/L	None
WF026	Client ID: 16T01801 Laboratory ID: RB980015 Collection Date: 8/15/96 Type: Trip blank		
	Volatiles Methylene chloride Acetone	1 ug/L 3 ug/L	None 10U ug/L ¹
WF026	Client ID: 15R01401 Laboratory ID: RB980012 Collection Date: 8/14/96 Type: Equipment rinsate		
	Volatiles Acetone	6 ug/L	10U ug/L ¹
	Semivolatiles Di-n-butylphthalate Pesticides/PCBS	6 ug/L ND	None None
WF027	Client ID: 16T01901 Laboratory ID: RC016001 Collection Date: 8/19/96 Type: Trip blank		
	Volatiles Methylene chloride Acetone	5 ug/L 6 ug/L	None None
WF027	Client ID: 66T02001 Laboratory ID: RC016014 Collection Date: 8/22/96 Type: Trip blank		
	Volatiles Methylene chloride	3 ug/L	None
WF027	Client ID: 16R01501 Laboratory ID: RC016012 Collection Date: 8/21/96 Type: Equipment rinsate		
	Volatiles	ND	None
	Semivolatiles Di-n-butylphthalate Pesticides/PCBs	5 ug/L ND	None None

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Parameter	Concentration	Qualifier
WF028	Client ID: 11T02201 Laboratory ID: RC044008 Collection Date: 8/28/96 Type: Trip blank <u>Volatiles</u> Methylene chloride Acetone	 2 ug/L 8 ug/L	 None 10U ug/L ¹
WF028	Client ID: 10T02101 Laboratory ID: RC044001 Collection Date: 8/26/96 Type: Trip blank <u>Volatiles</u> Methylene chloride	 2 ug/L	 None
WF028	Client ID: 11R01601 Laboratory ID: RC044016 Collection Date: 8/28/96 Type: Equipment rinsate <u>Volatiles</u> Acetone <u>Semivolatiles</u> Di-n-butylphthalate Pesticides/PCBs	 9 ug/L 5 ug/L ND	 10U ug/L ¹ None None
WF029	Client ID: 13R01701 Laboratory ID: RC092008 Collection Date: 9/11/96 Type: Equipment rinsate <u>Volatiles</u> Acetone <u>Semivolatiles</u> Di-n-butylphthalate Bis(2-ethylhexyl)phthalate Pesticides/PCBs	 3 ug/L 5 ug/L 1 ug/L ND	 10U ug/L ¹ None 10U ug/L ¹ None
WF029	Client ID: 13T02301 Laboratory ID: RC092001 Collection Date: 9/9/96 Type: Trip blank <u>Volatiles</u> Methylene chloride Acetone	 1 ug/L 2 ug/L	 None 10U ug/L ¹
WF029	Client ID: 66T02401 Laboratory ID: RC092011 Collection Date: 9/12/96 Type: Trip blank <u>Volatiles</u> Methylene chloride Acetone	 3 ug/L 3 ug/L	 None 10U ug/L ¹

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Parameter	Concentration	Qualifier
WF030	Client ID: 66R01801 Laboratory ID: RC121010 Collection Date: 9/18/96 Type: Equipment rinsate		
	<u>Volatiles</u> Acetone	4 ug/L	None
	<u>Semivolatiles</u> Di-n-butylphthalate	3 ug/L	None
	Bis(2-ethylhexyl)phthalate	1 ug/L	10U ug/L ¹
	Pesticides/PCBs	ND	None
WF030	Client ID: 66T02501 Laboratory ID: RC121001 Collection Date: 9/16/96 Type: Trip blank		
	<u>Volatiles</u> Methylene chloride	3 ug/L	None
	Acetone	3 ug/L	10U ug/L ¹
WF030	Client ID: 66T02601 Laboratory ID: RC121012 Collection Date: 9/19/96 Type: Trip blank		
	<u>Volatiles</u> Methylene chloride	3 ug/L	None
	Acetone	3 ug/L	None
WF031	Client ID: 05T02701 Laboratory ID: MB928001 Collection Date: 9/23/96 Type: Trip blank		
	<u>Volatiles</u> Methylene chloride	2 ug/L	None
WF031	Client ID: 33T02801 Laboratory ID: MB958001 Collection Date: 9/26/96 Type: Trip blank		
	<u>Volatiles</u> Methylene chloride	3 ug/L	None
WF031	Client ID: 05R01901 Laboratory ID: MB928011 Collection Date: 9/25/96 Type: Equipment rinsate		
	<u>Volatiles</u>	ND	None
	<u>Semivolatiles</u> Di-n-butylphthalate	2 ug/L	10U ug/L ¹
	Pesticides/PCBs	ND	None

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Parameter	Concentration	Qualifier
WF031B	Client ID: 16T04001 Laboratory ID: MC447002 Collection Date: 11/21/96 Type: Trip blank Volatiles	ND	None
WF032	Client ID: 06T02901 Laboratory ID: MC011001 Collection Date: 9/30/96 Type: Trip blank Volatiles	ND	None
WF032	Client ID: 29T03001 Laboratory ID: MC037001 Collection Date: 10/3/96 Type: Trip blank Volatiles	ND	None
WF032	Client ID: 06R02001 Laboratory ID: MC011006 Collection Date: 10/2/96 Type: Equipment rinsate Volatiles <u>Semivolatiles</u> Di-n-butylphthalate Pesticides/PCBs	ND 3 ug/L ND	None 10U ug/L ¹ None
WF033	Client ID: 29T03101 Laboratory ID: MC085001 Collection Date: 10/7/96 Type: Trip blank Volatiles	ND	None
WF033	Client ID: 66T03201 Laboratory ID: MC118001 Collection Date: 10/10/96 Type: Trip blank <u>Volatiles</u> Acetone	26 ug/L	None
WF033	Client ID: 66R02101 Laboratory ID: MC02101 Collection Date: 10/9/96 Type: Equipment rinsate <u>Volatiles</u> Methylene chloride <u>Semivolatiles</u> Di-n-butylphthalate Pesticides/PCBs	1 ug/L 6 ug/L ND	None None None

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds

SDG	Parameter	Concentration	Qualifier
WF034	Client ID: 66T03301 Laboratory ID: MC153001 Collection Date: 10/14/96 Type: Trip blank Volatiles	ND	None
WF034	Client ID: 66T03401 Laboratory ID: MC176001 Collection Date: 10/17/96 Type: Trip blank Volatiles	ND	None
WF034	Client ID: 66R02201 Laboratory ID: MC153007 Collection Date: 10/16/96 Type: Equipment rinsate <u>Volatiles</u> Toluene Ethylbenzene Xylenes (total) <u>Semivolatiles</u> Di-n-butylphthalate Pesticides/PCBs	8 ug/L 1 ug/L 2 ug/L 2 ug/L ND	None None None None None
WF035	Client ID: 66T03501 Laboratory ID: MC214001 Collection Date: 10/21/96 Type: Trip blank Volatiles	ND	None
WF035	Client ID: 66T03601 Laboratory ID: MC231001 Collection Date: 10/24/96 Type: Trip blank Volatiles	ND	None
WF035	Client ID: 66R02301 Laboratory ID: MC214006 Collection Date: 10/23/96 Type: Equipment rinsate Volatiles <u>Semivolatiles</u> Di-n-butylphthalate Pesticides/PCBs	ND 3 ug/L ND	None None None
WF036	Client ID: 66T03701 Laboratory ID: MC262001 Collection Date: 10/28/96 Type: Trip blank Volatiles	ND	None

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds

SDG	Parameter	Concentration	Qualifier
WF036	Client ID: 31T03801 Laboratory ID: MC284001 Collection Date: 10/31/96 Type: Trip blank Volatiles	ND	None
WF036	Client ID: 54R02401 Laboratory ID: MC262007 Collection Date: 10/30/96 Type: Equipment rinsate Volatiles <u>Semivolatiles</u> Di-n-butylphthalate Pesticides/PCBs	ND 4 ug/L ND	None 10U ug/L ¹ ND
WF037	Client ID: 15T03901 Laboratory ID: MC424001 Collection Date: 11/18/96 Type: Trip blank Volatiles	ND	None
WF037	Client ID: 16T04001 Laboratory ID: MC448004 Collection Date: 11/21/96 Type: Trip blank Volatiles	ND	None
WF037	Client ID: 15R02501 Laboratory ID: MC424009 Collection Date: 11/20/96 Type: Equipment rinsate Volatiles	ND	None
WF037	Client ID: 15F00201 Laboratory ID: MC424010 Collection Date: 11/20/96 Type: Source blank <u>Volatiles</u> Xylenes (total) <u>Semivolatiles</u> Di-n-butylphthalate Pesticides/PCBs	2 ug/L 4 ug/L ND	None 10U ug/L ¹ None
WF038	Client ID: 36R02601 Laboratory ID: MC687016 Collection Date: 12/18/96 Type: Rinsate Volatiles	ND	None

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds

SDG	Parameter	Concentration	Qualifier
WF038	Client ID: 36T04101 Laboratory ID: MC687001 Collection Date: 12/17/96 Type: Trip Blank Volatiles	ND	None
WF039	Client ID: 35T04201 Laboratory ID: MC698001 Collection Date: 12/19/97 Type: Trip Blank Volatiles	ND	None
WF039	Client ID: 35R02701 Laboratory ID: MC698011 Collection Date: 12/21/96 Type: Equipment rinsate Volatiles	ND	None
WF040	Client ID: 35T04301 Laboratory ID: MC783001 Collection Date: 1/7/97 Type: Trip blank <u>Volatiles</u> Bromomethane	1 ug/L	10U ug/L ¹
WF040	Client ID: 37R02801 Laboratory ID: MC783017 Collection Date: 1/9/97 Type: Equipment rinsate <u>Volatiles</u> Acetone Carbon disulfide	5 ug/L 2 ug/L	10U ug/L ¹ None
WF041	Client ID: 35T04501 Laboratory ID: MD908001 Collection Date: 6/11/97 Type: Trip blank <u>Volatiles</u> Acetone	6 ug/L	None
WF041	Client ID: 37T04601 Laboratory ID: MD926001 Collection Date: 6/12/97 Type: Trip blank <u>Volatiles</u> Methylene chloride	1 ug/L	None
WF041	Client ID: 35T04701 Laboratory ID: MD950001 Collection Date: 6/15/97 Type: Trip blank <u>Volatiles</u> Methylene chloride Xylene (total)	3 ug/L 1 ug/L	None None

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Parameter	Concentration	Qualifier
WF041	Client ID: 13T04801 Laboratory ID: MD985001 Collection Date: 6/16/97 Type: Trip blank		
	<u>Volatiles</u> Methylene chloride	2 ug/L	None
	Acetone	6 ug/L	None
WF041	Client ID: 35F00301 Laboratory ID: MD908002 Collection Date: 6/11/97 Type: Source blank		
	<u>Semivolatiles</u> Di-n-butylphthalate	3 ug/L	None
	Pesticides & PCBs	ND	-
WF041	Client ID: 35R03001 Laboratory ID: MD908003 Collection Date: 6/11/97 Type: Equipment rinsate		
	<u>Semivolatiles</u> Di-n-butylphthalate	4 ug/L	None
	Bis(2-ethylhexyl)phthalate	8 ug/L	None
	Pesticides & PCBs	ND	None
WF042	Client ID: 05T04901 Laboratory ID: ME007001 Collection Date: 6/18/97 Type: Trip blank		
	<u>Volatiles</u>	ND	None
WF042	Client ID: 05T05001 Laboratory ID: ME021001 Collection Date: 6/20/97 Type: Trip blank		
	<u>Volatiles</u> Acetone	2 ug/L	None
WF042	Client ID: 05R03101 Laboratory ID: ME007006 Collection Date: 6/17/97 Type: Equipment rinsate		
	<u>Volatiles</u>	ND	None
WF043	Client ID: 05R03201 Laboratory ID: ME042002 Collection Date: 6/23/97 Type: Equipment rinsate		
	<u>Volatiles</u> 1,2-Dichloropropane	1 ug/L	None

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds

SDG	Parameter	Concentration	Qualifier
WF043	Client ID: 05T05101 Laboratory ID: MW042001 Collection Date: 6/23/97 Type: Trip blank Volatiles	ND	None
WF043	Client ID: 33T05201 Laboratory ID: MW053001 Collection Date: 6/24/97 Type: Trip blank <u>Volatiles</u> Acetone	3 ug/L	None
WF043	Client ID: 33T05301 Laboratory ID: ME073001 Collection Date: 6/25/97 Type: Trip blank Volatiles	ND	None
WF043	Client ID: 30T05401 Laboratory ID: ME087001 Collection Date: 6/26/97 Type: Trip blank <u>Volatiles</u> Acetone	4 ug/L	None
WF044	Client ID: 06R03301 Laboratory ID: ME100002 Collection Date: 6/29/97 Type: Equipment rinsate <u>Volatiles</u> Acetone Trichloroethene Toluene Ethylbenzene Xylene (total)	7 ug/L 6 ug/L 3 ug/L 1 ug/L 2 ug/L	None None None None None
WF044	Client ID: 06T05501 Laboratory ID: ME100001 Collection Date: 6/29/97 Type: Trip blank Volatiles	ND	None
WF044	Client ID: 66T05601 Laboratory ID: ME110001 Collection Date: 6/30/97 Type: Trip blank <u>Volatiles</u> Acetone	5 ug/L	10U ug/L ¹
WF044	Client ID: 66T05701 Laboratory ID: ME133001 Collection Date: 7/2/97 Type: Trip blank Volatiles	ND	None

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds			
SDG	Parameter	Concentration	Qualifier
WF044	Client ID: 66T05801 Laboratory ID: ME135001 Collection Date: 7/2/97 Type: Trip blank <u>Volatiles</u> Acetone	3 ug/L	10U ug/L ¹
WF045	Client ID: OWR03401 Laboratory ID: ME149002 Collection Date: 7/7/97 Type: Equipment rinsate <u>Volatiles</u> Acetone 1,2-Dichloropropane <u>Semivolatiles</u> Di-n-butylphthalate Pesticides & PCBs	3 ug/L 1 ug/L 5 ug/L ND	10U ug/L ¹ None 10U ug/L ¹ None
WF045	Client ID: OWT05901 Laboratory ID: ME149001 Collection Date: 7/7/97 Type: Trip blank <u>Volatiles</u> Acetone	2 ug/L	10U ug/L ¹
WF045	Client ID: OWT06001 Laboratory ID: ME159001 Collection Date: 7/8/97 Type: Trip blank <u>Volatiles</u>	ND	None
WF045	Client ID: 66T06101 Laboratory ID: ME175001 Collection Date: 7/9/97 Type: Trip blank <u>Volatiles</u> Acetone	2 ug/L	10U ug/L ¹
WF045	Client ID: OWT06201 Laboratory ID: ME190001 Collection Date: 7/10/97 Type: Trip blank <u>Volatiles</u>	ND	None
WF045	Client ID: OWT06401 Laboratory ID: ME226001 Collection Date: 7/14/97 Type: Trip blank <u>Volatiles</u> Acetone	250 ug/L	None

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds

SDG	Parameter	Concentration	Qualifier
WF045	Client ID: OWT06401DL Laboratory ID: ME226001DL Collection Date: 7/14/97 Type: Trip blank <u>Volatiles</u> Acetone	250 ug/L	None
WF046	Client ID: 31R03301 Laboratory ID: MW241002 Collection Date: 7/15/97 Type: Equipment rinsate <u>Volatiles</u> 1,2-Dichloropropane <u>Semivolatiles</u> Di-n-butylphthalate Pesticides & PCBs	1 ug/L 12 ug/L ND	None 12U ug/L ¹ None
WF046	Client ID: 31T06501 Laboratory ID: ME241001 Collection Date: 7/15/97 Type: Trip blank <u>Volatiles</u> Acetone	4 ug/L	None
WF046	Client ID: 31T06601 Laboratory ID: ME261001 Collection Date: 7/16/97 Type: Trip blank <u>Volatiles</u> Toluene	1 ug/L	None
WF046	Client ID: 31T06701 Laboratory ID: ME305001 Collection Date: 7/21/97 Type: Trip blank <u>Volatiles</u> Methylene chloride	1 ug/L	None
WF047	Client ID: STOR_BLK Laboratory ID: ME243008 Collection Date: 7/15/97 Type: Storage blank Volatiles	ND	None
WF047	Client ID: STOR_BLK2 Laboratory ID: ME267008 Collection Date: 7/16/97 Type: Storage blank <u>Volatiles</u> Acetone Toluene	4 ug/L 0.4 ug/L	None None

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds

SDG	Parameter	Concentration	Qualifier
WF047	Client ID: 39T10001 Laboratory ID: ME244001 Collection Date: 7/15/97 Type: Trip blank Volatiles Carbon disulfide Toluene	 0.40 ug/L 0.50 ug/L	 None None
	Client ID: 39R03401 Laboratory ID: ME264009 Collection Date: 7/17/97 Type: Equipment rinsate Volatiles 1,2-Dichloropropane	 1 ug/L	 None
WF049	Client ID: 39T10201 Laboratory ID: ME262001 Collection Date: 7/15/97 Type: Trip blank Volatiles Toluene	 0.90 ug/L	 None
	Client ID: 39T10401 Laboratory ID: ME263007 Collection Date: 7/17/97 Type: Trip blank Volatiles Toluene	 0.40 ug/L	 None
WF051	Client ID: 16R03501 Laboratory ID: ME306002 Collection Date: 7/21/97 Type: Equipment rinsate Volatiles Methylene chloride	 1 ug/L	 None
	Client ID: 16T06801 Laboratory ID: ME306001 Collection Date: 7/21/97 Type: Trip blank Volatiles Methylene chloride Acetone	 1 ug/L 3 ug/L	 None None
WF051	Client ID: 16T06901 Laboratory ID: ME322001 Collection Date: 7/22/97 Type: Trip blank Volatiles	 ND	 None
	Client ID: 16T07001 Laboratory ID: ME340001 Collection Date: 7/23/97 Type: Trip blank Volatiles	 ND	 None

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds

SDG	Parameter	Concentration	Qualifier
WF051	Client ID: 16T07101 Laboratory ID: ME348001 Collection Date: 7/25/97 Type: Trip blank Volatiles	ND	None
WF052	Client ID: STORAGEBLK Laboratory ID: ME346008 Collection Date: 7/25/97 Type: Storage blank Volatiles Methylene chloride Acetone	 1 ug/L 3 ug/L	 None None
WF052	Client ID: 39T10501 Laboratory ID: ME346007 Collection Date: 7/25/97 Type: Trip blank Volatiles	ND	None
WF053	Client ID: 15R03701 Laboratory ID: ME367002 Collection Date: 7/27/97 Type: Equipment rinsate Volatiles	ND	None
WF053	Client ID: 15T07201 Laboratory ID: ME367001 Collection Date: 7/27/97 Type: Trip blank Volatiles	ND	None
WF053	Client ID: 15T07301 Laboratory ID: ME377001 Collection Date: 7/28/97 Type: Trip blank Volatiles	ND	None
WF053	Client ID: 15T07401 Laboratory ID: ME390001 Collection Date: 7/29/97 Type: Trip blank Volatiles	ND	None
WF053	Client ID: 15T07501 Laboratory ID: ME404001 Collection Date: 7/30/97 Type: Trip blank Volatiles	ND	None
WF054	Client ID: 15R03801 Laboratory ID: ME441005 Collection Date: 8/5/97 Type: Equipment rinsate Volatiles	ND	None

Table IX
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Organic Compounds

SDG	Parameter	Concentration	Qualifier
WF054	Client ID: 30R03901 Laboratory ID: ME450002 Collection Date: 8/6/97 Type: Equipment rinsate Volatiles 1,2-Dichloropropane	1 ug/L	None
WF054	Client ID: 15T07601 Laboratory ID: ME441001 Collection Date: 8/4/97 Type: Trip blank Volatiles	ND	None
WF054	Client ID: 30T07701 Laboratory ID: ME450001 Collection Date: 8/5/97 Type: Trip blank Volatiles	ND	None
WF055	Client ID: OWR04101 Laboratory ID: MF004002 Collection Date: 10/27/97 Type: Equipment rinsate Volatiles	ND	None
WF055	Client ID: 13R04201 Laboratory ID: MF004005 Collection Date: 10/28/97 Type: Equipment rinsate Volatiles	ND	None
WF055	Client ID: OWT08001 Laboratory ID: MF004001 Collection Date: 10/27/97 Type: Trip blank Volatiles	ND	None

¹ = sample result was modified based on an associated method blank concentration.

Note: see detailed data validation report for the discrete qualifiers.

Table X
Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike and Laboratory Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes								
SDG	Client ID	Analyte	Criteria		% Recovery		RPD/Difference	Qualifier
			% Recovery	Difference	MS	MSD		
WF022	BKG00101	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF023	02G00301	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF024	15G00701	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF025	15G00601	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF026	15G00803	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF027	16G00501	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF028	12G00101	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF029	14G00101	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF030	66G00601	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF031	05G01001	Iron Lead Sodium Zinc Cyanide	- - - - 75-125	±100 ±3.0 ±5000 ±20.0 -	- - - - 3.7	- - - - -	124.8 ug/L 9.2 ug/L 5978 ug/L 174 ug/L -	J J J J J (det) R (ND)
WF031B	None	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF032	29G00501	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF033	66G00201	Metals Cyanide	- -	- -	- -	- -	- -	None None

Table X
Summary of Percent Recoveries (%R) and Relative Percent Differences (RPD) for Matrix Spike and Laboratory Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes								
SDG	Client ID	Analyte	Criteria		% Recovery		RPD/Difference	Qualifier
			% Recovery	Difference	MS	MSD		
WF034	30G00301	Antimony Cyanide	75-125 -	- -	126.7 -	- -	- -	J (all detects) None
WF035	66G01701	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF036	54G00101	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF037	15F00201	Metals Cyanide	- 75-125	- -	- 3.7	- -	- -	None J (del) R (ND)
WF041	35G00101	Aluminum Iron Manganese Cyanide	- - - -	≤100 ≤100 ≤10 -	- - - -	- - - -	402 ug/L 309 ug/L 75.2 ug/L -	J J J None
WF045	OWG00502	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF046	31G00101	Metals Cyanide	- -	- -	- -	- -	- -	None None
WF047	39W034	Metals	-	-	-	-	-	None
WF051	None	Metals	-	-	-	-	-	None
WF053	15G00602	Metals	-	-	-	-	-	None
WF054	15G00801	Metals	-	-	-	-	-	None

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF022	Client ID	BKG00101	BKG00101D	
	Laboratory ID	RB858003	RB858004	
	Collection Date	7/16/96	7/16/96	
	Aluminum	43.4 ug/L	54.4 ug/L	22
	Barium	15.6 ug/L	15.6 ug/L	0
	Calcium	536 ug/L	558 ug/L	4
	Iron	54.0 ug/L	57.9 ug/L	7
	Lead	ND	0.80 ug/L	Not calculable
	Magnesium	499 ug/L	521 ug/L	4
	Manganese	1.7 ug/L	1.9 ug/L	11
	Selenium	0.67 ug/L	ND	Not calculable
	Sodium	1080 ug/L	1080 ug/L	0
	Zinc	2.4 ug/L	ND	Not calculable
Cyanide	3.8 ug/L	6.5 ug/L	52	
WF022	Client ID	01G00102	01G00102D	
	Laboratory ID	RB873008	RB873009	
	Collection Date	7/19/96	7/19/96	
	Aluminum	19.1 ug/L	10.3 ug/L	50
	Barium	15.6 ug/L	15.6 ug/L	0
	Beryllium	0.53 ug/L	ND	Not calculable
	Calcium	5850 ug/L	6250 ug/L	7
	Copper	ND	1.4 ug/L	Not calculable
	Iron	12.2 ug/L	8.8 ug/L	32
	Lead	1.3 ug/L	1.5 ug/L	14
	Magnesium	337 ug/L	331 ug/L	2
	Manganese	6.7 ug/L	9.0 ug/L	29
	Potassium	938 ug/L	842 ug/L	11
	Sodium	2100 ug/L	2070 ug/L	1
	Vanadium	ND	1.6 ug/L	Not calculable
Zinc	10.2 ug/L	11.4 ug/L	11	
Cyanide	1.9 ug/L	ND	Not calculable	
WF023	Client ID	02G00301	02G00301D	
	Laboratory ID	RB887012	RB887013	
	Collection Date	7/24/96	7/24/96	
	Aluminum	79.3 ug/L	84.6 ug/L	6
	Barium	128 ug/L	129 ug/L	0.8
	Beryllium	0.39 ug/L	ND	Not calculable
	Calcium	113000 ug/L	113000 ug/L	0
	Iron	36.2 ug/L	38.7 ug/L	7
	Lead	1.4 ug/L	1.3 ug/L	7
	Magnesium	9560 ug/L	9590 ug/L	0.3
	Manganese	13.5 ug/L	13.7 ug/L	1
	Nickel	7.8 ug/L	9.6 ug/L	21
	Potassium	4610 ug/L	4580 ug/L	0.7
	Selenium	1.2 ug/L	0.66 ug/L	58
	Sodium	2200 ug/L	2240 ug/L	2
Vanadium	3.0 ug/L	2.8 ug/L	7	
Zinc	1.8 ug/L	2.0 ug/L	11	
Cyanide	4.5 ug/L	2.0 ug/L	77	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF024	Client ID	15G00701	15G00701D	
	Laboratory ID	RB920009	RB950010	
	Collection Date	7/31/96	7/31/96	
	Aluminum	161 ug/L	173 ug/L	7
	Barium	15.6 ug/L	19.3 ug/L	21
	Calcium	355 ug/L	360 ug/L	1
	Chromium	2.9 ug/L	2.0 ug/L	37
	Iron	183 ug/L	202 ug/L	10
	Lead	0.70 ug/L	0.60 ug/L	15
	Magnesium	433 ug/L	422 ug/L	3
	Manganese	2.8 ug/L	2.6 ug/L	7
	Sodium	1530 ug/L	1610 ug/L	5
	Vanadium	ND	1.2 ug/L	Not calculable
Zinc	3.4 ug/L	3.6 ug/L	6	
Cyanide	2.6 ug/L	3.2 ug/L	21	
WF025	Client ID	15G00601	15G00601D	
	Laboratory ID	RB956006	RB956008	
	Collection Date	8/7/96	8/7/96	
	Aluminum	89.4 ug/L	55.8 ug/L	46
	Arsenic	8.0 ug/L	7.8 ug/L	2
	Barium	67.6 ug/L	63.7 ug/L	6
	Calcium	3690 ug/L	3620 ug/L	2
	Iron	31000 ug/L	30500 ug/L	2
	Lead	0.90 ug/L	0.50U ug/L	Not calculable
	Magnesium	1940 ug/L	1900 ug/L	2
	Manganese	139 ug/L	136 ug/L	2
	Potassium	2460 ug/L	2340 ug/L	5
	Sodium	2630 ug/L	2590 ug/L	2
Zinc	3.4 ug/L	3.3 ug/L	3	
Cyanide	1.5U ug/L	8.1 ug/L	Not calculable	
WF026	Client ID	15G00803	15G00803D	
	Laboratory ID	RB980007	RB980008	
	Collection Date	8/14/96	8/14/96	
	Aluminum	187 ug/L	146 ug/L	25
	Barium	10.6 ug/L	10.8 ug/L	2
	Calcium	1440 ug/L	1170 ug/L	21
	Chromium	2.9 ug/L	2.0U ug/L	Not calculable
	Cobalt	2.3U ug/L	2.4 ug/L	Not calculable
	Copper	4.0 ug/L	2.4 ug/L	50
	Iron	194 ug/L	175 ug/L	10
	Lead	0.80 ug/L	0.50 ug/L	46
	Magnesium	322 ug/L	296 ug/L	8
	Manganese	33.1 ug/L	32.9 ug/L	0.6
Potassium	522 ug/L	316U ug/L	Not calculable	
Sodium	5350 ug/L	5380 ug/L	0.6	
Vanadium	2.0 ug/L	1.5 ug/L	29	
Zinc	176 ug/L	178 ug/L	1	
Cyanide	1.6 ug/L	4.2 ug/L	90	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF026	Client ID	16G00403	16G00403D	
	Laboratory ID	RB980020	RB980021	
	Collection Date	8/16/96	8/16/96	
	Aluminum	278 ug/L	290 ug/L	4
	Arsenic	1.0 ug/L	0.50U ug/L	Not calculable
	Barium	28.6 ug/L	27.5 ug/L	4
	Calcium	3110 ug/L	3300 ug/L	6
	Chromium	2.3 ug/L	2.9 ug/L	23
	Copper	1.1U ug/L	1.3 ug/L	Not calculable
	Iron	1370 ug/L	879 ug/L	44
	Lead	4.0 ug/L	2.7 ug/L	39
	Magnesium	1320 ug/L	987 ug/L	29
	Manganese	41.3 ug/L	33.5 ug/L	21
	Potassium	540 ug/L	713 ug/L	28
	Sodium	2570 ug/L	2590 ug/L	0.8
Vanadium	2.2 ug/L	1.2U ug/L	Not calculable	
Zinc	103 ug/L	945 ug/L	161	
Cyanide	2.9 ug/L	1.6 ug/L	58	
WF027	Client ID	16G00501	16G00501D	
	Laboratory ID	RC016009	RC016013	
	Collection Date	8/21/96	8/21/96	
	Aluminum	12.6 ug/L	16.7 ug/L	28
	Barium	10 ug/L	10 ug/L	0
	Calcium	239 ug/L	234 ug/L	2
	Cobalt	3.2 ug/L	2.3U ug/L	Not calculable
	Iron	9.2 ug/L	5.3 ug/L	54
	Magnesium	276 ug/L	261 ug/L	6
	Manganese	1.0U ug/L	2.1 ug/L	Not calculable
Sodium	1550 ug/L	1450 ug/L	7	
Zinc	2.6 ug/L	1.6 ug/L	48	
WF027	Client ID	09G00301	09G00301D	
	Laboratory ID	RC016019	RC016020	
	Collection Date	8/23/96	8/23/96	
	Aluminum	407 ug/L	372 ug/L	9
	Antimony	8.6U ug/L	9.3 ug/L	Not calculable
	Arsenic	2.6 ug/L	2.8 ug/L	7
	Barium	27.1 ug/L	25.8 ug/L	5
	Calcium	15300 ug/L	14600 ug/L	5
	Chromium	4.0 ug/L	2.4 ug/L	50
	Iron	173 ug/L	148 ug/L	16
	Lead	0.50U ug/L	0.60 ug/L	Not calculable
	Magnesium	158 ug/L	160 ug/L	1
	Manganese	1.5 ug/L	1.7 ug/L	12
	Potassium	2390 ug/L	2010 ug/L	17
	Sodium	2070 ug/L	1950 ug/L	6
Vanadium	16.4 ug/L	14.3 ug/L	14	
Zinc	14.8 ug/L	1.2 ug/L	170	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF028	Client ID	12G00101	12G00101D	
	Laboratory ID	RC044012	RC044017	
	Collection Date	8/27/96	8/27/96	
	Aluminum	14.0 ug/L	15.1 ug/L	8
	Barium	14.5 ug/L	14.5 ug/L	0
	Calcium	1840 ug/L	1870 ug/L	2
	Lead	0.60 ug/L	0.50U ug/L	Not calculable
	Magnesium	320 ug/L	327 ug/L	2
	Manganese	1.0U ug/L	1.4 ug/L	Not calculable
	Potassium	2220 ug/L	2290 ug/L	3
	Sodium	2310 ug/L	2360 ug/L	2
	Thallium	0.70 ug/L	0.60U ug/L	Not calculable
	Zinc	6.7 ug/L	5.5 ug/L	20
Cyanide	1.8U ug/L	2.1 ug/L	Not calculable	
WF028	Client ID	11G00201	11G00201D	
	Laboratory ID	RC044011	RC044018	
	Collection Date	8/28/96	8/28/96	
	Aluminum	2770 ug/L	2320 ug/L	18
	Arsenic	1.7 ug/L	2.0 ug/L	16
	Barium	50.3 ug/L	51.6 ug/L	3
	Beryllium	0.40 ug/L	0.30U ug/L	Not calculable
	Calcium	35400 ug/L	41800 ug/L	17
	Chromium	20.4 ug/L	19.2 ug/L	6
	Copper	2.0 ug/L	3.1 ug/L	43
	Iron	232 ug/L	337 ug/L	37
	Lead	0.50U ug/L	0.90 ug/L	Not calculable
	Magnesium	388 ug/L	538 ug/L	32
	Manganese	2.2 ug/L	4.8 ug/L	74
	Potassium	12900 ug/L	9610 ug/L	29
	Sodium	3420 ug/L	2950 ug/L	15
	Vanadium	11.0 ug/L	11.0 ug/L	0
Zinc	3.4 ug/L	24.3 ug/L	151	
Cyanide	1.5U ug/L	3.3 ug/L	Not calculable	
WF029	Client ID	14G00101	14G00101D	
	Laboratory ID	RC092007	RC092009	
	Collection Date	9/11/96	9/11/96	
	Aluminum	33.1 ug/L	26.5 ug/L	22
	Arsenic	0.50 ug/L	0.50U ug/L	Not calculable
	Barium	22.3 ug/L	22.3 ug/L	0
	Calcium	3060 ug/L	2870 ug/L	6
	Iron	22.0 ug/L	27.3 ug/L	22
	Lead	1.3 ug/L	0.80 ug/L	48
	Magnesium	702 ug/L	691 ug/L	2
	Manganese	1.9 ug/L	1.9 ug/L	0
	Mercury	0.12 ug/L	0.10U ug/L	Not calculable
	Sodium	1590 ug/L	1570 ug/L	1
Vanadium	1.2U ug/L	1.4 ug/L	Not calculable	
Zinc	89.5 ug/L	96.8 ug/L	8	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF030	Client ID	66G00601	66G00601D	
	Laboratory ID	RC121007	RC121011	
	Collection Date	9/18/96	9/18/96	
	Aluminum	39.9 ug/L	39.7 ug/L	0.5
	Barium	38.1 ug/L	36.2 ug/L	5
	Calcium	863 ug/L	770 ug/L	11
	Copper	1.8 ug/L	1.1U ug/L	Not calculable
	Iron	8.2 ug/L	41.9 ug/L	134
	Lead	0.90 ug/L	0.50U ug/L	Not calculable
	Magnesium	1130 ug/L	1110 ug/L	2
	Manganese	5.0 ug/L	4.6 ug/L	8
	Potassium	860 ug/L	689 ug/L	22
	Selenium	0.64 ug/L	0.60U ug/L	Not calculable
Sodium	1280 ug/L	1160 ug/L	10	
Zinc	2.9 ug/L	4.8 ug/L	49	
WF030	Client ID	66G02203	66G02203D	
	Laboratory ID	RC121016	RC121017	
	Collection Date	9/20/96	9/20/96	
	Aluminum	44.0 ug/L	51.9 ug/L	16
	Barium	6.4 ug/L	6.4 ug/L	0
	Calcium	751 ug/L	731 ug/L	3
	Cobalt	2.3U ug/L	2.4 ug/L	Not calculable
	Iron	35.6 ug/L	38.9 ug/L	9
	Magnesium	271 ug/L	242 ug/L	11
	Manganese	9.7 ug/L	9.7 ug/L	0
	Potassium	491 ug/L	316U ug/L	Not calculable
	Sodium	2810 ug/L	2760 ug/L	2
	Zinc	1.2 ug/L	2.2 ug/L	59
Cyanide	1.8U ug/L	12.0 ug/L	Not calculable	
WF031	Client ID	05G01001	05G01001D	
	Laboratory ID	MB928007	MB928012	
	Collection Date	9/25/96	9/25/96	
	Barium	27.6 ug/L	27.1 ug/L	2
	Calcium	854 ug/L	803 ug/L	6
	Chromium	0.61 ug/L	0.36 ug/L	52
	Cobalt	0.85 ug/L	0.72 ug/L	17
	Copper	35.6 ug/L	1.7U ug/L	Not calculable
	Iron	40.1 ug/L	31.8U ug/L	Not calculable
	Lead	4.4 ug/L	1.8U ug/L	Not calculable
	Magnesium	874 ug/L	871 ug/L	0.6
	Manganese	3.3 ug/L	2.5 ug/L	28
	Mercury	0.03 ug/L	0.04 ug/L	29
	Nickel	1.4 ug/L	1.4 ug/L	0
	Potassium	3.1U ug/L	825 ug/L	Not calculable
	Selenium	5.4 ug/L	3.9U ug/L	Not calculable
	Sodium	15100 ug/L	14900 ug/L	1
Thallium	7.4 ug/L	1.9U ug/L	Not calculable	
Vanadium	0.58U ug/L	0.63 ug/L	Not calculable	
Zinc	13.7 ug/L	3.8 ug/L	113	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF031	Client ID	33G00301	33G00301D	
	Laboratory ID	MB958006	MB958007	
	Collection Date	9/27/96	9/27/96	
	Aluminum	156	98.7	45
	Antimony	3.5	3.4U	Not calculable
	Barium	59.3	59.9	1
	Calcium	2230	2230	0
	Chromium	0.88	0.34U	Not calculable
	Cobalt	0.70	0.49	35
	Iron	107	50.6	72
	Magnesium	1750	1760	0.6
	Manganese	21.2	21.5	1
	Potassium	31.8	1040	188
	Sodium	5370	5550	3
Thallium	2.9	3.4	16	
Vanadium	1.0	0.58U	Not calculable	
Zinc	7.4	7.2	3	
WF032	Client ID	29G00501	29G00501D	
	Laboratory ID	MC011007	MC011008	
	Collection Date	10/2/96	10/2/96	
	Barium	89.7 ug/L	84.2 ug/L	6
	Beryllium	0.14 ug/L	0.19 ug/L	30
	Calcium	1580 ug/L	1470 ug/L	7
	Chromium	2.1 ug/L	2.8 ug/L	29
	Cobalt	0.94 ug/L	0.98 ug/L	4
	Copper	2.7 ug/L	4.4 ug/L	48
	Magnesium	2500 ug/L	2320 ug/L	7
	Manganese	8.4 ug/L	8.0 ug/L	5
	Mercury	0.04 ug/L	0.04 ug/L	0
	Sodium	5040 ug/L	5030 ug/L	0.2
	Zinc	5.1 ug/L	3.8 ug/L	29
Cyanide	1.0 ug/L	1.2 ug/L	18	
WF033	Client ID	66G00201	66G00201D	
	Laboratory ID	MC118002	MC118003	
	Collection Date	10/9/96	10/9/96	
	Barium	20.8 ug/L	20.7 ug/L	0.5
	Calcium	3250 ug/L	3100 ug/L	5
	Chromium	0.75 ug/L	0.44 ug/L	52
	Copper	1.7U ug/L	2.7 ug/L	Not calculable
	Iron	73.8 ug/L	31.8U ug/L	Not calculable
	Magnesium	456 ug/L	457 ug/L	0.2
	Manganese	3.4 ug/L	3.2 ug/L	6
	Mercury	0.03 ug/L	0.03 ug/L	0
	Potassium	648 ug/L	1920 ug/L	99
	Sodium	3040 ug/L	3020 ug/L	0.7
	Zinc	3.6 ug/L	6.0 ug/L	50

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF034	Client ID	30G00301	30G00301D	
	Laboratory ID	MC153005	MC153008	
	Collection Date	10/16/96	10/16/96	
	Barium	28.0 ug/L	27.8 ug/L	0.7
	Beryllium	0.20 ug/L	0.13U ug/L	Not calculable
	Calcium	1530 ug/L	1480 ug/L	3
	Copper	11.0 ug/L	3.2 ug/L	110
	Iron	626 ug/L	634 ug/L	1
	Lead	3.8 ug/L	2.4 ug/L	45
	Magnesium	642 ug/L	650 ug/L	1
	Manganese	20.7 ug/L	21.0 ug/L	1
	Mercury	0.04 ug/L	0.05 ug/L	22
	Potassium	1880 ug/L	2680 ug/L	35
Sodium	4600 ug/L	4490 ug/L	2	
Zinc	5.5 ug/L	4.4 ug/L	22	
WF035	Client ID	66G01701	66G01701D	
	Laboratory ID	MC214005	MC214007	
	Collection Date	10/23/96	10/23/96	
	Aluminum	24.3 ug/L	30.9 ug/L	24
	Barium	10.2 ug/L	10.7 ug/L	5
	Calcium	766 ug/L	816 ug/L	6
	Copper	1.7U ug/L	22.5 ug/L	Not calculable
	Iron	343 ug/L	348 ug/L	1
	Lead	2.0U ug/L	2.6 ug/L	Not calculable
	Magnesium	320 ug/L	324 ug/L	1
	Manganese	4.2 ug/L	5.4 ug/L	25
	Mercury	0.03 ug/L	0.03 ug/L	0
	Selenium	4.0 ug/L	3.9U ug/L	Not calculable
Sodium	7660 ug/L	7790 ug/L	2	
Zinc	2.5 ug/L	26.3 ug/L	165	
WF036	Client ID	54G00101	54G00101D	
	Laboratory ID	MC262004	MC262008	
	Collection Date	10/30/96	10/30/96	
	Aluminum	87.6 ug/L	91.6 ug/L	4
	Barium	75.2 ug/L	74.3 ug/L	1
	Beryllium	0.18 ug/L	0.18 ug/L	0
	Calcium	1680 ug/L	1660 ug/L	1
	Chromium	1.2 ug/L	1.0 ug/L	2
	Cobalt	0.90 ug/L	1.4 ug/L	43
	Magnesium	1950 ug/L	1920 ug/L	2
	Manganese	13.9 ug/L	12.9 ug/L	7
	Mercury	0.02 ug/L	0.01U ug/L	Not calculable
	Potassium	2410 ug/L	2530 ug/L	5
Sodium	2110 ug/L	2070 ug/L	2	
Zinc	4.5 ug/L	3.5 ug/L	25	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF041	Client ID	35G00101	35G00101D	
	Laboratory ID	MD908004	MD908005	
	Collection Date	6/11/97	6/11/97	
	Aluminum	47.8 ug/L	45.2 ug/L	6
	Barium	76.8 ug/L	79.0 ug/L	0.2
	Calcium	3150 ug/L	3240 ug/L	3
	Copper	8.2 ug/L	6.8 ug/L	19
	Iron	15.9 ug/L	19.0 ug/L	18
	Lead	1.7 ug/L	0.93U ug/L	Not calculable
	Magnesium	2340 ug/L	2370 ug/L	1
	Manganese	28.7 ug/L	28.9 ug/L	0.7
	Sodium	4330 ug/L	4430 ug/L	2
	Thallium	1.9 ug/L	0.89U ug/L	Not calculable
Zinc	12.1 ug/L	130 ug/L	166	
Cyanide	ND	ND	-	
WF041	Client ID	35G00202	35G00202D	
	Laboratory ID	MD950002	MD950003	
	Collection Date	6/15/97	6/15/97	
	Aluminum	65.0 ug/L	50.7 ug/L	25
	Barium	24.8 ug/L	25.3 ug/L	2
	Calcium	973 ug/L	1030 ug/L	6
	Copper	5.6 ug/L	3.5 ug/L	46
	Iron	180 ug/L	196 ug/L	8
	Lead	0.93U ug/L	1.9 ug/L	Not calculable
	Magnesium	813 ug/L	819 ug/L	0.7
	Manganese	9.5 ug/L	9.3 ug/L	2
	Selenium	1.8U ug/L	2.6 ug/L	Not calculable
	Sodium	20900 ug/L	21700 ug/L	4
Thallium	1.0 ug/L	0.89U ug/L	Not calculable	
Zinc	18.7 ug/L	15.4 ug/L	19	
Cyanide	ND	ND	-	
WF045	Client ID	OWG00502	OWG00502D	
	Laboratory ID	ME149004	ME149005	
	Collection Date	7/8/97	7/8/97	
	Aluminum	175 ug/L	160 ug/L	9
	Barium	7.3 ug/L	7.1 ug/L	3
	Calcium	648 ug/L	585 ug/L	10
	Copper	2.9 ug/L	4.4 ug/L	41
	Iron	106 ug/L	97.1 ug/L	9
	Magnesium	308 ug/L	317 ug/L	3
	Manganese	3.3 ug/L	3.5 ug/L	6
	Nickel	7.8 ug/L	7.7U ug/L	Not calculable
	Sodium	1990 ug/L	2060 ug/L	3
	Zinc	4.5 ug/L	4.7 ug/L	4
Cyanide	ND	ND	-	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF045	Client ID	OWG00302	OWG00302D	
	Laboratory ID	ME190002	ME190003	
	Collection Date	7/10/97	7/10/97	
	Aluminum	31.5 ug/L	16.6U ug/L	Not calculable
	Barium	10.2 ug/L	10.5 ug/L	3
	Calcium	460 ug/L	454 ug/L	1
	Iron	83.3 ug/L	51.1 ug/L	48
	Lead	1.9 ug/L	1.2U ug/L	Not calculable
	Magnesium	286 ug/L	300 ug/L	5
	Manganese	3.0 ug/L	3.0 ug/L	0
	Sodium	1670 ug/L	1670 ug/L	0
Zinc	3.4 ug/L	3.8 ug/L	11	
Cyanide	ND	ND	-	
WF046	Client ID	31G00101	31G00101D	
	Laboratory ID	ME241003	ME241004	
	Collection Date	7/15/97	7/15/97	
	Aluminum	96.0 ug/L	91.1 ug/L	5
	Barium	22.6 ug/L	22.5 ug/L	0.4
	Calcium	857 ug/L	851 ug/L	0.7
	Copper	1.3U ug/L	1.4 ug/L	Not calculable
	Iron	120 ug/L	103 ug/L	15
	Magnesium	662 ug/L	675 ug/L	2
	Manganese	9.7 ug/L	9.9 ug/L	2
	Potassium	1910 ug/L	2200 ug/L	15
	Sodium	1760 ug/L	1890 ug/L	7
	Vanadium	1.8 ug/L	1.7U ug/L	Not calculable
Zinc	3.5 ug/L	9.8 ug/L	95	
Cyanide	ND	ND	-	
WF047	Client ID	39W034	39W034D	
	Laboratory ID	ME243005	ME243006	
	Collection Date	7/15/97	7/15/97	
	Aluminum	94.0 ug/L	76.3 ug/L	21
	Barium	22.9 ug/L	22.8 ug/L	0.4
	Calcium	1030 ug/L	1010 ug/L	2
	Copper	8.2 ug/L	1.3U ug/L	Not calculable
	Iron	747 ug/L	751 ug/L	0.5
	Magnesium	871 ug/L	854 ug/L	2
	Manganese	12.5 ug/L	12.6 ug/L	0.8
Sodium	2210 ug/L	2090 ug/L	6	
Zinc	14.7 ug/L	3.0 ug/L	132	
WF051	Client ID	16G00101	16G00101D	
	Laboratory ID	ME340009	ME340010	
	Collection Date	7/24/97	7/24/97	
	Barium	20.5 ug/L	20.7 ug/L	1
	Calcium	514 ug/L	520 ug/L	1
	Copper	1.7 ug/L	1.7 ug/L	0
	Iron	11.2 ug/L	14.7 ug/L	27
	Magnesium	617 ug/L	623 ug/L	1
	Manganese	3.2 ug/L	3.0 ug/L	6
	Sodium	2130 ug/L	2110 ug/L	1
Zinc	3.2 ug/L	8.2 ug/L	88	

Table XI
Summary of Relative Percent Differences (RPD) for Original and Field Duplicate Samples
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

SDG	Inorganic Analytes			RPD
WF053	Client ID	15G00602	15G00602D	
	Laboratory ID	ME367004	ME367005	
	Collection Date	7/27/97	7/27/97	
	Aluminum	16.6U ug/L	29.9 ug/L	Not calculable
	Barium	13.0 ug/L	13.0 ug/L	0
	Calcium	676 ug/L	675 ug/L	0.1
	Chromium	3.3 ug/L	4.2 ug/L	24
	Iron	33.8 ug/L	92.6 ug/L	93
	Magnesium	504 ug/L	490 ug/L	3
	Manganese	2.3 ug/L	2.7 ug/L	16
Sodium	2870 ug/L	2740 ug/L	5	
Zinc	3.1 ug/L	3.4 ug/L	9	
WF053	Client ID	15G00703	15G00703D	
	Laboratory ID	ME404003	ME404004	
	Collection Date	7/30/97	7/30/97	
	Aluminum	43.6 ug/L	108 ug/L	14
	Antimony	17.3U ug/L	21.2 ug/L	Not calculable
	Barium	6.6 ug/L	6.2 ug/L	6
	Calcium	587 ug/L	549 ug/L	7
	Chromium	10.6 ug/L	13.4 ug/L	23
	Copper	2.9 ug/L	4.5 ug/L	43
	Iron	107 ug/L	115 ug/L	7
	Lead	0.93U ug/L	5.1 ug/L	Not calculable
	Magnesium	280 ug/L	266 ug/L	5
	Manganese	6.9 ug/L	6.5 ug/L	6
	Nickel	10.9 ug/L	20.3 ug/L	60
Sodium	2040 ug/L	1820 ug/L	11	
Zinc	5.2 ug/L	6.1 ug/L	16	
WF054	Client ID	15G00801	15G00801D	
	Laboratory ID	ME441002	ME441003	
	Collection Date	8/4/97	8/4/97	
	Aluminum	143 ug/L	116 ug/L	21
	Arsenic	2.0 ug/L	1.1U ug/L	Not calculable
	Barium	34.7 ug/L	37.3 ug/L	7
	Calcium	1870 ug/L	2010 ug/L	7
	Copper	5.2 ug/L	2.6 ug/L	67
	Iron	4760 ug/L	4940 ug/L	4
	Magnesium	1370 ug/L	1470 ug/L	7
	Manganese	84.6 ug/L	91.4 ug/L	8
	Mercury	0.04U ug/L	0.07 ug/L	Not calculable
	Sodium	1830 ug/L	1960 ug/L	7
	Thallium	0.89U ug/L	0.90 ug/L	Not calculable
Zinc	8.5 ug/L	6.6 ug/L	25	

Table XII
Summary of Analytes Exceeding Instrument Calibration
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes					
SDG	Date	Analyte	Initial Calibration	Continuing Calibration %R	Qualifier
WF022	All	Metals Cyanide	- -	- -	None None
WF023	All	Metals Cyanide	- -	- -	None None
WF024	All	Metals Cyanide	- -	- -	None None
WF025	All	Metals Cyanide	- -	- -	None None
WF026	All	Metals Cyanide	- -	- -	None None
WF027	All	Metals Cyanide	- -	- -	None None
WF028	All	Metals Cyanide	- -	- -	None None
WF029	All	Metals Cyanide	- -	- -	None None
WF030	All	Metals Cyanide	- -	- -	None None
WF031	All	Metals Cyanide	- -	- -	None None
WF031B	All	Metals Cyanide	- -	- -	None None
WF032	All	Metals Cyanide	- -	- -	None None
WF033	All	Metals Cyanide	- -	- -	None None
WF034	All	Metals Cyanide	- -	- -	None None
WF035	All	Metals Cyanide	- -	- -	None None
WF036	All	Metals Cyanide	- -	- -	None None
WF037	All	Metals Cyanide	- -	- -	None None
WF041	All	Metals Cyanide	- -	- -	None None
WF045	All	Metals Cyanide	- -	- -	None None
WF046	All	Metals Cyanide	- -	- -	None None
WF047	All	Metals	-	-	None
WF051	All	Metals	-	-	None

Table XII
Summary of Analytes Exceeding Instrument Calibration
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes

SDG	Date	Analyte	Initial Calibration r	Continuing Calibration %R	Qualifier
WF053	All	Metals	-	-	None
WF054	All	Metals	-	-	None

Notes: r = correlation coefficient for initial calibrations

%R = percent recovery for continuing calibrations

J = the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample because QC criteria were not met (validation "J").

UJ = the analyte was not detected above the reported sample IDL. However, the reported sample is approximate; the analyte concentration may not reliably be presumed to be less than the IDL value.

R = the sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes				
SDG	Analyte	Concentration	Associated Samples	
WF022	Aluminum	6.240 ug/L	All samples in SDG WF022	
	Iron	12.320 ug/L		
	Lead	0.500 ug/L		
	Sodium	38.890 ug/L		
	Zinc	3.660 ug/L		
WF023	Arsenic	-0.500 ug/L	All samples in SDG WF023	
	Iron	5.980 ug/L		
	Lead	1.200 ug/L		
	Sodium	34.400 ug/L		
	Zinc	1.200 ug/L		
WF024	Aluminum	10.600 ug/L	All samples in SDG WF024	
	Iron	13.190 ug/L		
	Lead	0.500 ug/L		
	Sodium	37.550 ug/L		
WF025	Aluminum	13.650 ug/L	All samples in SDG WF025	
	Beryllium	-0.320 ug/L		
	Iron	7.390 ug/L		
	Selenium	0.650 ug/L		
	Zinc	1.610 ug/L		
WF026	Aluminum	17.380 ug/L	All samples in SDG WF026	
	Calcium	119.520 ug/L		
	Iron	10.050 ug/L		
	Magnesium	22.940 ug/L		
	Mercury	0.140 ug/L		
	Sodium	41.280 ug/L		
	Zinc	2.510 ug/L		
	Mercury	0.20 ug/L	All samples in SDG WF026	
	WF027	Aluminum	18.000 ug/L	All samples in SDG WF027
		Antimony	9.280 ug/L	
Arsenic		0.500 ug/L		
Calcium		94.550 ug/L		
Sodium		28.990 ug/L		
Vanadium		1.280 ug/L		
Mercury		0.21 ug/L	All samples in SDG WF027	
WF028	Aluminum	51.600 ug/L	All samples in SDG WF028	
	Antimony	-10.930 ug/L		
	Calcium	113.470 ug/L		
	Magnesium	45.540 ug/L		
	Mercury	0.140 ug/L		
	Potassium	498.120 ug/L		
	Sodium	43.870 ug/L		
	Zinc	1.230 ug/L		

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF029	Aluminum	10.6 ug/L	All samples in SDG WF029
	Barium	3.0 ug/L	
	Cobalt	2.7 ug/L	
	Iron	21.4 ug/L	
	Vanadium	1.4 ug/L	
	Cobalt	2.7 ug/L	All samples in SDG WF029
	Vanadium	1.6 ug/L	
	Mercury	-0.1 ug/L	All samples in SDG WF029
	Iron	5.3 ug/L	All samples in SDG WF029
	Vanadium	1.6 ug/L	
	Calcium	153.810 ug/L	All samples in SDG WF029
	Cobalt	2.390 ug/L	
	Iron	11.590 ug/L	
	Sodium	37.260 ug/L	
Zinc	1.630 ug/L		
WF030	Calcium	59.580 ug/L	All samples in SDG WF030
	Iron	6.080 ug/L	
	Sodium	54.620 ug/L	
WF031	Mercury	0.030 ug/L	All samples in SDG WF031
	Potassium	-617.8 ug/L	
	Silver	-1.2 ug/L	
	Thallium	3.3 ug/L	
	Mercury	0.047 ug/L	All samples in SDG WF031
	Potassium	34.4 ug/L	
	Silver	-1.6 ug/L	
	Thallium	3.7 ug/L	
	Mercury	0.055 ug/L	All samples in SDG WF031
	Potassium	542.9 ug/L	
	Silver	-1.4 ug/L	
	Mercury	0.070 ug/L	All samples in SDG WF031
	Potassium	-21.4 ug/L	
	Silver	-1.3 ug/L	
	Thallium	3.5 ug/L	
	Mercury	0.047 ug/L	All samples in SDG WF031
	Potassium	-411.210 ug/L	
	Mercury	0.085 ug/L	All samples in SDG WF031
	Potassium	955.8 ug/L	
	Silver	-2.5 ug/L	
	Thallium	3.2 ug/L	
	Mercury	0.127 ug/L	All samples in SDG WF031
	Mercury	0.130 ug/L	All samples in SDG WF031
	Mercury	-0.030 ug/L	All samples in SDG WF031
Potassium	-335.53 ug/L		
Silver	-1.420 ug/L		

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF031 cont.	Arsenic	-6.4 ug/L	All samples in SDG WF031
	Chromium	-0.4 ug/L	
	Mercury	0.034 ug/L	
	Potassium	171.0 ug/L	
	Thallium	5.1 ug/L	
	Vanadium	1.4 ug/L	All samples in SDG WF031
	Mercury	0.016 ug/L	
	Potassium	342.4 ug/L	
	Silver	-1.2 ug/L	
	Thallium	5.2 ug/L	
	Vanadium	0.8 ug/L	All samples in SDG WF031
	Chromium	-0.7 ug/L	
	Mercury	0.011 ug/L	
	Potassium	308.7 ug/L	
	Thallium	6.2 ug/L	
	Vanadium	0.7 ug/L	All samples in SDG WF031
	Barium	-0.2 ug/L	
	Chromium	-0.6 ug/L	
	Mercury	-0.021 ug/L	
	Potassium	377.6 ug/L	
Thallium	7.2 ug/L	All samples in SDG WF031	
Mercury	0.014 ug/L		
Arsenic	-5.7 ug/L		
Barium	-0.2 ug/L		
Chromium	-0.8 ug/L		
Mercury	-0.032 ug/L	All samples in SDG WF031	
Nickel	-1.4 ug/L		
Potassium	441.5 ug/L		
Thallium	5.7 ug/L		
Vanadium	0.6 ug/L		
WF031B	Copper	604 ug/L	All samples in SDG WF031B
	Aluminum	-19.5 ug/L	All samples in SDG WF031B
	Barium	0.4 ug/L	
	Copper	4.4 ug/L	
	Manganese	0.4 ug/L	
	Barium	0.4 ug/L	All samples in SDG WF031B
	Copper	6.6 ug/L	
	Iron	3.5 ug/L	
	Mercury	0.0 ug/L	
	Nickel	9.5 ug/L	
	Sodium	10.6 ug/L	
	Barium	25.130 ug/L	
	Beryllium	-0.830 ug/L	
	Calcium	129,890 ug/L	
	Copper	8,310 ug/L	
	Iron	8,680 ug/L	
	Magnesium	25,430 ug/L	
	Manganese	0.490 ug/L	
	Silver	2,970 ug/L	
	Sodium	84,450 ug/L	
Vanadium	2,060 ug/L		
Zinc	3,100 ug/L		
Cyanide	-0.981 ug/L		

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF032	Copper	4.5 ug/L	All samples in SDG WF032
	Manganese	0.5 ug/L	
	Mercury	0.0242 ug/L	
	Potassium	-1595.8 ug/L	
	Beryllium	0.2 ug/L	All samples in SDG WF032
	Cobalt	0.3 ug/L	
	Copper	5.5 ug/L	
	Manganese	0.7 ug/L	
	Mercury	0.0265 ug/L	
	Sodium	17.3 ug/L	
	Beryllium	0.2 ug/L	All samples in SDG WF032
	Copper	4.9 ug/L	
	Manganese	0.6 ug/L	
	Mercury	0.0255 ug/L	
	Potassium	1914.8 ug/L	
	Sodium	11.6 ug/L	
	Beryllium	0.2 ug/L	All samples in SDG WF032
	Copper	5.6 ug/L	
	Manganese	0.6 ug/L	
	Mercury	-0.0178 ug/L	
	Sodium	17.4 ug/L	
	Barium	1.210 ug/L	All samples in SDG WF032
	Chromium	2.750 ug/L	
	Copper	3.390 ug/L	
	Manganese	0.410 ug/L	
	Mercury	0.015 ug/L	
	Sodium	856.490 ug/L	
	Zinc	2.310 ug/L	
	Barium	0.3 ug/L	All samples in SDG WF032
	Beryllium	0.1 ug/L	
	Cobalt	0.4 ug/L	
	Copper	5.8 ug/L	
	Manganese	0.2 ug/L	
	Barium	0.3 ug/L	All samples in SDG WF032
	Beryllium	0.1 ug/L	
	Copper	5.8 ug/L	
	Manganese	0.4 ug/L	
	Mercury	-0.0874 ug/L	
	Nickel	2.0 ug/L	
Sodium	11.5 ug/L		
Barium	0.2 ug/L	All samples in SDG WF032	
Beryllium	0.1 ug/L		
Copper	5.6 ug/L		
Manganese	0.5 ug/L		
Thallium	2.6 ug/L		
Barium	0.3 ug/L	All samples in SDG WF032	
Beryllium	0.3 ug/L		
Cobalt	0.6 ug/L		
Copper	7.0 ug/L		
Manganese	0.8 ug/L		
Nickel	1.4 ug/L		
Thallium	4.3 ug/L		

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF032 cont.	Aluminum	107.660 ug/L	All samples in SDG WF032
	Antimony	4.320 ug/L	
	Barium	1.760 ug/L	
	Cadmium	1.660 ug/L	
	Calcium	105.840 ug/L	
	Cobalt	0.430 ug/L	
	Copper	12.450 ug/L	
	Iron	54.350 ug/L	
	Magnesium	103.090 ug/L	
	Manganese	0.260 ug/L	
	Sodium	154.770 ug/L	
	Zinc	9.120 ug/L	
	Antimony	4.3 ug/L	All samples in SDG WF032
	Barium	0.4 ug/L	
	Beryllium	0.3 ug/L	
	Copper	5.2 ug/L	
	Manganese	0.6 ug/L	All samples in SDG WF032
	Sodium	10.2 ug/L	
	WF033	Barium	0.3 ug/L
Beryllium		0.1 ug/L	
Cobalt		0.4 ug/L	
Copper		5.8 ug/L	
Manganese		0.2 ug/L	
Mercury		0.07 ug/L	
Potassium		-1595.6 ug/L	
Barium		0.3 ug/L	All samples in SDG WF033
Beryllium		0.1 ug/L	
Copper		5.8 ug/L	
Manganese		0.4 ug/L	
Mercury		0.04 ug/L	
Potassium		655.4 ug/L	
Barium		0.2 ug/L	All samples in SDG WF033
Beryllium		0.1 ug/L	
Copper		5.6 ug/L	
Manganese		0.5 ug/L	
Mercury		0.05 ug/L	
Potassium		1914.8 ug/L	
Thallium		2.6 ug/L	
Barium		0.3 ug/L	All samples in SDG WF033
Beryllium		0.3 ug/L	
Cobalt		0.6 ug/L	
Copper		7.0 ug/L	
Manganese		0.8 ug/L	
Potassium		425.8 ug/L	
Thallium		4.3 ug/L	
Aluminum		164.460 ug/L	All samples in SDG WF033
Barium		1.220 ug/L	
Calcium		107.040 ug/L	
Copper		2.900 ug/L	
Iron		33.430 ug/L	
Magnesium	82.790 ug/L		
Manganese	0.330 ug/L		
Potassium	1602.780 ug/L		
Sodium	221.450 ug/L		
Zinc	1.660 ug/L		

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF033 cont.	Mercury	0.06 ug/L	All samples in SDG WF033
	Barium	0.4 ug/L	All samples in SDG WF033
	Beryllium	0.3 ug/L	
	Copper	5.2 ug/L	
	Manganese	0.6 ug/L	
	Mercury	0.05 ug/L	
	Potassium	163.8 ug/L	
	Antimony	4.810 ug/L	
	Barium	0.460 ug/L	
	Copper	2.870 ug/L	
	Manganese	0.330 ug/L	
	Potassium	509.990 ug/L	
	Sodium	137.200 ug/L	
	Zinc	3.200 ug/L	
	Barium	0.8 ug/L	All samples in SDG WF033
	Beryllium	0.6 ug/L	
	Cadmium	0.8 ug/L	
	Chromium	0.9 ug/L	
	Cobalt	1.1 ug/L	
	Manganese	1.0 ug/L	
	Potassium	1734.0 ug/L	
	Thallium	2.4 ug/L	
	Vanadium	1.1 ug/L	
	Barium	1.2 ug/L	
	Beryllium	0.8 ug/L	
	Cadmium	0.9 ug/L	
	Chromium	1.2 ug/L	
	Cobalt	1.1 ug/L	
	Manganese	1.3 ug/L	
	Potassium	1605.5 ug/L	
	Thallium	3.4 ug/L	
	Vanadium	1.6 ug/L	
	Barium	1.1 ug/L	All samples in SDG WF033
	Beryllium	0.8 ug/L	
	Cadmium	0.8 ug/L	
	Chromium	1.1 ug/L	
	Cobalt	1.1 ug/L	
	Manganese	1.2 ug/L	
	Potassium	766.6 ug/L	
	Thallium	3.2 ug/L	
	Vanadium	1.7 ug/L	
	Barium	0.7 ug/L	
Beryllium	0.7 ug/L		
Cadmium	0.6 ug/L		
Chromium	0.9 ug/L		
Cobalt	0.8 ug/L		
Manganese	1.0 ug/L		
Potassium	314.6 ug/L		
Vanadium	1.2 ug/L		

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF033 cont.	Barium	1.0 ug/L	All samples in SDG WF033
	Beryllium	0.6 ug/L	
	Cadmium	0.6 ug/L	
	Chromium	0.9 ug/L	
	Cobalt	1.0 ug/L	
	Manganese	1.0 ug/L	
	Potassium	684.9 ug/L	
	Thallium	2.2 ug/L	
	Vanadium	1.2 ug/L	
	Barium	0.9 ug/L	All samples in SDG WF033
	Beryllium	0.7 ug/L	
	Cadmium	0.7 ug/L	
	Chromium	0.9 ug/L	
	Cobalt	1.0 ug/L	
	Manganese	1.0 ug/L	
	Potassium	722.1 ug/L	
	Thallium	3.4 ug/L	
	Vanadium	1.2 ug/L	
WF034	Copper	5.8 ug/L	All samples in SDG WF034
	Mercury	0.023 ug/L	
	Copper	5.8 ug/L	All samples in SDG WF034
	Manganese	0.4 ug/L	
	Mercury	0.017 ug/L	
	Beryllium	0.1 ug/L	All samples in SDG WF034
	Copper	5.6 ug/L	
	Manganese	0.5 ug/L	
	Mercury	0.030 ug/L	
	Beryllium	0.3 ug/L	All samples in SDG WF034
	Copper	7.0 ug/L	
	Manganese	0.8 ug/L	
	Mercury	0.042 ug/L	
	Sodium	10.2 ug/L	
	Barium	0.460 ug/L	66G02001 66G00302 66G01801 30G00301 30G00401 66R02201 30G00301D
	Copper	2.870 ug/L	
	Sodium	137.200 ug/L	
	Zinc	3.200 ug/L	
	Cyanide	-1.327 ug/L	
	Mercury	0.024 ug/L	
	Beryllium	0.3 ug/L	All samples in SDG WF034
Copper	5.2 ug/L		
Manganese	0.6 ug/L		
Mercury	0.026 ug/L		
Mercury	0.040 ug/L	All samples in SDG WF034	
Mercury	0.033 ug/L		

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF034 cont.	Arsenic	-13.610 ug/L	66G01101
	Barium	1.700 ug/L	66G01301
	Beryllium	-0.710 ug/L	66G00501
	Calcium	108.610 ug/L	66G00501F
	Copper	1.700 ug/L	
	Lead	-8.620 ug/L	
	Manganese	0.790 ug/L	
	Selenium	10.810 ug/L	
	Sodium	70.400 ug/L	
	Zinc	3.200 ug/L	
	Beryllium	0.2 ug/L	All samples in SDG WF034
	Silver	3.3 ug/L	
	Sodium	11.9 ug/L	
	Beryllium	0.2 ug/L	All samples in SDG WF034
	Manganese	0.4 ug/L	
	Silver	2.2 ug/L	
	Sodium	12.2 ug/L	
	Beryllium	0.5 ug/L	All samples in SDG WF034
	Copper	1.9 ug/L	
	Manganese	0.6 ug/L	
	Sodium	20.0 ug/L	
	Beryllium	0.1 ug/L	All samples in SDG WF034
	Silver	2.6 ug/L	
	Sodium	17.3 ug/L	
Beryllium	0.2 ug/L	All samples in SDG WF034	
Manganese	0.4 ug/L		
Sodium	9.7 ug/L		
WF035	Barium	0.8 ug/L	All samples in SDG WF035
	Beryllium	0.6 ug/L	
	Manganese	1.0 ug/L	
	Mercury	0.0239 ug/L	
	Thallium	2.4 ug/L	
	Barium	1.2 ug/L	All samples in SDG WF035
	Beryllium	0.8 ug/L	
	Manganese	1.3 ug/L	
	Mercury	0.0256 ug/L	
	Thallium	3.4 ug/L	
	Barium	1.1 ug/L	All samples in SDG WF035
	Beryllium	0.8 ug/L	
	Manganese	1.2 ug/L	
	Mercury	0.0401 ug/L	
	Thallium	3.2 ug/L	
	Barium	0.7 ug/L	All samples in SDG WF035
	Beryllium	0.7 ug/L	
	Manganese	1.0 ug/L	
	Mercury	0.334 ug/L	
	Aluminum	101.120 ug/L	All samples in SDG WF035
	Barium	0.410 ug/L	
	Iron	56.400 ug/L	
	Manganese	0.430 ug/L	
	Sodium	152.450 ug/L	
Zinc	2.190 ug/L		

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF035 cont.	Barium	1.0 ug/L	All samples in SDG WF035
	Beryllium	0.6 ug/L	
	Manganese	1.0 ug/L	
	Mercury	0.0250 ug/L	
	Thallium	2.2 ug/L	
	Barium	0.9 ug/L	All samples in SDG WF035
	Beryllium	0.7 ug/L	
	Manganese	1.0 ug/L	
	Thallium	3.4 ug/L	
	Barium	0.570 ug/L	All samples in SDG WF035
	Beryllium	-0.910 ug/L	
	Calcium	109.820 ug/L	
	Copper	5.470 ug/L	
	Manganese	0.720 ug/L	
	Zinc	4.400 ug/L	
	Manganese	0.6 ug/L	All samples in SDG WF035
	Manganese	0.4 ug/L	All samples in SDG WF035
Barium	0.4 ug/L	All samples in SDG WF035	
Beryllium	-0.2 ug/L		
Manganese	0.6 ug/L		
Beryllium	-0.2 ug/L	All samples in SDG WF035	
Manganese	0.6 ug/L		
Beryllium	-0.2 ug/L	All samples in SDG WF035	
Manganese	0.4 ug/L		
WF036	Aluminum	17.7 ug/L	All samples in SDG WF036
	Barium	0.8 ug/L	
	Beryllium	0.6 ug/L	
	Cadmium	0.8 ug/L	
	Chromium	0.9 ug/L	
	Cobalt	1.1 ug/L	
	Manganese	1.0 ug/L	
	Mercury	0.0265 ug/L	
	Thallium	2.4 ug/L	
	Vanadium	1.1 ug/L	
	Aluminum	18.4 ug/L	
	Barium	1.2 ug/L	
	Beryllium	0.8 ug/L	
	Cadmium	0.9 ug/L	
	Chromium	1.2 ug/L	
	Cobalt	1.1 ug/L	
	Manganese	1.3 ug/L	
	Mercury	0.0251 ug/L	
Thallium	3.4 ug/L		
Vanadium	1.8 ug/L		

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF036 cont.	Aluminum	14.7 ug/L	All samples in SDG WF036
	Barium	1.1 ug/L	
	Beryllium	0.8 ug/L	
	Cadmium	0.8 ug/L	
	Chromium	1.1 ug/L	
	Cobalt	1.1 ug/L	
	Manganese	1.2 ug/L	
	Mercury	0.0165 ug/L	
	Thallium	3.2 ug/L	
	Vanadium	1.7 ug/L	
	Barium	0.7 ug/L	All samples in SDG WF036
	Beryllium	0.7 ug/L	
	Cadmium	0.6 ug/L	
	Chromium	0.9 ug/L	
	Cobalt	0.8 ug/L	
	Manganese	1.0 ug/L	
	Mercury	0.0157 ug/L	
	Vanadium	1.2 ug/L	
	Aluminum	63.950 ug/L	All samples in SDG WF036
	Barium	0.730 ug/L	
	Chromium	0.490 ug/L	
	Manganese	0.430 ug/L	
	Mercury	0.014 ug/L	
	Potassium	1817.440 ug/L	
	Cyanide	-1.333 ug/L	
	Barium	1.0 ug/L	All samples in SDG WF036
	Beryllium	0.6 ug/L	
	Cadmium	0.6 ug/L	
	Chromium	0.9 ug/L	
	Cobalt	1.0 ug/L	
Manganese	1.0 ug/L		
Thallium	2.2 ug/L		
Vanadium	1.2 ug/L		
Aluminum	91.5 ug/L	All samples in SDG WF036	
Barium	0.9 ug/L		
Beryllium	0.7 ug/L		
Cadmium	0.7 ug/L		
Chromium	0.9 ug/L		
Cobalt	1.0 ug/L		
Manganese	1.0 ug/L		
Thallium	3.4 ug/L		
Vanadium	1.2 ug/L		
WF037	Copper	6.4 ug/L	All samples in SDG WF037
	Aluminum	-19.5 ug/L	All samples in SDG WF037
	Barium	0.4 ug/L	
	Copper	4.4 ug/L	
	Barium	0.4 ug/L	All samples in SDG WF037
Copper	6.6 ug/L		

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes				
SDG	Analyte	Concentration	Associated Samples	
WF037 cont.	Barium	25.130 ug/L	All samples in SDG WF037	
	Beryllium	-0.830 ug/L		
	Calcium	129.890 ug/L		
	Copper	8.310 ug/L		
	Iron	8.680 ug/L		
	Magnesium	25.430 ug/L		
	Manganese	0.490 ug/L		
	Silver	2.970 ug/L		
	Sodium	84.450 ug/L		
	Vanadium	2.060 ug/L		
	Zinc	3.100 ug/L		
Cyanide	-0.981 ug/L			
WF041	Cyanide	-0.6 ug/L	All samples in SDG WF041	
	Barium	0.5 ug/L	All samples in SDG WF041	
	Sodium	12.2 ug/L	All samples in SDG WF041	
	Cyanide	-0.4 ug/L		
	Barium	0.7 ug/L	All samples in SDG WF041	
	Sodium	16.3 ug/L		
	Beryllium	-1.010 ug/L	All samples in SDG WF041	
	Calcium	133.200 ug/L		
	Copper	3.740 ug/L		
	Iron	9.490 ug/L		
	Lead	1.260 ug/L		
	Sodium	93.470 ug/L		
	Thallium	1.310 ug/L		
	Zinc	19.070 ug/L		
	Cyanide	-1.002 ug/L		
	Barium	-0.6 ug/L		All samples in SDG WF041
	Chromium	-2.9 ug/L		
	Copper	-1.7 ug/L		
	Magnesium	-22.9 ug/L		
	Silver	-2.8 ug/L		
	Vanadium	-3.0 ug/L		
	Copper	6.4 ug/L	All samples in SDG WF041	
	Thallium	1.4 ug/L		
	Vanadium	-1.9 ug/L		
	Cobalt	8.9 ug/L	All samples in SDG WF041	
	Thallium	1.6 ug/L		
	Cyanide	-0.4 ug/L		
	Beryllium	-0.830 ug/L	All samples in SDG WF041	
	Calcium	105.800 ug/L		
	Iron	3.860 ug/L		
	Selenium	-3.230 ug/L		
	Sodium	15.150 ug/L		
	Vanadium	-2.240 ug/L		
	Zinc	0.940 ug/L		
	Selenium	-3.4 ug/L	All samples in SDG WF041	
	Thallium	-1.3 ug/L		
	Lead	1.2 ug/L	All samples in SDG WF041	
Selenium	-2.6 ug/L			
Cyanide	-0.4 ug/L			

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes				
SDG	Analyte	Concentration	Associated Samples	
WF041 cont.	Seelenium Thallium	-3.1 ug/L 1.3 ug/L	All samples in SDG WF041	
	Selenium Cyanide	-2.8 ug/L -0.5 ug/L	All samples in SDG WF041	
	Thallium Cyanide	-1.0 ug/L -0.4 ug/L	All samples in SDG WF041	
	Cyanide	0.4 ug/L	All samples in SDG WF041	
	Cyanide	0.4 ug/L	All samples in SDG WF041	
	Cyanide	0.4 ug/L	All samples in SDG WF041	
	WF045	Cyanide	-0.6 ug/L	All samples in SDG WF045
Cyanide		-0.6 ug/L	All samples in SDG WF045	
Manganese		0.4 ug/L	All samples in SDG WF045	
Vanadium		1.8 ug/L	All samples in SDG WF045	
Beryllium		-0.860 ug/L	All samples in SDG WF045	
Calcium		136.80 ug/L		
Iron		5.390 ug/L		
Sodium		32.780 ug/L		
Vanadium		-1.730 ug/L		
Zinc		3.340 ug/L		
Cyanide		-1.013 ug/L		
Mercury		0.1 ug/L		All samples in SDG WF045
Cyanide		-0.6 ug/L		All samples in SDG WF045
Thallium Cyanide		1.1 ug/L -0.6 ug/L		All samples in SDG WF045
Cyanide		-0.6 ug/L	All samples in SDG WF045	
Aluminum Barium Beryllium Calcium Iron Sodium Thallium Zinc Cyanide		17.320 ug/L 0.450 ug/L -0.550 ug/L 121.820 ug/L 6.770 ug/L 45.700 ug/L -1.390 ug/L 2.510 ug/L -0.899 ug/L	All samples in SDG WF045	
Beryllium Manganese Sodium		0.2 ug/L 0.5 ug/L 17.2 ug/L	OWG00401 OWG00201	
Beryllium Manganese Sodium Zinc		0.2 ug/L 0.7 ug/L 12.2 ug/L 1.0 ug/L	OWG00401 OWG00201	

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF045 cont.	Barium	0.9 ug/L	OWG00401
	Beryllium	0.5 ug/L	OWG00201
	Chromium	3.0 ug/L	
	Manganese	1.0 ug/L	
	Sodium	19.9 ug/L	
	Thallium	1.2 ug/L	
	Vanadium	2.0 ug/L	
	Zinc	1.6 ug/L	
	Cyanide	-0.377 ug/L	OWG00401 OWG00201
	Beryllium	0.2 ug/L	OWG00401
	Sodium	11.0 ug/L	OWG00201
	Selenium	-2.2 ug/L	OWG00401 OWG00201
	Thallium	-1.0 ug/L	OWG00401 OWG00201
	WF046	Beryllium	0.2 ug/L
Sodium		17.2 ug/L	
Beryllium		0.2 ug/L	All samples in SDG WF046
Mercury		0.040 ug/L	
Sodium		12.2 ug/L	
Beryllium		0.5 ug/L	All samples in SDG WF046
Mercury		0.043 ug/L	
Sodium		19.9 ug/L	
Aluminum		17.320 ug/L	All samples in SDG WF046
Barium		0.450 ug/L	
Beryllium		-0.550 ug/L	
Calcium		121.820 ug/L	
Iron		6.770 ug/L	
Sodium		45.700 ug/L	
Thallium	-1.390 ug/L		
Zinc	2.510 ug/L		
Boron	-0.377 ug/L		
Beryllium	0.2 ug/L	All samples in SDG WF046	
Sodium	11.0 ug/L		
WF047	Beryllium	0.2 ug/L	All samples in SDG WF047
	Manganese	0.5 ug/L	
	Mercury	0.1 ug/L	
	Sodium	17.2 ug/L	
	Beryllium	0.2 ug/L	All samples in SDG WF047
	Manganese	0.7 ug/L	
	Sodium	12.2 ug/L	
	Zinc	1.0 ug/L	
	Barium	0.9 ug/L	All samples in SDG WF047
	Beryllium	0.5 ug/L	
	Chromium	3.0 ug/L	
	Manganese	1.0 ug/L	
	Sodium	19.9 ug/L	
	Thallium	1.1 ug/L	
Vanadium	2.0 ug/L		
Zinc	1.6 ug/L		

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes				
SDG	Analyte	Concentration	Associated Samples	
WF047 cont.	Aluminum	17.920 ug/L	All samples in SDG WF047	
	Barium	0.450 ug/L		
	Beryllium	-0.550 ug/L		
	Calcium	121.820 ug/L		
	Iron	6.770 ug/L		
	Sodium	45.700 ug/L		
	Thallium	-1.390 ug/L		
	Zinc	2.510 ug/L		
	Beryllium	0.2 ug/L	All samples in SDG WF047	
	Sodium	11.0 ug/L	All samples in SDG WF047	
	Selenium	-2.2 ug/L	All samples in SDG WF047	
WF051	Barium	1.0 ug/L	All samples in SDG WF051	
	Beryllium	0.2 ug/L		
	Chromium	3.4 ug/L		
	Copper	1.5 ug/L		
	Manganese	0.5 ug/L		
	Silver	2.8 ug/L		
	Vanadium	2.4 ug/L		
	Manganese	-0.5 ug/L	All samples in SDG WF051	
	Mercury	0.04 ug/L		
	Vanadium	1.8 ug/L		
	Arsenic	1.1 ug/L	All samples in SDG WF051	
	Mercury	0.04 ug/L		
	Selenium	-1.9 ug/L		
	Manganese	-0.5 ug/L	All samples in SDG WF051	
	Mercury	0.07 ug/L		
	Beryllium	-0.800 ug/L	All samples in SDG WF051	
	Calcium	140.860 ug/L		
	Iron	5.470 ug/L		
	Sodium	36.740 ug/L		
	Zinc	1.980 ug/L		
	Mercury	0.08 ug/L		All samples in SDG WF051
	Silver	-2.4 ug/L		
	Aluminum	15.800 ug/L	All samples in SDG WF051	
	Barium	0.600 ug/L		
	Beryllium	-0.680 ug/L		
	Calcium	127.440 ug/L		
	Chromium	3.050 ug/L		
	Cobalt	2.850 ug/L		
	Copper	2.120 ug/L		
	Iron	10.740 ug/L		
	Manganese	0.690 ug/L		
	Silver	3.040 ug/L		
	Sodium	54.160 ug/L		
Vanadium	2.700 ug/L			
Zinc	2.710 ug/L			
Calcium	42.0 ug/L	All samples in SDG WF051		

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF051 cont.	Barium	0.6 ug/L	All samples in SDG WF051
	Beryllium	0.4 ug/L	
	Cobalt	2.6 ug/L	
	Copper	1.7 ug/L	
	Manganese	0.9 ug/L	
	Zinc	1.2 ug/L	
	Manganese	0.7 ug/L	All samples in SDG WF051
	Arsenic	-1.130 ug/L	All samples in SDG WF051
	Beryllium	-0.720 ug/L	
	Calcium	131.080 ug/L	
	Iron	12.060 ug/L	
	Zinc	4.540 ug/L	
	Lead	-1.3 ug/L	
	Lead	-1.4 ug/L	All samples in SDG WF051
	Magnesium	0.5 ug/L	All samples in SDG WF051
	Lead	-1.6 ug/L	
	Aluminum	18.640 ug/L	
	Barium	0.490 ug/L	All samples in SDG WF051
	Beryllium	-0.760 ug/L	
	Calcium	134.210 ug/L	
	Chromium	3.850 ug/L	
	Iron	35.410 ug/L	
	Manganese	0.500 ug/L	
	Sodium	35.200 ug/L	
	Zinc	2.300 ug/L	
	Lead	-2.0 ug/L	
	Vanadium	2.0 ug/L	
Barium	0.9 ug/L	All samples in SDG WF051	
Beryllium	0.3 ug/L		
Lead	-2.0 ug/L		
Manganese	0.7 ug/L		
Sodium	9.2 ug/L		
Sodium	15.0 ug/L	All samples in SDG WF051	
Arsenic	-1.6 ug/L	All samples in SDG WF051	
WF053	Aluminum	18.640 ug/L	All samples in SDG WF053
	Barium	0.490 ug/L	
	Beryllium	-0.760 ug/L	
	Calcium	134.210 ug/L	
	Chromium	3.850 ug/L	
	Iron	35.410 ug/L	
	Manganese	0.500 ug/L	
	Sodium	35.200 ug/L	
	Zinc	2.330 ug/L	

Table XIII
Summary of Method Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes			
SDG	Analyte	Concentration	Associated Samples
WF053 cont.	Barium	-0.760 ug/L	All samples in SDG WF053
	Calcium	138.650 ug/L	
	Chromium	3.750 ug/L	
	Copper	3.390 ug/L	
	Iron	14.500 ug/L	
	Manganese	0.490 ug/L	
	Nickel	8.370 ug/L	
	Sodium	42.790 ug/L	
	Zinc	2.940 ug/L	All samples in SDG WF053
	Aluminum	26.970 ug/L	
	Beryllium	-0.710 ug/L	
	Calcium	151.990 ug/L	
	Iron	16.430 ug/L	
	Manganese	0.580 ug/L	
	Silver	4.360 ug/L	
	Sodium	52.750 ug/L	
	Zinc	3.720 ug/L	All samples in SDG WF053
	Beryllium	-0.970 ug/L	
	Calcium	130.780 ug/L	
	Copper	1.480 ug/L	
	Iron	19.510 ug/L	
	Lead	-1.380 ug/L	
	Manganese	0.780 ug/L	
	Sodium	13.170 ug/L	
	Zinc	6.090 ug/L	All samples in SDG WF053
	Aluminum	52.990 ug/L	
	Arsenic	1.300 ug/L	
	Beryllium	-0.940 ug/L	
	Calcium	198.990 ug/L	
	Chromium	6.790 ug/L	
	Copper	2.230 ug/L	
	Iron	38.980 ug/L	
	Lead	-1.460 ug/L	
	Manganese	1.000 ug/L	
	Sodium	60.080 ug/L	
	Zinc	2.040 ug/L	
WF054	Mercury	0.1 ug/L	All samples in SDG WF054
	Mercury	0.1 ug/L	All samples in SDG WF054
	Mercury	0.1 ug/L	All samples in SDG WF054
	Beryllium	-0.980 ug/L	All samples in SDG WF054
	Calcium	110.890 ug/L	
	Iron	9.300 ug/L	
	Mercury	0.052 ug/L	
	Vanadium	-2.660 ug/L	
	Zinc	2.260 ug/L	

Table XIV
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes

SDG	Parameter	Concentration	Qualifier
WF022	Client ID:	BKR01001	
	Laboratory ID:	RB858002	
	Collection Date:	7/16/96	
	Type:	Equipment rinsate	
	Sodium	43.4 ug/L	None
	Aluminum	55.9 ug/L	23.9U ug/L ¹
	Calcium	69.0 ug/L	None
	Iron	23.9 ug/L	43.4U ug/L ¹
WF022	Client ID:	BKF01001	
	Laboratory ID:	RB858010	
	Collection Date:	7/17/96	
	Type:	Source blank	
	Sodium	61.3 ug/L	61.3U ug/L ¹
WF023	Client ID:	01R01101	
	Laboratory ID:	RB887005	
	Collection Date:	7/23/96	
	Type:	Equipment rinsate	
	Aluminum	13.3 ug/L	None
Iron	10.8 ug/L	10.8U ug/L ¹	
Zinc	1.2 ug/L	1.2U ug/L ¹	
Cyanide	2.6 ug/L	None	
WF024	Client ID:	15R01201	
	Laboratory ID:	RB920005	
	Collection Date:	7/31/96	
	Type:	Equipment rinsate	
	Aluminum	13.8 ug/L	13.8U ug/L ¹
Iron	10.5 ug/L	10.5U ug/L ¹	
Sodium	55.4 ug/L	55.4U ug/L ¹	
Cyanide	2.6 ug/L	None	
WF025	Client ID:	15R01301	
	Laboratory ID:	RB956011	
	Collection Date:	8/7/96	
	Type:	Equipment rinsate	
Iron	5.3 ug/L	5.3U ug/L ¹	
Sodium	26.6 ug/L	None	
Zinc	1.8 ug/L	1.8U ug/L ¹	
WF026	Client ID:	15R01401	
	Laboratory ID:	RB980012	
	Collection Date:	8/14/96	
	Type:	Equipment rinsate	
Iron	14.8 ug/L	14.8U ug/L ¹	
Zinc	1.1 ug/L	1.1U ug/L ¹	
Cyanide	1.8 ug/L	None	

Table XIV
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes

SDG	Parameter	Concentration	Qualifier
WF027	Client ID: 16R01501		
	Laboratory ID: RC016012		
	Collection Date: 8/21/96		
	Type: Equipment rinsate		
	Arsenic	0.50 ug/L	0.50U ug/L ¹
	Calcium	64.0 ug/L	64.0U ug/L ¹
	Lead	0.80 ug/L	None
WF028	Client ID: 11R01601		
	Laboratory ID: RC044016		
	Collection Date: 8/28/96		
	Type: Equipment rinsate		
	Calcium	67.2 ug/L	67.2U ug/L ¹
	Sodium	30.8 ug/L	30.8U ug/L ¹
	Cyanide	1.5 ug/L	None
WF029	Client ID: 13R01701		
	Laboratory ID: RC092008		
	Collection Date: 9/11/96		
	Type: Equipment rinsate		
	Calcium	66.4 ug/L	66.4U ug/L ¹
	Sodium	25.4 ug/L	25.4U ug/L ¹
	Zinc	1.8 ug/L	1.8U ug/L ¹
WF030	Client ID: 66R01801		
	Laboratory ID: RC121010		
	Collection Date: 9/18/96		
	Type: Equipment rinsate		
	Calcium	55.7 ug/L	55.7U ug/L ¹
	Iron	9.2 ug/L	9.2U ug/L ¹
	Selenium	0.68 ug/L	None
WF031	Client ID: 05R01901		
	Laboratory ID: MB928011		
	Collection Date: 9/25/96		
	Type: Equipment rinsate		
	Barium	0.34 ug/L	None
	Manganese	0.38 ug/L	None
	Mercury	0.06 ug/L	0.06U ug/L ¹
WF032	Client ID: 06R02001		
	Laboratory ID: MC011006		
	Collection Date: 10/2/96		
	Type: Equipment rinsate		
	Barium	2.8 ug/L	2.8U ug/L ¹
	Chromium	2.5 ug/L	2.5U ug/L ¹
	Copper	2.9 ug/L	2.9U ug/L ¹
	Manganese	0.48 ug/L	0.48U ug/L ¹
	Mercury	0.01 ug/L	0.01U ug/L ¹
	Sodium	365 ug/L	None
Zinc	3.0 ug/L	3.0U ug/L ¹	
Cyanide	1.4 ug/L	None	

Table XIV
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes

SDG	Parameter	Concentration	Qualifier
WF033	Client ID: 66R02101		
	Laboratory ID: MC085007		
	Collection Date: 10/9/96		
	Type: Equipment rinsate		
	Barium	1.6 ug/L	1.6U ug/L ¹
	Beryllium	0.32 ug/L	0.32U ug/L ¹
	Chromium	0.55 ug/L	0.55U ug/L ¹
	Cobalt	0.84 ug/L	0.84U ug/L ¹
	Manganese	2.4 ug/L	2.4U ug/L ¹
	Potassium	777 ug/L	777U ug/L ¹
Sodium	334 ug/L	334U ug/L ¹	
Vanadium	0.63 ug/L	0.63U ug/L ¹	
Zinc	1.4 ug/L	1.4U ug/L ¹	
WF034	Client ID: 66R0201		
	Laboratory ID: MC153007		
	Collection Date: 10/16/96		
	Type: Equipment rinsate		
	Barium	0.56 ug/L	0.56 ug/L ¹
	Manganese	0.44 ug/L	0.44 ug/L ¹
Mercury	0.02 ug/L	0.02 ug/L ¹	
Sodium	119 ug/L	119 ug/L ¹	
Zinc	2.2 ug/L	2.2 ug/L ¹	
WF035	Client ID: 66R02301		
	Laboratory ID: MC214006		
	Collection Date: 10/23/96		
	Type: Equipment rinsate		
	Aluminum	30.7 ug/L	30.7 ug/L ¹
	Barium	1.3 ug/L	1.3 ug/L ¹
	Calcium	101 ug/L	101 ug/L ¹
	Manganese	0.94 ug/L	0.94 ug/L ¹
Mercury	0.03 ug/L	0.03 ug/L ¹	
Sodium	100 ug/L	100 ug/L ¹	
Zinc	2.4 ug/L	2.4 ug/L ¹	
WF036	Client ID: 54R02401		
	Laboratory ID: MC262007		
	Collection Date: 10/30/96		
	Type: Equipment rinsate		
	Aluminum	14.8 ug/L	14.8 ug/L ¹
	Barium	0.59 ug/L	0.59 ug/L ¹
	Chromium	0.48 ug/L	0.48 ug/L ¹
	Manganese	0.32 ug/L	0.32 ug/L ¹
Potassium	756 ug/L	756 ug/L ¹	
Sodium	265 ug/L	None	
Zinc	1.4 ug/L	None	
WF037	Client ID: 15F00201		
	Laboratory ID: MC424010		
	Collection Date: 12/2/96		
	Type: Source blank		
	Barium	1.2 ug/L	None
	Calcium	111 ug/L	None
	Copper	6.8 ug/L	None
	Manganese	0.43 ug/L	None
Sodium	95.7 ug/L	None	
Zinc	2.6 ug/L	None	

Table XIV
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes

SDG	Parameter	Concentration	Qualifier
WF041	Client ID:	35F00301	
	Laboratory ID:	MD908002	
	Collection Date:	6/11/97	
	Type:	Source blank	
	Barium	0.78 ug/L	None
	Calcium	164 ug/L	164U ug/L ¹
	Copper	10.3 ug/L	10.3U ug/L ¹
	Iron	35.6 ug/L	35.6U ug/L ¹
	Lead	1.0 ug/L	1.0U ug/L ¹
	Manganese	0.88 ug/L	None
Sodium	129 ug/L	129U ug/L ¹	
Zinc	13.3 ug/L	13.3U ug/L ¹	
WF041	Client ID:	35R03001	
	Laboratory ID:	MD908003	
	Collection Date:	6/11/97	
	Type:	Equipment rinsate	
	Barium	1.0 ug/L	None
	Calcium	165 ug/L	165U ug/L ¹
	Copper	4.9 ug/L	4.9U ug/L ¹
	Iron	10.7 ug/L	10.7U ug/L ¹
	Manganese	1.2 ug/L	None
	Sodium	148 ug/L	148U ug/L ¹
Thallium	1.7 ug/L	1.7U ug/L ¹	
Zinc	15.8 ug/L	15.8U ug/L ¹	
WF045	Client ID:	OWR03401	
	Laboratory ID:	ME149002	
	Collection Date:	7/7/97	
	Type:	Equipment rinsate	
	Barium	0.44 ug/L	0.44U ug/L ¹
	Calcium	133 ug/L	133U ug/L ¹
	Copper	1.8 ug/L	None
	Iron	7.1 ug/L	7.1U ug/L ¹
	Sodium	60.4 ug/L	60.4U ug/L ¹
	Zinc	1.7 ug/L	1.7U ug/L ¹
WF046	Client ID:	31R03301	
	Laboratory ID:	MW241002	
	Collection Date:	7/15/97	
	Type:	Equipment rinsate	
	Barium	1.1 ug/L	1.1U ug/L ¹
	Calcium	126 ug/L	126U ug/L ¹
	Iron	4.4 ug/L	4.4U ug/L ¹
	Manganese	0.40 ug/L	None
	Sodium	65.6 ug/L	65.6U ug/L ¹
	Zinc	5.4 ug/L	5.4U ug/L ¹

Table XIV
Summary of Field Blank Contamination
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton Florida

Inorganic Analytes

SDG	Parameter	Concentration	Qualifier
WF051	Client ID:	16R03601	
	Laboratory ID:	ME340005	
	Collection Date:	7/23/97	
	Type:	Equipment rinsate	
	Calcium	166 ug/L	166U ug/L ¹
	Copper	1.7 ug/L	1.7U ug/L ¹
	Iron	12.7 ug/L	12.7U ug/L ¹
	Lead	1.2 ug/L	None
	Manganese	0.68 ug/L	0.68U ug/L ¹
Sodium	48.9 ug/L	48.9U ug/L ¹	
Zinc	2.6 ug/L	2.6U ug/L ¹	
WF053	Client ID:	15R03701	
	Laboratory ID:	ME367002	
	Collection Date:	7/27/97	
	Type:	Equipment rinsate	
	Barium	1.6 ug/L	None
	Calcium	134 ug/L	134U ug/L ¹
	Chromium	4.2 ug/L	4.2U ug/L ¹
	Copper	2.1 ug/L	2.1U ug/L ¹
	Iron	18.4 ug/L	None
Manganese	0.69 ug/L	0.69U ug/L ¹	
Sodium	83.0 ug/L	83.0U ug/L ¹	
Zinc	5.0 ug/L	5.0U ug/L ¹	
WF054	Client ID:	15R03801	
	Laboratory ID:	ME441005	
	Collection Date:	8/5/97	
	Type:	Equipment rinsate	
	Cadmium	4.7 ug/L	
	Calcium	159 ug/L	159U ug/L ¹
	Copper	1.3 ug/L	None
	Iron	13.3 ug/L	13.3U ug/L ¹
	Manganese	0.48 ug/L	None
Mercury	0.05 ug/L	0.05U ug/L ¹	
Sodium	20.0 ug/L	None	
Zinc	1.8 ug/L	None	
WF054	Client ID:	30R03901	
	Laboratory ID:	ME450002	
	Collection Date:	8/6/97	
	Type:	Equipment rinsate	
	Aluminum	16.7 ug/L	None
	Barium	0.78 ug/L	None
	Calcium	150 ug/L	150U ug/L
	Copper	3.7 ug/L	None
	Iron	14.0 ug/L	14.0U ug/L
Manganese	0.58 ug/L	None	
Sodium	67.0 ug/L	None	
Zinc	4.4 ug/L	None	

¹ = sample result was modified based on an associated method blank concentration.

Note: see detailed data validation report for the discrete qualifiers.

Table XV
Sample Event PARCC Summary
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton, Florida

SDG	Fraction	Precision ¹	Accuracy ²	Representativeness	Completeness (%)	Comparability
WF033	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
WF034	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
WF035	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
WF036	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
WF037	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides/PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Unacceptable	Acceptable	0	Acceptable
WF038	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
WF039	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
WF040	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
WF041	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides & PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
WF042	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
WF043	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
WF044	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
WF045	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides & PCBs	Unacceptable	Unacceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
WF046	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Pesticides & PCBs	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
	Cyanide	Acceptable	Acceptable	Acceptable	100	Acceptable
WF047	Volatiles	Acceptable	Acceptable	Acceptable	97.0	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
WF048	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
WF049	Volatiles	Acceptable	Acceptable	Acceptable	95.2	Acceptable
	Semivolatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
WF051	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable
	Metals	Acceptable	Acceptable	Acceptable	100	Acceptable
WF052	Volatiles	Acceptable	Acceptable	Acceptable	94.3	Acceptable

Table XV
Sample Event PARCC Summary
Groundwater and Subsurface Soil Investigation, Phase IIB
NAS Whiting Field, Milton, Florida

SDG	Fraction	Precision ¹	Accuracy ²	Representativeness	Completeness (%)	Comparability
WF053	Volatiles Metals	Acceptable Acceptable	Acceptable Acceptable	Acceptable Acceptable	100 100	Acceptable Acceptable
WF054	Volatiles Metals	Acceptable Acceptable	Acceptable Acceptable	Acceptable Acceptable	100 100	Acceptable Acceptable
WF055	Volatiles	Acceptable	Acceptable	Acceptable	100	Acceptable

¹Cumulative of sampling and analytical components

²Analytical component

³Samples results rejected for database purposes were not used in the completeness calculation.

Notes: All completeness is expressed as the ratio of number of sample results considered usable (i.e., not qualified as rejected) to the total number of sample results.

% = percent

APPENDIX B
GEOPHYSICAL DATA

Body of Appendix B

11X17

APPENDIX C
MONITORING WELL AND TEST PIT LOGS

LITHOLOGIC LOG FOR WELL NUMBER (SITE 15)

<u>Description</u>	<u>Depth (ft)</u>	<u>Thickness (ft)</u>
Clay, red, gray, tan; sand, fine to medium grained.....	0 - 42.0	42.0
Sand, fine to coarse grained, buff; clay, light gray.....	42.0 - 65.0	23.0
Sand, fine to coarse grained, buff; gravel, mafics.....	65.0 - 72.0	7.0

Geraghty & Miller, Verification Study, 1986

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-2D	BORING NO.
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 07/17/93	COMPLTD: 07/18/93
METHOD: MUD ROTARY	CASE SIZE: 2 in.	SCREEN INT.: 104.6-109.6	PROTECTION LEVEL: D
TOC ELEV.: 60.07 FT.	MONITOR INST.: OVA	TOT DPTH: 110FT.	DPTH TO ∇ 19.33 FT.
LOGGED BY: N. Roka	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	24/24		BKG	SAND - rust brown, fine to medium, poorly graded, loose, slightly moist, subrounded.		SP	2,3,4,5	
10	22/24		2	Same as above. CLAY - brown, soft, plastic, moist. SILT SAND - black, fine, loose, slightly moist.		SM	1,1,2,1	
15	24/24		BKG	CLAYEY SAND - gray, fine, poorly graded, loose, slightly moist.		SC	2,2,2,2	
20	24/24		0.4	SAND - white, fine, silt, poorly graded, medium dense, moist.		SP/SM	11,13,17,13	
25	24/12		BKG	SANDY SILT - brown, saturated. SAND - yellowish tan, fine to medium, poorly graded, saturated.		SM/SP	WOR,6,4	
30				FROM WHF-15-MW-2I SAND - orange to red to white, coarse, well graded. SAND - orangish brown, fine, poorly graded.		SW		
35				SAND - light tan, fine to medium, poorly graded, saturated.		SP		
40						SP		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-2D	BORING NO.
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: R1 PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 07/17/93	COMPLTD: 07/18/93
METHOD: MUD ROTARY	CASE SIZE: 2 in.	SCREEN INT.: 104.6-109.6	PROTECTION LEVEL: D
TOC ELEV.: 60.07 FT.	MONITOR INST.: OVA	TOT DPTH: 110 FT.	DPTH TO ∇ 19.33 FT.
LOGGED BY: N. Roka	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 1								
				SAND - gray, fine, silty, well graded, saturated.		SP		
45				SAND - gray, fine to medium, trace coarse, poorly graded, saturated.		SP		
50				SAND - light brown, medium, well graded, saturated.		SP		
55				SAND - light tan, fine, poorly graded, saturated. RESUME WHF-15-MW-2D		SP		
60		24/24	1.6	SAND - light tan, fine to medium, poorly graded, medium dense, saturated, subangular.		SP	13,11,10,12	
65		24/24	BKG	Same as above, loose.		SP	4,5,5,9	
70		12/24	1.2	Same as above, medium dense.		SP	4,8,9,11	
75		24/24	8	Same as above, dense.		SP	10,18,28,42	
80			2.6			SP	4,4,8,11	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-2D	BORING NO.
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 07/17/93	COMPLTD: 07/18/93
METHOD: MUD ROTARY	CASE SIZE: 2 in.	SCREEN INT.: 104.6-109.6 F	PROTECTION LEVEL: D
TOC ELEV.: 60.07 FT.	MONITOR INST.: OVA	TOT DPTH: 110FT.	DPTH TO ∇ 19.33 FT.
LOGGED BY: N. Roka	WELL DEVELOPMENT DATE:	SITE: 15 - S.W. Landfill	

DEPTH F.T.	LABORATORY SAMPLE ID.	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 2				
		10/24		Same as above, medium dense.		SP		
85		24/24	10	same as above, dense.		SP	48,22,23,20	
90		0/24	BKG	NO RECOVERY			6,8,15,22	
95		24/24	3	Same as above, medium dense.		SP	4,6,8,12	
100		12/24	21	Same as above, dense.		SP	10,15,22,29	
105		24/24	5	Same as above, loose.		SP	3,4,5,8	
110								
115								
120								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-2S	BORING NO.
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/4/93	COMPLTD: 02/4/93
METHOD: HSA	CASE SIZE: 2	SCREEN INT.: 15-30 FT	PROTECTION LEVEL: D
TOC ELEV.: 80.18 FT.	MONITOR INST.: OVA	TOT DPTH: 37FT.	DPTH TO ∇ 19.34 FT.
LOGGED BY: R.Nelson	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5				SEE WHF-15-2D FOR ADDITIONAL LITHOLOGICAL DESCRIPTIONS.				
15		18/24		1 CLAY - gray, firm, moist, some sand.	---	SC	2,2,2,4	
20		12/24		1 CLAYEY SAND - gray, firm, moist.	---	SC	2,7,10,10	
25		20/24		SAND - gray, fine, poorly graded, saturated.		SP	3,4,4,4	
30								
35								
40								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-3D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/23/93	COMPLTD: 01/25/93
METHOD: MUD ROTARY	CASE SIZE: 2	SCREEN INT.: 108-118 FT.	PROTECTION LEVEL: D
TOC ELEV.: 69.61 FT.	MONITOR INST.: OVA	TOT DPTH: 119FT.	DPTH TO ∇ 26.2 FT.
LOGGED BY: R. Nelson	WELL DEVELOPMENT DATE:	SITE: 15 - S.W. Landfill	

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5		14/24	0	SANDEY CLAY - red, moist.		SC/CL	2,3,3,4	
10		08/24	0	SAND - red, fine, poorly graded, trace clay, slightly moist.		SP	5,5,8,10	
15		09/24	3	SAND - SAA.		SP	6,8,8,12	
20		07/24	1	SAND/GRAVEL - red, well graded, slightly moist.		GW	10,8,10,11	
25		12/24	1000	SAND (3") - reddish brown, fine, poorly graded CLAY (3") - purple, very fine, poorly graded. SAND (9") - yellow to tan, coarse, poorly graded, strong odor.		SP	2,3,3,4	
30		24/24	4	SAND (1.5') - reddish brown, very fine, poorly graded, saturated. SAND (6") - white to purple, medium to coarse, well graded, saturated.		SP	3,3,3,3	
35		12/24	2	SAND - light purple, fine to medium, poorly graded, saturated, sub-rounded.		SP	6,7,8,8	
40								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-3D	BORING NO.
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/23/93	COMPLTD: 01/25/93
METHOD: MUD ROTARY	CASE SIZE: 2	SCREEN INT.: 108-118 FT.	PROTECTION LEVEL: D
TOC ELEV.: 69.61 FT.	MONITOR INST.: OVA	TOT DPTH: 119FT.	DPTH TO ∇ 26.2 FT.
LOGGED BY: R. Nelson	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 1								
45	16/24		6	SAND - SAA, 1" bands of red fine sand at top and bottom of spoon.		SP	6,6,7,9	
50	12/24		5	SAND (8") - orange to brown, medium, well graded, trace coarse, saturated. SAND (4") - yellowish, medium, well graded.	••• •••	SW	7,8,5,6	
55	14/24		4	SAND (10") - white, medium, well graded, trace coarse, saturated. SAND (4") - purple, SAA.	••• •••	SW	6,5,5,4	
60	18/24		1	SAND - white to tan, very fine, poorly graded, saturated.		SP	3,2,5,6	
65	12/24		1	SAND - yellow to brown, fine, poorly graded, trace coarse, saturated.		SP	8,11,?,11	
70	18/24		N/A	SAND - fine, poorly graded, saturated.		SP	12,16,16,16	
75	12/24		20	SAND - yellow to brown, medium, poorly graded, saturated, sub-rounded.		sp	3,4,3,6	
80	16/24		10	SAND - yellow to brown, medium, well graded, saturated, sub-rounded.		SP	11,12,16,23	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-3D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/23/93	COMPLTD: 01/25/93
METHOD: MUD ROTARY	CASE SIZE: 2	SCREEN INT.: 108-118 FT.	PROTECTION LEVEL: D
TOC ELEV.: 69.61 FT.	MONITOR INST.: OVA	TOT DPTH: 119FT.	DPTH TO ∇ : 26.2 FT.
LOGGED BY: R. Nelson	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 2				
			40	SAND - yellow to brown, medium, poorly graded, saturated, 2" lamina of purple sand, fine at 83'.		SP	17,21,23,21	
85		14/24	2	SAND - yellow brown, fine, well graded, saturated, 4" lamina of purple, medium sand at 86'.		SP	N/A	
90		20/24	0	CLAY (16") - purple to yellow, firm, plastic, saturated. SAND (4") - yellow brown, fine, poorly graded, trace clay, saturated.		CH	N/A	
95		18/24	0	SAND - yellow brown, very fine, poorly graded, trace silt, moist.		SM	N/A	
100		18/24	1	SAND - SAA.		SM	N/A	
105		14/24	0	SAND (4") - yellow to brown, fine, saturated. CLAY (4") - purple to yellow, plastic, saturated. SAND (6") - purple to yellow-brown, fine.		SP	N/A	
110		14/24	5	SAND - yellow to brown, fine to coarse, saturated.		SP	N/A	
115		20/24	5	SAND - purple, medium, poorly graded, saturated, sub-rounded.		SP	N/A	
120		20/24	N/A	SAND (10") - SAA. CLAY (10") - purple, stiff, fine yellow sand interbedded.		SP	N/A	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-3I	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/2/93	COMPLTD: 02/2/93
METHOD: MUD ROTARY	CASE SIZE: 2	SCREEN INT.: 75-85 FT	PROTECTION LEVEL: D
TOC ELEV.: 69.72 FT.	MONITOR INST.: OVA	TOT DPTH: 87FT.	DPTH TO ∇ 26.86 FT.
LOGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5					SEE WHF-15-3D FOR LITHOLOGICAL DESCRIPTIONS.				
10									
15									
20									
25									
30									
35									
40									
45									

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-3I	BORING NO.
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/2/93	COMPLTD: 02/2/93
METHOD: MUD ROTARY	CASE SIZE: 2	SCREEN INT.: 75-85 FT	PROTECTION LEVEL: D
TOC ELEV.: 69.72 FT.	MONITOR INST.: OVA	TOT DPTH: 87FT.	DPTH TO ∇ 26.86 FT.
LOGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:	SITE: 15 - S.W. Landfill	

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 1									
50									
55									
60									
65									
70									
75					SAND - purple, fine, poorly graded, saturated. SAND - purple, medium, well graded, saturated.		SP	2,3,2,2	
80					SAND - light purple, fine, silty, poorly graded, saturated.		SP	5,8,9,12	
85									
90									

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-3S	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/1/93	COMPLTD: 02/1/93
METHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 20-35 FT	PROTECTION LEVEL: D
TOC ELEV.: 69.87 FT.	MONITOR INST.: OVA	TOT DPTH: 37FT.	DPTH TO ∇ 26.24 FT.
LOGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5								
10								
15				SAND - reddish brown, fine to medium, poorly graded, dry.		SP	5,6,6,6	
20				Same as above, alternating bands of pink and white.		SP	3,4,4,5	
25				SAND - gray to white, medium, poorly graded, saturated.		SP	3,2,2,3	
30				SAND - fine, silty, saturated.				
35								
40								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-4	BORING NO.
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/18/93	COMPLTD: 04/29/93
METHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 92-107 FT.	PROTECTION LEVEL: D
TOC ELEV.: 143.54 FT.	MONITOR INST.: OVA	TOT DPTH: 112FT.	DPTH TO ∇ 98.8 FT.
LOGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5		20/24	< 1	SAND - dark brown, fine, poorly graded, dry, loose, some organic content.		SP	1,1,1	
10		8/24	0	SAND - reddish brown, fine, poorly graded, dry, loose.		SP	2,2,3,2	
15		1/24	0	SAND - dark tan and yellowish orange bands, fine, poorly graded, dry.		SP	6,8,9,10	
		6/24	0					
20		24/24	0	Same as above, trace amounts of silt at 21 ft. bis.		SP	4,6,10,12	
25		20/24	0	SAND - white, very fine, poorly graded, moderately dense, dry.		SP	8,7,11,14	
30		20/24	0	SAND - very fine to fine, poorly graded, moderately dense, trace amounts of coarse to very coarse sand.		SP	8,7,11,14	
35		12/24	0	SAND - white with bands of reddish brown fine to medium, poorly graded, loose, dry.		SP	5,6,10,13	
40						SP		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-4	BORING NO.
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/18/93	COMPLTD: 04/29/93
METHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 92-107 FT.	PROTECTION LEVEL: D
TOC ELEV.: 143.54 FT.	MONITOR INST.: OVA	TOT DPTH: 112FT.	DPTH TO ∇ 98.8 FT.
LOGGED BY: G. Kanchibhatta	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 1				
		20/24	0	Same as above, trace coarse.		SP	5,8,11,14	
45		24/24	0	Same as above.		SP	8,13,23,27	
50		20/24	0	SAND - white, fine, trace silt, moderately dense, slightly moist, poorly graded.		SP	6,11,15,17	
55		20/24	0	Same as above.		SP	14,10,14,21	
60		20/24	0	Same as above, white to tan.		SP	10,15,21,29	
65		18/24	0	SAND - white to tan, fine to medium, fairly graded, moderately dense, slightly moist.		SP	22,28,29,28	
70		18/24	0	SAND - white, very fine to fine, poorly graded, moderately dense, dry.		SP	17,11,25,52	
75		18/24	1	SAND - white, very fine to fine, purple bands, poorly graded, loose, dry.		SP	18,27,31,28	
80						SP		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-4	BORING NO.
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/18/93	COMPLTD: 04/29/93
METHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 92-107 FT.	PROTECTION LEVEL: D
TOC ELEV.: 143.54 FT.	MONITOR INST.: OVA	TOT DPTH: 112FT.	DPTH TO ∇ 98.8 FT.
LOGGED BY: G. Kanchibhatla	WELL DEVELOPMENT DATE:	SITE: 15 - S.W. Landfill	

DEPTH F.T.	LABORATORY SAMPLE ID.	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 2								
		20/24	0	SAND - white to purple, medium to fine, some coarse, poorly graded, moderately dense, slightly moist, trace silt.		SP	22,12,12,14	
85		16/24	0	SAND - white to tan and purple, very fine to fine, poorly graded, dry, moderately dense.		SP	16,31,39,29	
90		18/24	0	SAND - white to tan, fine, poorly graded with some silt, loose to moderate density, slightly moist.		SP	22,22,42,27	
95		20/24	0	SAND - white to tan, very fine to fine, some silt, poorly graded top 8", over SANDY CLAY, yellow orange to purple, moist 8", over SAND, very fine to fine, purple, slightly moist, dense.		SP	7,15,31,33	
100		16/24	-	SAND - white to tan, fine, poorly graded, saturated, trace sandy clay.		SP	DROP,16,15	
105		24/24	-	Same as above, trace silt, saturated to wet.		SP		
110		24/24	-	Same as above, fine, light brown.		SP		
115				WHF-15-4 WAS REDRILLED ON 4/29/93.				
120								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-5	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/05/93	COMPLTD: 02/08/93
METHOD: Mud Rot	CASE SIZE: 6 in.	SCREEN INT.: 56-66 FT.	PROTECTION LEVEL: D
TOC ELEV.: 104.32 FT.	MONITOR INST.: OVA	TOT DPTH: 68FT.	DPTH TO ∇ 64.63 FT.
LOGGED BY: N. Haglin	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5		15/24	0	SILTY SAND - dark red, fine, medium dense, damp.		SM	3,5,5,7	
10		24/24	0	Same as above.		SM	-,-,-,-	
15		12/24	0	SAND - reddish tan to white, fine, loose, dry.		SP	2,5,8,11	
20		24/24	0	Same as above, more white sand.		SP	4,5,7,10	
25		24/24	0	SAND - white, very fine to fine, loose, dry.		SP	5,5,6,7	
30		20/24	0	Same As Above, banded dark red and white.		SP	5,11,12,15	
35		15/24	0	SAND - fine, banded rust and white, damp.		SP	6,9,12,12	
40						SP		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-5	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/05/93	COMPLTD: 02/08/93
METHOD: Mud Rot	CASE SIZE: 6 in.	SCREEN INT.: 56-66 FT.	PROTECTION LEVEL: D
TOC ELEV.: 104.32 FT.	MONITOR INST.: OVA	TOT DPTH: 68FT.	DPTH TO ∇ 64.63 FT.
LOGGED BY: N. Haglin	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 1				
	14/24	0		SAND - white, some pink, fine, trace coarse sand, loose, damp.		SP	3,7,8,7	
45	24/24	0		SAND - purple, fine to medium, some coarse sand, loose, wet.		SW	4,3,3,5	
	24/24	0		CLAY - purple, grey, tan, and yellow, fine sand lenses, firm, plastic, moist.		CL	2,3,2,4	
50	24/24	0		CLAY - Grey, highly plastic, firm, traces of purple very fine sand and yellow silt.		CL	1,2,3,6	
	24/24	0		CLAY - Grey mottled red, some sandy lenses, plastic, firm.		CL	1,1,4,5	
55	24/24	0		Same As Above top 18" over SAND, white, very fine, some silt, dry.		SP	10,12,14,18	
	24/24	0		SILTY SAND - brown, medium, wet, over very fine sand, white, damp (bottom 6").		SM	18,30,36,46	
60	24/24	0		SAND - Top 8" brown, medium, wet, over 8" of sandy clay, brown, wet, over 8" of sand, white, very fine, damp.		SP	12,14,10,12	
65	14/24	< 1		SAND - brown to white, fine to medium, some clayey sand, loose, wet.		SP	14,14,11,10	
70								
75								
80								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-6D	BORING NO.
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/5/93	COMPLTD: 02/8/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 110-120 FT.	PROTECTION LEVEL: D
TOC ELEV.: 75.14 FT.	MONITOR INST.: OVA	TOT DPTH: 122FT.	DPTH TO ∇ 35.33 FT.
LOGGED BY: R.Nelson	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5		16/24	0	SANDY SILT - reddish brown, medium, poorly graded, slightly moist.		SM	3,3,3,3	
10		20/24	1	Same as above.		SM	3,3,3,5	
15		18/24	1	SAND - reddish brown, fine, trace silt, poorly graded, saturated. SAND - white to gray, fine, poorly graded.		SP	7,11,12,15	
20		14/24	1	SAND - reddish brown, fine, poorly graded, trace silt, wet.		SP	5,9,10,12	
25		18/24	120	SAND - light purple, fine, poorly graded, silt, wet.		SP	5,8,8,7	
30		14/24	160	SAND - orangish brown to gray, fine, trace silt, poorly graded.		SP	4,5,5,6	
35		8/24	3	SAND - tan, fine, poorly graded, silty.		SP	PUSHED	
40		10/24	160	SAND - gray, fine, poorly graded, wet.		SP	PUSHED	
45								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-6D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: R1 PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/5/93	COMPLTD: 02/8/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 110-120 FT.	PROTECTION LEVEL: D
TOC ELEV.: 75.14 FT.	MONITOR INST.: OVA	TOT DPTH: 122FT.	DPTH TO ∇ 35.33 FT.
LOGGED BY: R.Nelson	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 1				
		6/24	22	Same as above.		SP	PUSHED	
50		4/24	2	Same as above, medium.		SP	PUSHED	
55		20/24	12	SAND - light tan, fine to medium, poorly graded, wet, trace coarse		SP	7,14,21,18	
60		12/24	5	SAND - purple, fine, poorly graded, wet.		SP	7,9,9,10	
65		20/24	1	SAND - light brown to light purple, medium to coarse, poorly graded, wet.		SP	11,13,8,10	
70		12/24	1	SAND - light brown, medium to coarse, wet. SAND - gray to white, fine, poorly graded.		SP	8,7,4,6	
75		18/24	0	SAND - light brown, medium to coarse, well graded, wet.		SP	10,7,6,7	
80		14/24	1.5	SAND - light brown, medium grained, well graded, wet.	• • • • • •	SW	7,7,8,5	
85		14/24	18	Same as above, 3 in. clay layer, medium sand, light purple, poorly graded.	• • • • • •	SW	5,6,11,11	
90								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-6D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/5/93	COMPLTD: 02/8/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 110-120 FT.	PROTECTION LEVEL: D
TOC ELEV.: 75.14 FT.	MONITOR INST.: OVA	TOT DPTH: 122FT.	DPTH TO ∇ 35.33 FT.
LOGGED BY: R.Nelson	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 2							
95	14/24	1.5	SAND - light brown to purple, medium, well graded.	••• •••	SW	2,7,8,9	
100	24/24	2.5	SAND - light brown, medium, well graded, wet. Same as above, fine.	••• •••	SW	3,4,8,11	
105	14/24	4	SAND - light brown, fine, poorly graded, wet.		SP	25,15,15,14	
110	12/24	7	SAND - light brown to light purple, medium, poorly graded.		SP	21,16,18,19	
115	12/24	0	SAND - light brown, fine, poorly graded, wet.		SP	30,37,34,38	
120	12/24	1	SAND - light brown, fine to medium, poorly graded. Same as above, medium. Same as above, purple.		SP	21,20,18,19	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-15-6S	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/8/93	COMPLTD: 02/8/93
METHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 25-40 FT.	PROTECTION LEVEL: D
TOC ELEV.: 74.35 FT.	MONITOR INST.: OVA	TOT DPTH: 41FT.	DPTH TO ∇ 34.32 FT.
LOGGED BY: R. Nelson	WELL DEVELOPMENT DATE:		SITE: 15 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5				SEE WHF-15-6D FOR LITHOLOGIC DESCRIPTIONS.				
10								
15								
20								
25								
30								
35								
40								

TITLE: NAS Whiting Field		LOG of WELL: WHF-15-7S	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 04/10/96	COMPLTD: 04/11/96
METHOD: Hollow Stem Auger	CASE SIZE: 2 inches	SCREEN INT.: 15 feet	PROTECTION LEVEL: D
TOC ELEV.: 120.18 FT.	MONITOR INST.: FID	TOT DPTH: 86FT.	DPTH TO ∇ 67.5 FT.
LOGGED BY: F. Risk	WELL DEVELOPMENT DATE: 04/10/96		SITE: 15

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1				FINE SANDY SILT: Yellowish orange, moist, with some plant matter organics.		ML		
2				CLAY: Dark brown, some silt, low plasticity, moist.		CL		
3				CLAY: Moderate reddish brown, some silt, little sand, nonplastic, moist.				
4								
5			0					
6								
7								
8								
9								
10				SILTY CLAY: With minor percentage of sand, soft, non-plastic, moist, increasing sand with depth reddish brown.				
11			0					
12								
13								
14								
15				SANDY SILT: Light yellow, fine sand, moist.		SM		
16								
17								
18								
19								
20				SANDY SILT: Light yellow, increasing fine sand with depth moist.				
21								
22								
23								
24								
25								
26		22/24						
27								
28								
29								
30				SILTY FINE SAND: Light yellow, increasing fine sand with depth moist.		ML		
31								
32								
33								
34								
35								
36								
37								
38								
39								
40				SANDY SILT: Pale yellowish orange, moist.		ML		
41								
42			1					
43								
44								
45								
46								
47								
48								
49								
50				SILTY FINE SAND: Pale yellowish orange, some silt, moist.		SM		
51								
52								
53								
54								
55				Fine to medium SAND: Pale yellowish orange, some coarse sand, moist.		SW		
56								
57								
58			3					
59								
60								

TITLE: NAS Whiting Field		LOG of WELL: WHF-15-7S	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 04/10/96	COMPLTD: 04/11/96
METHOD: Hollow Stem Auger	CASE SIZE: 2 inches	SCREEN INT.: 15 feet	PROTECTION LEVEL: D
TOC ELEV.: 120.18 FT.	MONITOR INST.: FID	TOT DPTH: 86FT.	DPTH TO ∇ 67.5 FT.
LOGGED BY: F. Risk	WELL DEVELOPMENT DATE: 04/10/96		SITE: 15

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 1									
61					MEDIUM SAND: Pale yellowish orange, some fine sand, moist.		SW		
62									
63									
64									
65				0	FINE SAND: Pale yellowish orange, some medium sand, moist.		SP		
66									
67									
68									
69									
70					FINE SAND: Light brown, some medium and coarse sand, moist.				
71									
72									
73									
74									
75					Same as above.				
76									
77				1					
78									
79									
80					MEDIUM SAND: Some fine sand, moist, light brown.				
81									
82									
83									
84					SILTY CLAY: 1 to 13 inches, stiff, moist, moderate reddish brown.		CL		
85					SANDY SILT: 13 to 15 inches, some sand, moist, gray to purple.		SW	9,18,20,19	
86					15 to 24 inches, medium to coarse SAND, pale yellowish orange.				
87									
88					END OF BORING AT 88 FEET BELOW LAND SURFACE.				
89									
90									
91									
92									
93									
94									
95									
96									
97									
98									
99									
100									
101									
102									
103									
104									
105									
106									
107									
108									
109									
110									
111									
112									
113									
114									
115									
116									
117									
118									
119									
120									

TITLE: NAS Whiting Field		LOG of WELL: WHF-15-71	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 04/11/96	COMPLTD: 04/13/96
METHOD: <i>DVA Mud Rotary</i>	CASE SIZE: 2 inches	SCREEN INT.: 10 feet	PROTECTION LEVEL: 0
TOC ELEV.: 119.85 FT.	MONITOR INST.: FID	TOT DPTH: 117FT.	DPTH TO ∇ FT.
LOGGED BY: F. Risk	WELL DEVELOPMENT DATE: 04/13/96		SITE: 15

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1			FINE SANDY SILT: Yellowish orange, moist, with some plant matter organics.	•••	SW		
2				•••			
3			CLAY: Dark brown, some silt, low plasticity, moist.	•••			
4				•••			
5			CLAY: Moderate reddish brown, some silt, little sand, nonplastic, moist.	•••			
6				•••			
7				•••			
8				•••			
9				•••			
10				•••			
11			SILTY CLAY: with minor percentage sand soft, nonplastic, moist, increasing sand with depth, reddish brown.	•••			
12				•••			
13				•••			
14				•••			
15			SANDY SILT: Light yellow, fine sand, moist.	•••			
16				•••			
17				•••			
18				•••			
19				•••			
20			SANDY SILT: Light yellow, increasing fine sand with depth, moist.	•••			
21				•••			
22				•••			
23				•••			
24				•••			
25				•••			
26				•••			
27				•••			
28				•••			
29				•••			
30		0	SILTY FINE SAND: Light yellow, increasing fine sand with depth.	•••			
31				•••			
32				•••			
33				•••			
34				•••			
35				•••			
36				•••			
37				•••			
38				•••			
39				•••			
40			SANDY SILT: Pale yellowish orange, moist.	•••			
41				•••			
42				•••			
43				•••			
44				•••			
45				•••			
46				•••			
47				•••			
48				•••			
49				•••			
50			SILTY FINE SAND: Pale yellowish orange, some silt, moist.	•••			
51				•••			
52				•••			
53				•••			
54				•••			
55			Fine to medium SAND: Pale yellowish orange, some coarse sand, moist.	•••			
56				•••			
57				•••			
58				•••			
59				•••			
60				•••			

TITLE: NAS Whiting Field		LOG of WELL: WHF-15-71	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 04/11/96	COMPLTD: 04/13/96
METHOD: <i>Mud Rotary</i>	CASE SIZE: 2 inches	SCREEN INT.: 10 feet	PROTECTION LEVEL: □
TOC ELEV.: 119.85 FT.	MONITOR INST.: FID	TOT DPTH: 117FT.	DPTH TO ▽ FT.
LOGGED BY: F. Risk	WELL DEVELOPMENT DATE: 04/13/96		SITE: 15

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 1				
61				Medium SAND: Pale yellowish orange, some fine sand, moist.	•••••	SW		
62					•••••			
63					•••••			
64					•••••			
65					•••••			
66				FINE SAND: Pale yellowish orange, some medium sand, moist.	•••••			
67					•••••			
68					•••••			
69					•••••			
70				FINE SAND: Light brown, some medium and coarse sand moist.	•••••			
71					•••••			
72					•••••			
73					•••••			
74					•••••			
75				Same as above.	•••••			
76					•••••			
77					•••••			
78					•••••			
79					•••••			
80				MEDIUM SAND: Some fine sand, moist, light brown.	•••••			
81					•••••			
82					•••••			
83					•••••			
84				1-13 inches: SILTY CLAY, stiff, moist, moderate reddish brown.	•••••			
85		0			•••••			
86				13-15 inches: SANDY SILT, some sand, moist, gray to purple.	•••••			
87					•••••			
88				15-24 inches: Medium to coarse sand, pale yellowish orange.	•••••			
89					•••••			
90					•••••			
91					•••••			
92					•••••			
93					•••••			
94					•••••			
95					•••••			
96					•••••			
97					•••••			
98					•••••			
99					•••••			
100					•••••			
101					•••••			
102					•••••			
103					•••••			
104					•••••			
105					•••••			
106					•••••			
107					•••••			
108					•••••			
109					•••••			
110		60/2	5	Fine to medium SILTY SAND: Pale yellowish orange, some silt minor percent gravel, wet.	•••••		17,17,34,30	
111			1	GRAVELY SILT: Pale purple, minor percent clay, dense, wet.	•••••	ML		
112					•••••			
113					•••••			
114					•••••			
115					•••••			
116					•••••			
117					•••••			
118					•••••			
119					•••••			
120					•••••			

TITLE: NAS Whiting Field		LOG of WELL: WHF-15-7D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 04/12/96	COMPLTD: 04/13/96
METHOD: Mud Rotary	CASE SIZE: 2 inches	SCREEN INT.: 10 feet	PROTECTION LEVEL: D
TOC ELEV.: 119.49 FT.	MONITOR INST.: FID	TOT DPTH: 146FT.	DPTH TO ∇ FT.
LOGGED BY: F. Risk	WELL DEVELOPMENT DATE: 4/13/96		SITE: 15

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1					FINE SANDY SILT: Yellowish orange, moist, with some plant matter organics.	•••••	SW		
2						•••••			
3					CLAY: Dark brown, some silt, low plasticity, moist.	•••••			
4						•••••			
5					CLAY: Moderate reddish brown, some silt, little sand, nonplastic, moist.	•••••			
6						•••••			
7						•••••			
8						•••••			
9						•••••			
10					SILTY CLAY: With minor percentage sand, soft, non-plastic, increasing sand with depth.	•••••			
11						•••••			
12						•••••			
13						•••••			
14						•••••			
15					SANDY SILT: Light yellow fine sand, moist.	•••••			
16						•••••			
17						•••••			
18						•••••			
19						•••••			
20					SANDY SILT: Light yellow, increasing fine sand with depth, moist.	•••••			
21						•••••			
22						•••••			
23						•••••			
24						•••••			
25						•••••			
26						•••••			
27						•••••			
28						•••••			
29						•••••			
30			0			•••••			
31					SILTY FINE SAND: Light yellow, increasing fine SAND with depth.	•••••			
32						•••••			
33						•••••			
34						•••••			
35						•••••			
36						•••••			
37						•••••			
38						•••••			
39						•••••			
40					SANDY SILT: Pale yellowish orange, moist.	•••••			
41						•••••			
42						•••••			
43						•••••			
44						•••••			
45						•••••			
46						•••••			
47						•••••			
48						•••••			
49						•••••			
50					SILTY FINE SAND: Pale yellowish orange, some silt, moist.	•••••			
51						•••••			
52						•••••			
53						•••••			
54						•••••			
55					Fine to medium SAND: Pale yellowish orange, some coarse sand moist.	•••••			
56						•••••			
57						•••••			
58						•••••			
59						•••••			
60						•••••			

TITLE: NAS Whiting Field		LOG of WELL: WHF-15-7D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 04/12/96	COMPLTD: 04/13/96
METHOD: Mud Rotary	CASE SIZE: 2 inches	SCREEN INT.: 10 feet	PROTECTION LEVEL: 0
TOC ELEV.: 119.49 FT.	MONITOR INST.: FID	TOT DPTH: 146FT.	DPTH TO ∇ FT.
LOGGED BY: F. Risk	WELL DEVELOPMENT DATE: 4/13/96		SITE: 15

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 1				
61				MEDIUM SAND: Pale yellowish orange, some fine sand, moist.	•••••	SW		
62					•••••			
63					•••••			
64					•••••			
65				FINE SAND: Pale yellowish orange, some medium sand, moist.	•••••			
66					•••••			
67					•••••			
68					•••••			
69					•••••			
70				FINE SAND: Light brown, some medium coarse sand moist.	•••••			
71					•••••			
72					•••••			
73					•••••			
74					•••••			
75				Same as above.	•••••			
76					•••••			
77					•••••			
78					•••••			
79					•••••			
80				MEDIUM SAND: Some fine sand, moist, light brown.	•••••			
81					•••••			
82					•••••			
83					•••••			
84				1-13 inches: SILTY CLAY, stiff, moist, moderate reddish brown.	•••••			
85		0			•••••			
86				13-15 inches: SANDY SILT, some sand, moist, gray to purple.	•••••			
87					•••••			
88				15-24 inches: Medium to coarse SAND, pale yellowish orange.	•••••			
89					•••••			
90					•••••			
91					•••••			
92					•••••			
93					•••••			
94					•••••			
95					•••••			
96					•••••			
97					•••••			
98					•••••			
99					•••••			
100					•••••			
101					•••••			
102					•••••			
103					•••••			
104					•••••			
105					•••••			
106					•••••			
107					•••••			
108					•••••			
109					•••••			
110		60/2			•••••			
111					•••••			
112					•••••			
113					•••••			
114					•••••			
115					•••••			
116					•••••			
117					•••••			
118					•••••			
119					•••••			
120					•••••			

TITLE: NAS Whiting Field		LOG of WELL: WHF-15-7D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 04/12/96	COMPLTD: 04/13/96
METHOD: Mud Rotary	CASE SIZE: 2 inches	SCREEN INT.: 10 feet	PROTECTION LEVEL: D
TOC ELEV.: 119.49 FT.	MONITOR INST.: FID	TOT DPTH: 146FT.	DPTH TO ∇ FT.
LOGGED BY: F. Risk	WELL DEVELOPMENT DATE: 4/13/96		SITE: 15

DEPTH FT.	LABORATORY SAMPLE ID	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/R-IN	WELL DATA
				Continued from PAGE 2				
121					•••••	SW		
122					•••••			
123					•••••			
124					•••••			
125					•••••			
126					•••••			
127					•••••			
128					•••••			
129					•••••			
130					•••••			
131					•••••			
132					•••••			
133					•••••			
134					•••••			
135					•••••			
136					•••••			
137					•••••			
138				Gravelly MEDIUM SAND: Yellowish orange, some silt gravel, little silt, trace clay, very dense, wet.	•••••			
139					•••••			
140					•••••			
141				Gravelly medium SAND: Light yellowish orange, some gravel, very dense, wet.	•••••			
142					•••••			
143				SILT: Pale yellow orange, some sand, little clay, hard, moist.	•••••	ML		
144					•••••	SW		
145				SAND: Light yellowish orange, some gravel, dense, wet.	•••••			
146				END OF BORING AT 145.5 FEET BELOW LAND SURFACE.	•••••			
147					•••••			
148					•••••			
149					•••••			
150					•••••			
151					•••••			
152					•••••			
153					•••••			
154					•••••			
155					•••••			
156					•••••			
157					•••••			
158					•••••			
159					•••••			
160					•••••			
161					•••••			
162					•••••			
163					•••••			
164					•••••			
165					•••••			
166					•••••			
167					•••••			
168					•••••			
169					•••••			
170					•••••			
171					•••••			
172					•••••			
173					•••••			
174					•••••			
175					•••••			
176					•••••			
177					•••••			
178					•••••			
179					•••••			
180					•••••			

TITLE: NAS Whiting Field		LOG of WELL: WHF-15-8S	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 05/23/96	COMPLTD: 05/23/96
METHOD: Mud Rotary	CASE SIZE: 2 inches	SCREEN INT.: 15 feet	PROTECTION LEVEL: D
TOC ELEV.: 80.0 FT.	MONITOR INST.: FID	TOT DPTH: 55FT.	DPTH TO ∇ 39.7 FT.
LOGGED BY: F. Risk	WELL DEVELOPMENT DATE: 05/23/96		SITE: 15

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1				FINE SAND and SILT: Yellowish brown, loose, moist.		SM		
2								
3								
4								
5				FINE SAND: Reddish brown, moist.		SP		
6								
7								
8								
9								
10								
11								
12								
13								
14								
15				MEDIUM SAND: Reddish brown, poorly sorted, moist.				
16								
17								
18								
19								
20								
21								
22								
23								
24								
25				FINE SAND: Light brown, well sorted, moist.		SM		
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								
50								
51								
52								
53								
54								
55								
56								
57								
58								
59								
60								

TITLE: NAS Whiting Field				LOG of WELL: WHF-15-81		BORING NO.		
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: 02534.08				
CONTRACTOR: ABB Environmental Services, Inc.			DATE STARTED: 05/10/96		COMPLTD: 05/10/96			
METHOD: Mud Rotary		CASE SIZE: 2 inches		SCREEN INT.: 10 feet		PROTECTION LEVEL: D		
TOC ELEV.: 79.48 FT.		MONITOR INST.: FID		TOT DPTH: 85FT.		DPTH TO ∇ FT.		
LOGGED BY: J. Beauchamp		WELL DEVELOPMENT DATE: 5/10/96			SITE: 15			
DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1								
2								
3			0					
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25			0					
26								
27								
28								
29								
30								

TITLE: NAS Whiting Field		LOG of WELL: WHF-15-81	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 05/10/96	COMPLTD: 05/10/96
METHOD: Mud Rotary	CASE SIZE: 2 inches	SCREEN INT.: 10 feet	PROTECTION LEVEL: 0
TOC ELEV.: 79.48 FT.	MONITOR INST.: FID	TOT DPTH: 85FT.	DPTH TO ∇ FT.
LOGGED BY: J. Beauchamp	WELL DEVELOPMENT DATE: 5/10/96		SITE: 15

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS Continued from PAGE 1	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
31									
32									
33									
34									
35									
36									
37									
38									
39									
40				0					
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55				0					
56									
57									
58									
59									
60									

TITLE: NAS Whiting Field		LOG of WELL: WHF-15-81	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 05/10/96	COMPLTD: 05/10/96
METHOD: Mud Rotary	CASE SIZE: 2 inches	SCREEN INT.: 10 feet	PROTECTION LEVEL: D
TOC ELEV.: 79.48 FT.	MONITOR INST.: FID	TOT DPTH: 85FT.	DPTH TO ∇ FT.
LOGGED BY: J. Beauchamp	WELL DEVELOPMENT DATE: 5/10/96		SITE: 15

DEPTH F.T.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 2				
61								
62								
63								
64								
65								
66								
67								
68								
69								
70			0					
71								
72								
73								
74								
75								
76								
77			0	SAND: Medium grained, some silt, well-graded, light brown, saturated.				
78								
79			0				20,22,34,37	
80								
81								
82								
83								
84								
85			0					
86								
87								
88								
89								
90								

TITLE: NAS Whiting Field		LOG of WELL: WHF-15-8D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 06/07/96	COMPLTD: 06/08/96
METHOD: Mud Rotary	CASE SIZE: 2 inches	SCREEN INT.: 10 Feet	PROTECTION LEVEL: D
TOC ELEV.: 79.08 FT.	MONITOR INST.: OVA	TOT DPTH: 115FT.	DPTH TO ∇ FT.
LOGGED BY: F. Risk	WELL DEVELOPMENT DATE: 6/08/96		SITE: 15

DEPTH F.T.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
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28									
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31									
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36									
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38									
39									
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41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									

TITLE: NAS Whiting Field		LOG of WELL: WHF-15-8D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 06/07/96	COMPLTD: 06/08/96
METHOD: Mud Rotary	CASE SIZE: 2 inches	SCREEN INT.: 10 Feet	PROTECTION LEVEL: D
TOC ELEV.: 79.08 FT.	MONITOR INST.: OVA	TOT DPTH: 115FT.	DPTH TO ∇ FT.
LOGGED BY: F. Risk	WELL DEVELOPMENT DATE: 6/08/96		SITE: 15

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 1				
61								
62								
63								
64								
65								
66								
67								
68								
69								
70								
71								
72								
73								
74								
75								
76								
77								
78								
79								
80								
81								
82								
83								
84								
85								
86								
87								
88								
89								
90								
91								
92								
93								
94								
95								
96								
97								
98								
99								
100								
101								
102								
103								
104								
105								
106								
107								
108					• • •	SW		
109					• • •			
110				Fine to very coarse SAND yellowish orange poorly sorted, subrounded, wet.			8,11,10,18	
111								
112								
113								
114								
115				END OF BORING @ 115 FEET.				
116								
117								
118								
119								
120								

LITHOLOGIC LOG FOR WELL NUMBER (SITE 16)

<u>Description</u>	<u>Depth (ft)</u>	<u>Thickness (ft)</u>
Sand, fine to medium grained, yellow; clay, yellow.....	0 - 9.0	9.0
Clay, red, white.....	9.0 - 15.0	6.0
Sand, fine to coarse grained, white; gravel.....	15.0 - 42.0	27.0

Geraghty & Miller, Verification Study, 1986

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-2D	BORING NO. WHF-16-2D
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/09/93	COMPLTD: 03/4/93
METHOD: MUD ROT.	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 262FT.	DPTH TO ∇ FT.
LOGGED BY: R. Nelson, G.K.	WELL DEVELOPMENT DATE: N/A		SITE: 16 - Wastewater Plnt.

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	15/24	0	SAND - light brown, fine to medium, poorly graded, dry.		SP	4,4,7,5	
10	12/24	0	SILTY SAND - reddish brown, poorly graded, dry.		SP	4,3,5,4	
15	12/24	2	SILTY SAND - reddish brown, poorly graded, trace coarse, dry.		SP	6,8,12,14	
20	16/24	1	SILTY SAND - SAA.		SP	5,6,7,9	
25	14/24	0	SAND - white to tan, very fine, poorly graded, grade to SANDY CLAY - white, yellow mottling, firm, dry.		SP	6,9,8,5	
30	14/24	0	SAND - off-white, fine, poorly graded, dry.		SP	9,11,12,14	
35	16/24	0	SAND - SAA, saturated.		SP	6,6,7,9	
40		2			SP	4,5,9,16	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-2D	BORING NO. WHF-16-2D
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/09/93	COMPLTD: 03/4/93
METHOD: MUD ROT.	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 262FT.	DPTH TO ∇ FT.
LOGGED BY: R. Nelson, G.K.	WELL DEVELOPMENT DATE: N/A		SITE: 16 - Wastewater Plnt.

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 1								
	20/24			SAND - light brown, fine, poorly graded, saturated.		SP		
				SAND - white, fine, poorly graded, saturated.				
45	22/24		9	SAND - ligh brown to tan, fine to medium, poorly graded, saturated.		SP	15,16,11,9	
50	20/24		6	SAND - off-white, fine to medium, poorly graded, trace silt, saturated.		SP	6,7,7,11	
55	16/24		10	SAND - off-white to light pink, fine to medium, poorly graded, saturated.		SP	7,8,9,11	
60	16/24		2	SAND - SAA.		SP	16,12,12,14	
65	18/24		7	SAND - purple, medium, poorly graded, trace silt, saturated.		SP	dropped	
70	18/24		11	SAND - off-white, fine, poorly graded, saturated.		SP	13,15,9,6	
75	12/24		26	SAND - light brown, fine, poorly graded, saturated.		SP	13,15,15,15	
80			0			SW	4,5,8,12	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-2D	BORING NO. WHF-16-2D
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/09/93	COMPLTD: 03/4/93
METHOD: MUD ROT.	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 262FT.	DPTH TO ∇ FT.
LOGGED BY: R. Nelson, G.K.	WELL DEVELOPMENT DATE: N/A		SITE: 16 - Wastewater Plnt.

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 2								
		12/24		SAND - tan to brown, medium, well graded, saturated.		SW		
85		12/24	2.5	SAND - light brown, fine to coarse, poorly graded, saturated.		SP	14,12,16,15	
90		14/24	70	SAND - SAA, purple.		SP	10,14,21,26	
95		14/24	19	SAND - light brown to tan, fine to medium, trace coarse poorly graded.		SP	12,16	
100		16/24	5.5	SAND - SAA, purple.		SP	16,19,22,17	
105		16/24	4	SAND - light brown, fine to medium, poorly graded, saturated.		SP	dropped	
110		18/24	8.5			SP	19,21,26,28	
115		12/24	4	SAND - SAA.		SP	39,41,53,60	
120			N/A			SP	33,42,51,56	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-2D	BORING NO. WHF-16-2D
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/09/93	COMPLTD: 03/4/93
METHOD: MUD ROT.	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 262FT.	DPTH TO ∇ FT.
LOGGED BY: R. Nelson, G.K.	WELL DEVELOPMENT DATE: N/A		SITE: 16 - Wastewater Pint.

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
		12/24		SAND - light brown with 1" purple lense, medium, poorly graded, saturated.		SP		
125		20/24	N/A	SILTY SAND - fine to medium, poorly graded, soft.		SM	11,11,15,12	
130		24/24	N/A	SILTY SAND - mustard yellow, fine, soft, saturated.		SM	1,2,1,1	
			N/A	SILTY SAND - SAA.		SM	dropped	
135		24/24	N/A	SILTY SAND -SAA, gray.		SM	dropped	
140		24/24	0	SAND - SAA.		CH	7,12,13,14	
		24/24	N/A	CLAY - gray, moderately stiff.			20,18,23,24	
145		12/12	0	CLAY - gray, moderately stiff.			9,5,5,7	
		22/24	0	CLAY (3") - SAA. SANDY SILT - yellowish orange.			9,10,9,8	
		23/24	0	SAND (6") - yellowish orange, fine to coarse, some silt. SANDY CLAY (6") - gray, moderately stiff.			13,12,11,12	
150		22/24	0	CLAY (11") - gray, moderately stiff.			14,14,15,16	
			0	CLAY - SAA, high plasticity.				
155		24/24	0	CLAY - SAA.		CH	6,7,8,15	
160		24/24	0	CLAY - SAA.		CH	14,12,11,14	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-2D	BORING NO. WHF-16-2D
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/09/93	COMPLTD: 03/4/93
METHOD: MUD ROT.	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 262FT.	DPTH TO ∇ FT.
LOGGED BY: R. Nelson, G.K.	WELL DEVELOPMENT DATE: N/A		SITE: 16 - Wastewater Plnt.

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 4				
		24/24				CH		
165		24/24	0	CLAY - SAA.		CH	12,12,12,16	
170		24/24	0	CLAY - SAA, some fine sand.		CH	11,10,18,24	
175		14/24	0	CLAY (3") - gray, moderately stiff, some sand. SAND (9") - gray, fine to coarse, poorly graded, very dense, saturated.		CH	60,85,refusal	
180		24/24	0	SANDY CLAY - gray, low plasticity.		CL	24,26,22,15	
185		12/24	0	SANDY SILT - olive gray, very fine, poorly graded, moderately dense, moist.		ML	29,41,46,52	
190		12/24	0	SILT (6") - olive green, dense, slightly moist. SAND (3") - light olive gray, very fine, poorly graded, very dense, moist. SANDY SILT (3") - olive gray, dense, moist.		ML	57,59,55,70	
195		08/24	0	SAND - olive gray, fine, poorly graded, very dense, some silt, saturated.		SP	61,refusal	
200		24/24	0	SANDY SILT - olive green to gray, very dense, shell fragments, moist.		ML	60,82,96,ref	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-2D	BORING NO. WHF-16-2D
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/09/93	COMPLTD: 03/4/93
METHOD: MUD ROT.	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 262FT.	DPTH TO ∇ FT.
LOGGED BY: R. Nelson, G.K.	WELL DEVELOPMENT DATE: N/A		SITE: 16 - Wastewater Pint.

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 5				
		24/24				ML		
205	12/24		0	SANDY SILT - SAA, saturated.		ML	86,75,ref	
210	24/24		0	CLAY - dark gray, stiff, high plasticity, dry.		CH	22,22,24,31	
215	24/24		0	CLAY - SAA.		CH	18,20,29,37	
220	24/24		0	CLAY - SAA.		CH	18,20,28,43	
230	24/24		0	SAND (6") - gray, fine to medium, poorly graded, saturated. CLAY (1.5') - gray, firm, plastic.		CH	33,31,48,ref	
235	24/24		0	CLAY - gray, moderately stiff, plastic.		CH	12,17,22,35	
240								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-2D	BORING NO. WHF-16-2D
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/09/93	COMPLTD: 03/4/93
METHOD: MUD ROT.	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: D
TOC ELEV.: N/A FT.	MONITOR INST.: OVA	TOT DPTH: 262FT.	DPTH TO ∇ FT.
LOGGED BY: R. Nelson, G.K.	WELL DEVELOPMENT DATE: N/A		SITE: 16 - Wastewater Pint.

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 6								
245		24/24	0	CLAY - SAA.		CH	37,40,35,35	
255		24/24	3	SILTY SAND - gray, dense, trace coarse, moist.		SM	52,50,refusl	
260		12/24	N/A	SANDY SILT - gray, fine, poorly graded, shell fragments, saturated.		ML	23,35,53,ref	
265								
270								
275								
280								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-21	BORING NO.
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/18/93	COMPLTD: 02/18/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 117-127 FT	PROTECTION LEVEL: D
TOC ELEV.: 80.71 FT.	MONITOR INST.: OVA	TOT DPTH: 127.5 FT.	DPTH TO ∇ 36.52 FT.
LOGGED BY: R. Nelson	WELL DEVELOPMENT DATE:		SITE: 16 - Open Disposal/Burn Area

DEPTH F.T.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5				SEE WHF-16-2D FOR FULL LITHOLOGIC DATA.				
10								
15								
20								
25								
30								
35								
40								
45								
50								
55								
60								
65								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-2I	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/18/93	COMPLTD: 02/18/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 117-127 FT	PROTECTION LEVEL: D
TOC ELEV.: 80.71 FT.	MONITOR INST.: OVA	TOT DPTH: 127.5FT.	DPTH TO ∇ 36.52 FT.
LOGGED BY: R. Nelson	WELL DEVELOPMENT DATE:		SITE: 16 - Open Disposal/Burn Area

DEPTH F.T.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 1								
70								
75								
80								
85								
90								
95								
100								
105								
110								
115	06/24	N/A		SAND - ligh brown, medium, poorly graded, saturated, purple lamina.		SP	12,18,18,37	
120	08/24	N/A		SAND - SAA.		SP	38,30,60,48	
125	16/24	N/A		SAND - tan, medium, poorly graded, trace gravel, saturated, rounded.		SP	20,20,20,24	
130								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-3D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/22/93	COMPLTD: 01/26/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 105-115 FT	PROTECTION LEVEL: D
TOC ELEV.: 51.47 FT.	MONITOR INST.: OVA	TOT DPTH: 115FT.	DPTH TO ∇ 10.32 FT.
LOGGED BY: W. Colby-George	WELL DEVELOPMENT DATE:		SITE: 16 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5					SAND - light brown, well sorted.		SP		
10					SAND - some fines, wet.		SP		
15					SAND - red brown.		SP		
20					SAND - SAA		SP		
25					SAND - yellow to tan.		SP		
30					SAND - yellow to purple, fine.		SP		
35					SAA		SP		
40							SP		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-3D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/22/93	COMPLTD: 01/26/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 105-115 FT	PROTECTION LEVEL: D
TOC ELEV.: 51.47 FT.	MONITOR INST.: OVA	TOT DPTH: 115FT.	DPTH TO ∇ 10.32 FT.
LOGGED BY: W. Colby-George	WELL DEVELOPMENT DATE:		SITE: 16 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 1				
				SAA		SP		
45				SAND - white, medium.		SP		
50				SAND - yellow brown, some fine, trace gravel.		SP		
55				SAA		SP		
60				SAA		SP		
65				SAA		SP		
70				SAA		SP		
75				SAND - fine sand, purple gravel.		SP		
80						SP		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-3D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/22/93	COMPLTD: 01/26/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 105-115 FT	PROTECTION LEVEL: D
TOC ELEV.: 51.47 FT.	MONITOR INST.: OVA	TOT DPTH: 115FT.	DPTH TO ∇ 10.32 FT.
LOGGED BY: W. Colby-George	WELL DEVELOPMENT DATE:		SITE: 16 - S.W. Landfill

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Continued from PAGE 2				
					SAND - yellow, medium to coarse, trace clay.		SP		
85					SAA		SP		
90					SAA		SP		
95					SILTY SAND - gray, clay 6".		SM		
100					SAA, no clay.		SM		
105					SAA		SM		
110					SILTY SAND - gray, clay, very plastic.		SM		
115							SP		
120									

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-18-3II	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/25/93	COMPLTD: 01/25/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT: 75-80 FT	PROTECTION LEVEL: D
TOC ELEV.: 51.31 FT.	MONITOR INST.: OVA	TOT DPTH: 80FT.	DPTH TO ∇ 13.38 FT.
LOGGED BY: W. Colby-George	WELL DEVELOPMENT DATE:		SITE: 18 - S.W. Landfill

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/8-IN	WELL DATA
5				SEE WHF-18-3D FOR LITHOLOGICAL DESCRIPTION.				
10								
15								
20								
25								
30								
35								
40								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-3II	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 01/25/93	COMPLTD: 01/25/93
METHOD: MUD ROTARY	CASE SIZE: 2"	SCREEN INT.: 75-80 FT	PROTECTION LEVEL: D
TOC ELEV.: 51.31 FT.	MONITOR INST.: OVA	TOT DPTH: 80FT.	DPTH TO ∇ 13.38 FT.
LOGGED BY: W. Colby-George	WELL DEVELOPMENT DATE:		SITE: 16 - S.W. Landfill

DEPTH FT.	INTERVAL SAMPLED	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 1				
45								
50								
55								
60								
65								
70								
75								
80								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-4D	BORING NO. N/A
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/02/93	COMPLTD: 02/18/93
METHOD: MUD ROT.	CASE SIZE: 6" & 2"	SCREEN INT.: 109-119 FT	PROTECTION LEVEL: D
TOC ELEV.: 52.95 FT.	MONITOR INST.: OVA	TOT DPTH: 121 FT.	DPTH TO ∇ 14.16 FT.
LOGGED BY: M. Alvarez	WELL DEVELOPMENT DATE:		SITE: 16 - Wastewater Pit.

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5	18/24	0		SILTY SAND - Light brown, poorly graded, slightly plastic, loose, moist.		SM	3.5,7,18	
10	22/24	0		Same As Above, yellowish brown, 1 in. clay lense.		SM		
15	22/24	0		SAND - tan to reddish brown, fine to medium, 2" layer of sandy silt, loose, and wet.		SP		
20	10/24	< 1		SAND - tan, fine, poorly graded, loose, wet.		SP		
25	20/24	5		SAND - tan, fine to coarse, little fine gravel, trace silt, well graded, loose, wet.		SW		
30	04/24	1		SAND - tan, coarse, loose, poorly graded, wet.		SP		
35	20/24	20		SAND - tan, coarse, some medium to fine sand, well graded, wet.		SW		
40	12/24	3		Same As Above.		SW		

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-4D	BORING NO. N/A
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/02/93	COMPLTD: 02/18/93
METHOD: MUD ROT.	CASE SIZE: 6" & 2"	SCREEN INT.: 109-119 FT	PROTECTION LEVEL: D
TOC ELEV.: 52.95 FT.	MONITOR INST.: OVA	TOT DPTH: 121FT.	DPTH TO ∇ 14.16 FT.
LOGGED BY: M. Alvarez	WELL DEVELOPMENT DATE:		SITE: 16 - Wastewater Pit.

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 1				
46		12/24	2	SAND - purple to yellow, fine, trace silt, poorly graded, wet.		SP		
51		08/24	2.5	SAND - pinkish tan, fine to medium, poorly graded, wet.		SP		
56		08/24	2.5	Same As Above.		SP		
61		08/24	5	SAND - tan to purple, fine to coarse, with shell fragments.		SP		
66		08/24	0	CLAY - grey and red mottled firm, plastic.		CL		
		24/24	0	CLAY - grey, lenses of purple and orange very fine sand, firm, very plastic.				
71		08/24	< 1	SAND - light tan, fine, poorly graded, trace silt, wet.		SP	3,5,4,3	
76		20/24	---	CLAY - light tan, low plasticity, sharp contact at 74 ft. to SAND, moderate reddish brown, fine to medium, poorly graded.		CL/SP	1,1,2,4	
81		18/24	---	SAND - yellowish orange, fine to some medium, poorly graded, wet.		SP	11,22,24,27	

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-4D	BORING NO. N/A
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/02/93	COMPLTD: 02/18/93
METHOD: MUD ROT.	CASE SIZE: 6" & 2"	SCREEN INT.: 109-119 FT	PROTECTION LEVEL: D
TOC ELEV.: 52.95 FT.	MONITOR INST.: OVA	TOT DPTH: 121 FT.	DPTH TO ∇ 14.16 FT.
LOGGED BY: M. Alvarez	WELL DEVELOPMENT DATE:	SITE: 16 - Wastewater Pit.	

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 2				
		12/24	---	SAND - purple to brown, fine to medium, poorly graded, wet.		SP	4,8,10,14	
87		24/24	0	SAND - tan to purple, fine, poorly graded.		SP	15,26,22,18	
92		22/24	0	SAND - tan to greyish brown, fine, poorly graded, wet, some coarse at 90 ft.		SP	14,18,18,15	
97		18/24	2	SAND - tan to purple, fine, poorly graded, wet.		SP	13,23,22,24	
102		23/24	2	SAND - tan to yellowish orange, fine, poorly graded, wet, some coarse.		SP	13,17,27,29	
107		06/24	0	Same As Above.		SP	5,4,3,3	
112		20/24	---	SAND - greyish purple, yellow bands, fine, poorly graded, wet.		SP		
117		07/24	---	SAND - yellowish orange, fine to medium, poorly sorted to 119 ft., over 3 in. of purple angular gravel, over 9 in. of CLAY, grey, tight, highly plastic, stiff.		CL	DROP	
122								

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: WHF-16-4S	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 02/03/93	COMPLTD: 02/04/93
METHOD: HSA	CASE SIZE: 2"	SCREEN INT.: 5-20 FT	PROTECTION LEVEL: D
TOC ELEV.: 54.92 FT.	MONITOR INST.: OVA	TOT DPTH: 21FT.	DPTH TO ∇ 16.66 FT.
LOGGED BY: N. Haglin	WELL DEVELOPMENT DATE:		SITE: 16 - Open Disposal/Burn Area

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0				0	SILTY SAND - fine, ash, glass, and metal.			8,9,12,14	
5	18/24			0	SILTY SAND - reddish brown, fine, poorly graded with a 2" lens of light grey sandy clay at 5 ft. bls. moist.		SM	15,17,20,24	
10	12/24			0	Same as above, grey silty lenses at depth.		SM	7,16,17,15	
15	22/24			0	Same as above, tan to reddish brown, saturated.		SM	2,4,5,7	
20									
25									
30									
35									
40									

TITLE: NAS Whiting Field		LOG of WELL: WHF-16-6S	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/26/96	COMPLTD: 04/26/96
METHOD: Hollow Stem Auger	CASE SIZE: 2 inches	SCREEN INT.: 15 feet	PROTECTION LEVEL: 0
TOC ELEV.: 56.57 FT.	MONITOR INST.: OVA	TOT DPTH: 25FT.	DPTH TO ∇ FT.
LOGGED BY: J. Beauchamp	WELL DEVELOPMENT DATE: 4/26/96		SITE: 16

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1			Fine SAND, some silt, moist, light orange		SP		
2							
3			Silty fine SAND, light orange, damp.				
4							
5							
6							
7			CLAYEY SILT, wet, dark gray.		ML		
8							
9							
10							
11							
12			SILTY CLAY, some silt, wet, moderate gray.		CL		
13							
14							
15		0	As above, moist, light gray.		ML	7.215, 12	
16			SILT, some clay, loose, moist, light gray.		CL		
17			CLAY, some silt, dry, light gray.		SM		
18			Fine SAND, some silt, moist, light gray.				
19			Fine SAND, some silt, moist, greenish orange.				
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

TITLE: NAS Whiting Field		LOG of WELL: WHF-16-61	BORING NO.
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 02534.09
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 04/01/96	COMPLTD: 04/01/96
METHOD: Mud Rotary	CASE SIZE: 2 inches	SCREEN INT.: 10 feet	PROTECTION LEVEL: □
TOC ELEV.: 56.77 FT.	MONITOR INST.: FID	TOT DPTH: 60FT.	DPTH TO ▽ FT.
LOGGED BY: F. Rizk	WELL DEVELOPMENT DATE:		SITE: 16

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1				0-2.5 Feet: Fine SAND, light orange brown, wet, little or no fines, poorly graded.		SP		
2								
3				Not logged.				
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

TITLE: NAS Whiting Field		LOG of WELL: WHF-16-6I	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 04/01/96	COMPLTD: 04/01/96
METHOD: Mud Rotary	CASE SIZE: 2 inches	SCREEN INT.: 10 feet	PROTECTION LEVEL: □
TOC ELEV.: 56.77 FT.	MONITOR INST.: FID	TOT DPTH: 60FT.	DPTH TO ∇ FT.
LOGGED BY: F. Rizk	WELL DEVELOPMENT DATE:		SITE: 16

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				Continued from PAGE 1				
31						SP		
32								
33								
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								
50								
51								
52								
53								
54			0	Coarse to fine SAND, well graded, minor pebbles				
55		0		Silty CLAY, gray, with pebbles, low plasticity.	• • •	SW	12,12,12,12	
56				Gravelly SAND, coarse to fine, light orange to red brown.	• • •			
57								
58								
59								
60								

TITLE: NAS Whiting Field		LOG of WELL: WHF-16-7S	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 04/09/96	COMPLTD: 04/09/96
METHOD: Hollow Stem Auger	CASE SIZE: 2 inches	SCREEN INT.: 10 feet	PROTECTION LEVEL: D
TOC ELEV.: 38.27 FT.	MONITOR INST.: FID	TOT DPTH: 15FT.	DPTH TO ∇ FT.
LOGGED BY: F. Risk	WELL DEVELOPMENT DATE: 4/09/96		SITE: 16

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1					Medium SAND, moderately sorted, some silt, wet, yellowish-orange.		SP		
2									
3									
4									
5					Medium SAND, poorly sorted, some silt, wet, light yellowish orange.			1,1,1	
6									
7					Fine SAND, poorly sorted, wet, light yellowish orange.				
8							SM		
9									
10					Fine SAND, well sorted, some silt, wet, dark gray.				
11									
12									
13					Note: Natural soil used as sand pack.				
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

TITLE: NAS Whiting Field		LOG of WELL: WHF-16-71	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 04/25/96	COMPLTD: 04/25/96
METHOD: Hollow Stem Auger	CASE SIZE: 2 inches	SCREEN INT.: 10 feet	PROTECTION LEVEL: D
TOC ELEV.: 38.17 FT.	MONITOR INST.: FID	TOT DPTH: 45FT.	DPTH TO ∇ FT.
LOGGED BY: F. Risk	WELL DEVELOPMENT DATE: 4/09/96		SITE: 16

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1			0/0	Fine SAND, pale-yellowish brown, poorly graded, no organics.		SM		
2								
3								
4								
5				Fine SAND, poorly graded, brownish/black, no organics.				
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

TITLE: NAS Whiting Field		LOG of WELL: WHF-16-71	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services, Inc.		DATE STARTED: 04/25/96	COMPLTD: 04/25/96
METHOD: Hollow Stem Auger	CASE SIZE: 2 inches	SCREEN INT.: 10 feet	PROTECTION LEVEL: D
TOC ELEV.: 38.17 FT.	MONITOR INST.: FID	TOT DPTH: 45FT.	DPTH TO ∇ FT.
LOGGED BY: F. Risk	WELL DEVELOPMENT DATE: 4/09/96		SITE: 16

DEPTH F.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 1								
31						SM		
32								
33								
34								
35							12,12,12,12	
36						SP		
37				Medium SAND, grayish orange, saturated.				
38								
39								
40								
41								
42								
43								
44								
45				Boring terminated @ 45 feet below land surface.				
46								
47								
48								
49								
50								
51								
52								
53								
54								
55								
56								
57								
58								
59								
60								

TITLE: NAS Whiting Field		LOG of WELL: WHF-16-7D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/26/96	COMPLTD: 04/26/96
METHOD: Mud Rotary	CASE SIZE: 2 inch	SCREEN INT.: 10 feet	PROTECTION LEVEL: 0
TOC ELEV.: 38.05 FT.	MONITOR INST.: FID	TOT DPTH: 75FT.	DPTH TO ∇ FT.
LOGGED BY: J. Beauchamp	WELL DEVELOPMENT DATE: 4/26/96		SITE: 16

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
1							SP		
2									
3									
4							SM		
5									
6									
7									
8									
9									
10									
11									
12				0					
13									
14									
15									
16									
17				0					
18									
19									
20									
21									
22									
23									
24									
25									
26									
27				0					
28									
29									
30									

TITLE: NAS Whiting Field		LOG of WELL: WHF-16-7D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/26/96	COMPLTD: 04/26/96
METHOD: Mud Rotary	CASE SIZE: 2 inch	SCREEN INT.: 10 feet	PROTECTION LEVEL: D
TOC ELEV.: 38.05 FT.	MONITOR INST.: FID	TOT DPTH: 75FT.	DPTH TO ∇ FT.
LOGGED BY: J. Beauchamp	WELL DEVELOPMENT DATE: 4/26/96		SITE: 16

DEPTH F.T.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA	
				Continued from PAGE 1					
31			0		[Hatched Pattern]	SM			
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42			0						
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53			0						
54									
55									
56									
57									
58									
59									
60									

TITLE: NAS Whiting Field		LOG of WELL: WHF-16-7D	BORING NO.
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 02534.09	
CONTRACTOR: ABB Environmental Services		DATE STARTED: 04/26/96	COMPLTD: 04/26/96
METHOD: Mud Rotary	CASE SIZE: 2 inch	SCREEN INT.: 10 feet	PROTECTION LEVEL: D
TOC ELEV.: 38.05 FT.	MONITOR INST.: FID	TOT DPTH: 75FT.	DPTH TO ∇ FT.
LOGGED BY: J. Beauchamp	WELL DEVELOPMENT DATE: 4/26/96		SITE: 16

DEPTH F.T.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
Continued from PAGE 2									
61							SM		
62									
63				0					
64									
65									
66									
67				0	SAND, orange-pink medium grained, poorly graded, no organics.		SP		
68		0/0							
69									
70									
71									
72									
73									
74									
75				0	Boring terminated @ 75 feet below land surface.				
76									
77									
78									
79									
80									
81									
82									
83									
84									
85									
86									
87									
88									
89									
90									

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. TEST PIT 16-01A-B
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: UXB INC.		DATE STARTED: 10/4/92	COMPLTD: 10/4/92
METHOD: BACK HOE	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV.: FT. FT.	MONITOR INST.: FIO.LEL.RM	TOT DPTH: 12FT.	DPTH TO ∇ FT.
LOGGED BY:	WELL DEVELOPMENT DATE: 10/13/92		SITE: 16

DEPTH FT.	METHANE (ppm)	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0				0	SAND - Reddish orange, fine to medium with metal debris		SP		
1				0	SAND - Light yellow to orange, medium to fine sand - general construction debris				
2				0	Clay layer tan		CL		
3				0	Sandy CLAY to white		ML		
4									WHF-2A-16-SS -01-01
5									
6					Sandy CLAY white mottled red				
7									
8									
9					White CLAY		CH		
10					Test pit terminated				
11									
12									

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. TEST PIT 16-02A-B
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: UXB INC.		DATE STARTED: 10/4/92	COMPLTD: 10/4/92
METHOD: BACK HOE	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV.: FT. FT.	MONITOR INST.: FIO.LEL.RM	TOT DPTH: 12FT.	DPTH TO ∇ FT.
LOGGED BY:	WELL DEVELOPMENT DATE: 10/13/92		SITE: 16

DEPTH FT.	METHANE (ppm)	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0					CLAYEY SAND - yellow orange, fine to medium. Broken bottles		ML		
1									
2					CLAYEY SAND - yellowish orange. Burned material, broken bottles, metal debris, cans etc.				
3	35 150			25 20	As above			WF-24-16-SS -01-01	
4				2,500	As above				
5	0			500	White CLAY mottled with yellow/orange burned material, broken bottles metal debris, cans and galvanized pipe.		CH		
6									
7									
8					White CLAY with fill material				
9									
10					Test pit terminated				
11									
12									

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. TEST PIT 16-03A-B
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: UXB INC.		DATE STARTED: 10/4/92	COMPLTD: 10/4/92
METHOD: BACK HOE	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV.: FT. FT.	MONITOR INST.: F10.LEL.RM	TOT DPTH: 12FT.	DPTH TO ∇ FT.
LOGGED BY:	WELL DEVELOPMENT DATE: 10/13/92		SITE: 16

DEPTH FT.	METHANE (ppm)	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0	0			0	Topsoil to dark brown clay		OH		
1				50	Black CLAY with charred material		OH		
2				20000	White CLAY , Burned material, metal degris, cans, broken bottles				
3	5,000								
4									
5									
6				10	Black clay				
7									WHF-2A-16- SS-03-02
8					Test pit terminated				
9									
10									
11									
12									

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. TEST PIT 16-04A-B
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: UXB INC.		DATE STARTED: 10/4/92	COMPLTD: 10/4/92
METHOD: BACK HOE	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV.: FT. FT.	MONITOR INST.: FIO.LEL.RM	TOT DPTH: 12FT.	DPTH TO ∇ FT.
LOGGED BY:	WELL DEVELOPMENT DATE: 10/13/92		SITE: 16

DEPTH F.T.	METHANE (ppm)	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					Top soil organic material		OH		
1				0			CL		
2				0					
3				60	Tan CLAYES Sand/ saturated charred material, burned metal, 10-gallon cans				
4				2					
5					CLAY-saturated, observed wire bundles				
6									
7									
8				1	Tan CLAY saturated, observed fill material				
9									
10									
11				0	Grey to tan CLAY				
12									

WHF-24-16-SS
04-03 with
MS,MSD,and
Dup.

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. TEST PIT 16-05A-B
CLIENT: SOUTHNAVFACENCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: UXB INC.		DATE STARTED: 10/4/92	COMPLTD: 10/4/92
METHOD: BACK HOE	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV.: FT. FT.	MONITOR INST.: FIO.LEL.RM	TOT DPTH: 12FT.	DPTH TO ∇ FT.
LOGGED BY:	WELL DEVELOPMENT DATE: 10/13/92		SITE: 16

DEPTH F.T.	METHANE (ppm)	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0					Top soil - organic matter dark brown to black		OH		
1							SC		
2					Clayey sand - tan		ML		
3	50								
4	9			25	Clayey SAND yellowish orange to tan burned debris - metal, cans, bottles, ash, ect.				
5									
6	100			200					
7					Test pit terminated				
8									
9									
10									
11									
12									

TITLE: NAVAL AIR STATION WHITING FIELD		LOG of WELL: N/A	BORING NO. TEST PIT 16-06A-B
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: RI PHASE IIA	
CONTRACTOR: UXB INC.		DATE STARTED: 10/4/92	COMPLTD: 10/4/92
METHOD: BACK HOE	CASE SIZE: N/A	SCREEN INT.: N/A	PROTECTION LEVEL: 0
TOC ELEV.: FT. FT.	MONITOR INST.: F10.LEL.RM	TOT DPTH: 12FT.	DPTH TO ∇ FT.
LOGGED BY:	WELL DEVELOPMENT DATE: 10/13/92	SITE: 16	

DEPTH FT.	METHANE (ppm)	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0	0			0	Top soil	~ ~ ~	OH		
1	0			0	SAND yellow/orange metal debris, bottles, etal pipe, cans, springs, Engine parts, Air Craft parts, charred parts		SP		
2	0			0					
3	0			1					
4	3			5	CLAY yellowish orange No debris		OH		
5							ML		
6									
7				0	Tan Clayey SAND with debris as above				
8									
9									
10				0					
11					Test pit terminated				
12									

WHF-2A-16-SS
-05-04

APPENDIX D
SOIL ANALYTICAL DATA

Naval Air Station Whiting Field, Milton, Florida
Site 16 Subsurface Soil Data

Lab Sample Number:	22891006		22897001		22898001		22898001		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	16SS0201		16SS0302		16SS0403		16SS0403		
Collect Date:	04-OCT-92		04-OCT-92		11-SEP-92		05-OCT-92		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

ug/kg

Chloromethane	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Bromomethane	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Vinyl chloride	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Chloroethane	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Methylene chloride	120 UJ	ug/kg	11	31 UJ	ug/kg	11	-	ug/kg	150 J	ug/kg	12
Acetone	130 UJ	ug/kg	11	11 UJ	ug/kg	11	-	ug/kg	150 UJ	ug/kg	12
Carbon disulfide	26	ug/kg	11	5 J	ug/kg	11	-	ug/kg	13	ug/kg	12
1,1-Dichloroethene	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
1,1-Dichloroethane	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
1,2-Dichloroethene (total)	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Chloroform	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
1,2-Dichloroethane	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
2-Butanone	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 UJ	ug/kg	12
1,1,1-Trichloroethane	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Carbon tetrachloride	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Bromodichloromethane	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
1,2-Dichloropropane	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
cis-1,3-Dichloropropene	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Trichloroethene	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Dibromochloromethane	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
1,1,2-Trichloroethane	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Benzene	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
trans-1,3-Dichloropropene	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Bromoform	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
4-Methyl-2-pentanone	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
2-Hexanone	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Tetrachloroethene	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Toluene	1 J	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
1,1,2,2-Tetrachloroethane	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Chlorobenzene	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Ethylbenzene	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	2 J	ug/kg	12
Styrene	11 U	ug/kg	11	11 U	ug/kg	11	-	ug/kg	12 U	ug/kg	12
Xylenes (total)	11 J	ug/kg	11	3 J	ug/kg	11	-	ug/kg	7 J	ug/kg	12

CLP SEMIVOLATILES 90-SOW

ug/kg

Phenol	370 U	ug/kg	370	370 UJ	ug/kg	370	-	ug/kg	400 U	ug/kg	400
bis(2-Chloroethyl) ether	370 U	ug/kg	370	370 U	ug/kg	370	-	ug/kg	400 U	ug/kg	400
2-Chlorophenol	370 U	ug/kg	370	370 U	ug/kg	370	-	ug/kg	400 U	ug/kg	400
1,3-Dichlorobenzene	370 U	ug/kg	370	370 U	ug/kg	370	-	ug/kg	400 U	ug/kg	400
1,4-Dichlorobenzene	370 U	ug/kg	370	370 U	ug/kg	370	-	ug/kg	400 U	ug/kg	400
1,2-Dichlorobenzene	370 U	ug/kg	370	370 U	ug/kg	370	-	ug/kg	400 U	ug/kg	400
2-Methylphenol	370 U	ug/kg	370	370 U	ug/kg	370	-	ug/kg	400 U	ug/kg	400
2,2-oxybis(1-Chloropropane)	370 UJ	ug/kg	370	370 U	ug/kg	370	-	ug/kg	400 UJ	ug/kg	400
4-Methylphenol	370 U	ug/kg	370	370 U	ug/kg	370	-	ug/kg	400 U	ug/kg	400
N-Nitroso-di-n-propylamine	370 U	ug/kg	370	370 U	ug/kg	370	-	ug/kg	400 UJ	ug/kg	400
Hexachloroethane	370 UJ	ug/kg	370	370 U	ug/kg	370	-	ug/kg	400 U	ug/kg	400
Nitrobenzene	370 U	ug/kg	370	370 U	ug/kg	370	-	ug/kg	400 UJ	ug/kg	400
Isophorone	370 UJ	ug/kg	370	370 U	ug/kg	370	-	ug/kg	400 UJ	ug/kg	400
2-Nitrophenol	370 U	ug/kg	370	370 U	ug/kg	370	-	ug/kg	400 U	ug/kg	400
2,4-Dimethylphenol	370 U	ug/kg	370	370 U	ug/kg	370	-	ug/kg	400 U	ug/kg	400

Naval Air Station Whiting Field, Milton, Florida
Site 16 Subsurface Soil Data

Lab Sample Number:	22891006			22897001			22898001			22898001				
Site	WHITING			WHITING			WHITING			WHITING				
Locator	16SS0201			16SS0302			16SS0403			16SS0403				
Collect Date:	04-OCT-92			04-OCT-92			11-SEP-92			05-OCT-92				
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL		
bis(2-Chloroethoxy) methane	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
2,4-Dichlorophenol	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
1,2,4-Trichlorobenzene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Naphthalene	39 J		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
4-Chloroaniline	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Hexachlorobutadiene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
4-Chloro-3-methylphenol	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
2-Methylnaphthalene	39 J		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Hexachlorocyclopentadiene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
2,4,6-Trichlorophenol	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
2,4,5-Trichlorophenol	900 U		ug/kg	900	910 U		ug/kg	910	-		ug/kg	980 U	ug/kg	980
2-Chloronaphthalene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
2-Nitroaniline	900 U		ug/kg	900	910 U		ug/kg	910	-		ug/kg	980 U	ug/kg	980
Dimethylphthalate	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Acenaphthylene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
2,6-Dinitrotoluene	370 UJ		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
3-Nitroaniline	900 U		ug/kg	900	910 U		ug/kg	910	-		ug/kg	980 U	ug/kg	980
Acenaphthene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
2,4-Dinitrophenol	900 U		ug/kg	900	910 UJ		ug/kg	910	-		ug/kg	980 U	ug/kg	980
4-Nitrophenol	900 U		ug/kg	900	910 U		ug/kg	910	-		ug/kg	980 U	ug/kg	980
Dibenzofuran	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
2,4-Dinitrotoluene	370 UJ		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Diethylphthalate	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
4-Chlorophenyl-phenylether	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Fluorene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
4-Nitroaniline	900 U		ug/kg	900	910 U		ug/kg	910	-		ug/kg	980 U	ug/kg	980
4,6-Dinitro-2-methylphenol	900 U		ug/kg	900	910 U		ug/kg	910	-		ug/kg	980 U	ug/kg	980
N-Nitrosodiphenylamine	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
4-Bromophenyl-phenylether	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Hexachlorobenzene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Pentachlorophenol	900 U		ug/kg	900	910 U		ug/kg	910	-		ug/kg	980 U	ug/kg	980
Phenanthrene	58 J		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Anthracene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Carbazole	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Di-n-butylphthalate	370 UJ		ug/kg	370	370 UJ		ug/kg	750	-		ug/kg	400 UJ	ug/kg	400
Fluoranthene	120 J		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Pyrene	77 J		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Butylbenzylphthalate	370 UJ		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 UJ	ug/kg	400
3,3-Dichlorobenzidine	370 U		ug/kg	370	370 UJ		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Benzo (a) anthracene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Chrysene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
bis(2-Ethylhexyl) phthalate	370 UJ		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 UJ	ug/kg	400
Di-n-octylphthalate	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Benzo (b) fluoranthene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Benzo (k) fluoranthene	370 UJ		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Benzo (a) pyrene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Indeno (1,2,3-cd) pyrene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Dibenzo (a,h) anthracene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
Benzo (g,h,i) perylene	370 U		ug/kg	370	370 U		ug/kg	370	-		ug/kg	400 U	ug/kg	400
CLP PESTICIDES/PCBS 90-SOW	ug/kg													
alpha-BHC	1.9 U		ug/kg	1.9	1.9 UJ		ug/kg	1.9	-		ug/kg	-	ug/kg	

Naval Air Station Whiting Field, Milton, Florida
Site 16 Subsurface Soil Data

Lab Sample Number:	22891006	22897001	22898001									
Site	WHITING	WHITING	WHITING									
Locator	16SS0201	16SS0302	16SS0403									
Collect Date:	04-OCT-92	04-OCT-92	11-SEP-92									
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

beta-BHC	1.9 U	ug/kg	1.9	1.9 UJ	ug/kg	1.9	-	ug/kg	-	ug/kg
delta-BHC	1.9 U	ug/kg	1.9	1.9 UJ	ug/kg	1.9	-	ug/kg	-	ug/kg
gamma-BHC (Lindane)	1.9 U	ug/kg	1.9	1.9 UJ	ug/kg	1.9	-	ug/kg	-	ug/kg
Heptachlor	1.9 U	ug/kg	1.9	1.9 UJ	ug/kg	1.9	-	ug/kg	-	ug/kg
Aldrin	1.9 U	ug/kg	1.9	1.9 UJ	ug/kg	1.9	-	ug/kg	-	ug/kg
Heptachlor epoxide	1.9 U	ug/kg	1.9	1.9 UJ	ug/kg	1.9	-	ug/kg	-	ug/kg
Endosulfan I	1.9 U	ug/kg	1.9	1.9 UJ	ug/kg	1.9	-	ug/kg	-	ug/kg
Dieldrin	1.6 J	ug/kg	3.7	3.7 UJ	ug/kg	3.7	-	ug/kg	-	ug/kg
4,4-DDE	1.8 J	ug/kg	3.7	3.7 UJ	ug/kg	3.7	-	ug/kg	-	ug/kg
Endrin	3.7 U	ug/kg	3.7	3.7 UJ	ug/kg	3.7	-	ug/kg	-	ug/kg
Endosulfan II	3.7 U	ug/kg	3.7	3.7 UJ	ug/kg	3.7	-	ug/kg	-	ug/kg
4,4-DDD	2.2 J	ug/kg	3.7	3.7 UJ	ug/kg	3.7	-	ug/kg	-	ug/kg
Endosulfan sulfate	3.7 U	ug/kg	3.7	3.7 UJ	ug/kg	3.7	-	ug/kg	-	ug/kg
4,4-DDT	3.7 U	ug/kg	3.7	3.7 UJ	ug/kg	3.7	-	ug/kg	-	ug/kg
Methoxychlor	19 U	ug/kg	19	19 UJ	ug/kg	19	-	ug/kg	-	ug/kg
Endrin ketone	3.7 U	ug/kg	3.7	3.7 UJ	ug/kg	3.7	-	ug/kg	-	ug/kg
Endrin aldehyde	3.7 U	ug/kg	3.7	3.7 UJ	ug/kg	3.7	-	ug/kg	-	ug/kg
alpha-Chlordane	1.9 U	ug/kg	1.9	1.9 UJ	ug/kg	1.9	-	ug/kg	-	ug/kg
gamma-Chlordane	1.9 U	ug/kg	1.9	1.9 UJ	ug/kg	1.9	-	ug/kg	-	ug/kg
Toxaphene	190 U	ug/kg	190	190 UJ	ug/kg	190	-	ug/kg	-	ug/kg
Aroclor-1016	37 U	ug/kg	37	37 UJ	ug/kg	37	-	ug/kg	-	ug/kg
Aroclor-1221	75 U	ug/kg	75	76 UJ	ug/kg	76	-	ug/kg	-	ug/kg
Aroclor-1232	37 U	ug/kg	37	37 UJ	ug/kg	37	-	ug/kg	-	ug/kg
Aroclor-1242	37 U	ug/kg	37	37 UJ	ug/kg	37	-	ug/kg	-	ug/kg
Aroclor-1248	37 U	ug/kg	37	37 UJ	ug/kg	37	-	ug/kg	-	ug/kg
Aroclor-1254	37 U	ug/kg	37	37 UJ	ug/kg	37	-	ug/kg	-	ug/kg
Aroclor-1260	37 U	ug/kg	37	37 UJ	ug/kg	37	-	ug/kg	-	ug/kg

CLP METALS AND CYANIDE

mg/kg

Aluminum	17000	mg/kg	40	15400	mg/kg	40	29000	mg/kg	40	-	mg/kg
Antimony	2.5 J	mg/kg	12	2.4 U	mg/kg	12	2.6 UJ	mg/kg	12	-	mg/kg
Arsenic	2.7	mg/kg	2	1.5 J	mg/kg	2	5.1 J	mg/kg	2	-	mg/kg
Barium	36 J	mg/kg	40	35 J	mg/kg	40	21 J	mg/kg	40	-	mg/kg
Beryllium	.18 J	mg/kg	1	.21 J	mg/kg	1	.23 J	mg/kg	1	-	mg/kg
Cadmium	2.4 J	mg/kg	1	.67 U	mg/kg	1	.74 U	mg/kg	1	-	mg/kg
Calcium	877 J	mg/kg	1000	254 J	mg/kg	1000	478 UJ	mg/kg	1000	-	mg/kg
Chromium	16.6	mg/kg	2	10.5	mg/kg	2	32.5 J	mg/kg	2	-	mg/kg
Cobalt	1.1 J	mg/kg	10	1.2 J	mg/kg	10	2.4 J	mg/kg	10	-	mg/kg
Copper	16.2	mg/kg	5	4.8 J	mg/kg	5	13.7	mg/kg	5	-	mg/kg
Iron	8440	mg/kg	20	6670	mg/kg	20	21700	mg/kg	20	-	mg/kg
Lead	74.6	mg/kg	1	6.8	mg/kg	1	17.3 J	mg/kg	1	-	mg/kg
Magnesium	243 J	mg/kg	1000	293 J	mg/kg	1000	211 J	mg/kg	1000	-	mg/kg
Manganese	93.1	mg/kg	3	231	mg/kg	3	54	mg/kg	3	-	mg/kg
Mercury	.29 J	mg/kg	.1	.43 J	mg/kg	.1	.14 UJ	mg/kg	.1	-	mg/kg
Nickel	4.4 J	mg/kg	8	4.4 J	mg/kg	8	4.4 J	mg/kg	8	-	mg/kg
Potassium	258 J	mg/kg	1000	153 U	mg/kg	1000	270 J	mg/kg	1000	-	mg/kg
Selenium	.47 U	mg/kg	1	.47 U	mg/kg	1	.51 R	mg/kg	1	-	mg/kg
Silver	.79 J	mg/kg	2	.46 U	mg/kg	2	.64 UJ	mg/kg	2	-	mg/kg
Sodium	243 J	mg/kg	1000	207 J	mg/kg	1000	223 UJ	mg/kg	1000	-	mg/kg
Thallium	.35 U	mg/kg	2	.36 U	mg/kg	2	.39 UJ	mg/kg	2	-	mg/kg
Vanadium	25	mg/kg	10	19.1	mg/kg	10	63.3	mg/kg	10	-	mg/kg
Zinc	122	mg/kg	4	10.6 J	mg/kg	4	43 J	mg/kg	4	-	mg/kg

Naval Air Station Whiting Field, Milton, Florida
 Site 16 Subsurface Soil Data

Lab Sample Number:	22891006		22897001		22898001		22898001	
Site	WHITING		WHITING		WHITING		WHITING	
Locator	16SS0201		16SS0302		16SS0403		16SS0403	
Collect Date:	04-OCT-92		04-OCT-92		11-SEP-92		05-OCT-92	
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

	VALUE	QUAL UNITS	DL									
Cyanide	.09	U mg/kg	1	.09	UJ mg/kg	1	.1	R mg/kg	1	-	mg/kg	
Total organic carbon	-	mg/kg										
Total petroleum hydrocarbons	-	mg/kg										

Naval Air Station Whiting Field, Milton, Florida
Site 16 Subsurface Soil Data

Lab Sample Number:	22898001	22898002	22898002	22898002								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	16SS0403	16SS0403A	16SS0403A	16SS0403A								
Collect Date:	05-OCT-93	11-SEP-92	05-OCT-92	05-OCT-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

	ug/kg											
CLP VOLATILES 90-SOW												
Chloromethane	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Bromomethane	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Vinyl chloride	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Chloroethane	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Methylene chloride	-	ug/kg	-	ug/kg	46	UJ	ug/kg	12	-	ug/kg		
Acetone	-	ug/kg	-	ug/kg	140	UJ	ug/kg	12	-	ug/kg		
Carbon disulfide	-	ug/kg	-	ug/kg	9	J	ug/kg	12	-	ug/kg		
1,1-Dichloroethene	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
1,1-Dichloroethane	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
1,2-Dichloroethene (total)	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Chloroform	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
1,2-Dichloroethane	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
2-Butanone	-	ug/kg	-	ug/kg	12	UJ	ug/kg	12	-	ug/kg		
1,1,1-Trichloroethane	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Carbon tetrachloride	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Bromodichloromethane	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
1,2-Dichloropropane	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
cis-1,3-Dichloropropene	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Trichloroethene	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Dibromochloromethane	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
1,1,2-Trichloroethane	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Benzene	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
trans-1,3-Dichloropropene	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Bromoform	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
4-Methyl-2-pentanone	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
2-Hexanone	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Tetrachloroethene	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Toluene	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
1,1,2,2-Tetrachloroethane	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Chlorobenzene	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Ethylbenzene	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Styrene	-	ug/kg	-	ug/kg	12	U	ug/kg	12	-	ug/kg		
Xylenes (total)	-	ug/kg	-	ug/kg	5	J	ug/kg	12	-	ug/kg		
CLP SEMIVOLATILES 90-SOW												
Phenol	-	ug/kg	-	ug/kg	430	U	ug/kg	430	-	ug/kg		
bis(2-Chloroethyl) ether	-	ug/kg	-	ug/kg	430	U	ug/kg	430	-	ug/kg		
2-Chlorophenol	-	ug/kg	-	ug/kg	430	U	ug/kg	430	-	ug/kg		
1,3-Dichlorobenzene	-	ug/kg	-	ug/kg	430	U	ug/kg	430	-	ug/kg		
1,4-Dichlorobenzene	-	ug/kg	-	ug/kg	430	U	ug/kg	430	-	ug/kg		

Naval Air Station Whiting Field, Milton, Florida
Site 16 Subsurface Soil Data

Lab Sample Number:	22898001	22898002	22898002	22898002		22898002		22898002			
Site	WHITING	WHITING	WHITING	WHITING		WHITING		WHITING			
Locator	16SS0403	16SS0403A	16SS0403A	16SS0403A		16SS0403A		16SS0403A			
Collect Date:	05-OCT-93	11-SEP-92	11-SEP-92	05-OCT-92		05-OCT-92		05-OCT-93			
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL		
1,2-Dichlorobenzene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
2-Methylphenol	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
2,2-oxybis(1-Chloropropane)	-	ug/kg		-	ug/kg		430 UJ	ug/kg	430	-	ug/kg
4-Methylphenol	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
N-Nitroso-di-n-propylamine	-	ug/kg		-	ug/kg		430 UJ	ug/kg	430	-	ug/kg
Hexachloroethane	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Nitrobenzene	-	ug/kg		-	ug/kg		430 UJ	ug/kg	430	-	ug/kg
Isophorone	-	ug/kg		-	ug/kg		430 UJ	ug/kg	430	-	ug/kg
2-Nitrophenol	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
2,4-Dimethylphenol	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
bis(2-Chloroethoxy) methane	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
2,4-Dichlorophenol	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
1,2,4-Trichlorobenzene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Naphthalene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
4-Chloroaniline	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Hexachlorobutadiene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
4-Chloro-3-methylphenol	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
2-Methylnaphthalene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Hexachlorocyclopentadiene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
2,4,6-Trichlorophenol	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
2,4,5-Trichlorophenol	-	ug/kg		-	ug/kg		1100 U	ug/kg	1100	-	ug/kg
2-Chloronaphthalene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
2-Nitroaniline	-	ug/kg		-	ug/kg		1100 U	ug/kg	1100	-	ug/kg
Dimethylphthalate	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Acenaphthylene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
2,6-Dinitrotoluene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
3-Nitroaniline	-	ug/kg		-	ug/kg		1100 U	ug/kg	1100	-	ug/kg
Acenaphthene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
2,4-Dinitrophenol	-	ug/kg		-	ug/kg		1100 U	ug/kg	1100	-	ug/kg
4-Nitrophenol	-	ug/kg		-	ug/kg		1100 U	ug/kg	1100	-	ug/kg
Dibenzofuran	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
2,4-Dinitrotoluene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Diethylphthalate	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
4-Chlorophenyl-phenylether	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Fluorene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
4-Nitroaniline	-	ug/kg		-	ug/kg		1100 U	ug/kg	1100	-	ug/kg
4,6-Dinitro-2-methylphenol	-	ug/kg		-	ug/kg		1100 U	ug/kg	1100	-	ug/kg
N-Nitrosodiphenylamine	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
4-Bromophenyl-phenylether	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Hexachlorobenzene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Pentachlorophenol	-	ug/kg		-	ug/kg		1100 U	ug/kg	1100	-	ug/kg
Phenanthrene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Anthracene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Carbazole	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Di-n-butylphthalate	-	ug/kg		-	ug/kg		430 UJ	ug/kg	430	-	ug/kg
Fluoranthene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Pyrene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Butylbenzylphthalate	-	ug/kg		-	ug/kg		430 UJ	ug/kg	430	-	ug/kg
3,3-Dichlorobenzidine	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Benzo (a) anthracene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
Chrysene	-	ug/kg		-	ug/kg		430 U	ug/kg	430	-	ug/kg
bis(2-Ethylhexyl) phthalate	-	ug/kg		-	ug/kg		430 UJ	ug/kg	430	-	ug/kg

Naval Air Station Whiting Field, Milton, Florida
Site 16 Subsurface Soil Data

Lab Sample Number:	22898001	22898002	22898002	22898002
Site	WHITING	WHITING	WHITING	WHITING
Locator	16SS0403	16SS0403A	16SS0403A	16SS0403A
Collect Date:	05-OCT-93	11-SEP-92	05-OCT-92	05-OCT-93

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Di-n-octylphthalate	-		ug/kg		-		ug/kg		430 U		ug/kg	430	-		ug/kg	
Benzo (b) fluoranthene	-		ug/kg		-		ug/kg		430 U		ug/kg	430	-		ug/kg	
Benzo (k) fluoranthene	-		ug/kg		-		ug/kg		430 U		ug/kg	430	-		ug/kg	
Benzo (a) pyrene	-		ug/kg		-		ug/kg		430 U		ug/kg	430	-		ug/kg	
Indeno (1,2,3-cd) pyrene	-		ug/kg		-		ug/kg		430 U		ug/kg	430	-		ug/kg	
Dibenzo (a,h) anthracene	-		ug/kg		-		ug/kg		430 U		ug/kg	430	-		ug/kg	
Benzo (g,h,i) perylene	-		ug/kg		-		ug/kg		430 U		ug/kg	430	-		ug/kg	
CLP PESTICIDES/PCBS 90-SOW			ug/kg													
alpha-BHC	2.1 U		ug/kg	2.1	-		ug/kg		-		ug/kg		2.2 U		ug/kg	2.2
beta-BHC	2.1 U		ug/kg	2.1	-		ug/kg		-		ug/kg		2.2 U		ug/kg	2.2
delta-BHC	2.1 U		ug/kg	2.1	-		ug/kg		-		ug/kg		2.2 U		ug/kg	2.2
gamma-BHC (Lindane)	2.1 U		ug/kg	2.1	-		ug/kg		-		ug/kg		2.2 U		ug/kg	2.2
Heptachlor	2.1 U		ug/kg	2.1	-		ug/kg		-		ug/kg		2.2 U		ug/kg	2.2
Aldrin	2.1 U		ug/kg	2.1	-		ug/kg		-		ug/kg		2.2 U		ug/kg	2.2
Heptachlor epoxide	2.1 U		ug/kg	2.1	-		ug/kg		-		ug/kg		2.2 U		ug/kg	2.2
Endosulfan I	2.1 U		ug/kg	2.1	-		ug/kg		-		ug/kg		2.2 U		ug/kg	2.2
Dieldrin	4 U		ug/kg	4	-		ug/kg		-		ug/kg		4.3 U		ug/kg	4.3
4,4-DDE	4 U		ug/kg	4	-		ug/kg		-		ug/kg		4.3 U		ug/kg	4.3
Endrin	4 U		ug/kg	4	-		ug/kg		-		ug/kg		4.3 U		ug/kg	4.3
Endosulfan II	4 U		ug/kg	4	-		ug/kg		-		ug/kg		4.3 U		ug/kg	4.3
4,4-DDD	4 U		ug/kg	4	-		ug/kg		-		ug/kg		4.3 U		ug/kg	4.3
Endosulfan sulfate	4 U		ug/kg	4	-		ug/kg		-		ug/kg		4.3 U		ug/kg	4.3
4,4-DDT	4 U		ug/kg	4	-		ug/kg		-		ug/kg		4.3 U		ug/kg	4.3
Methoxychlor	21 U		ug/kg	21	-		ug/kg		-		ug/kg		22 U		ug/kg	22
Endrin ketone	4 U		ug/kg	4	-		ug/kg		-		ug/kg		4.3 U		ug/kg	4.3
Endrin aldehyde	4 U		ug/kg	4	-		ug/kg		-		ug/kg		4.3 U		ug/kg	4.3
alpha-Chlordane	2.1 U		ug/kg	2.1	-		ug/kg		-		ug/kg		2.2 U		ug/kg	2.2
gamma-Chlordane	2.1 U		ug/kg	2.1	-		ug/kg		-		ug/kg		2.2 U		ug/kg	2.2
Toxaphene	210 U		ug/kg	210	-		ug/kg		-		ug/kg		220 U		ug/kg	220
Aroclor-1016	40 U		ug/kg	40	-		ug/kg		-		ug/kg		43 U		ug/kg	43
Aroclor-1221	82 U		ug/kg	82	-		ug/kg		-		ug/kg		88 U		ug/kg	88
Aroclor-1232	40 U		ug/kg	40	-		ug/kg		-		ug/kg		43 U		ug/kg	43
Aroclor-1242	40 U		ug/kg	40	-		ug/kg		-		ug/kg		43 U		ug/kg	43
Aroclor-1248	40 U		ug/kg	40	-		ug/kg		-		ug/kg		43 U		ug/kg	43
Aroclor-1254	40 U		ug/kg	40	-		ug/kg		-		ug/kg		43 U		ug/kg	43
Aroclor-1260	40 U		ug/kg	40	-		ug/kg		-		ug/kg		43 U		ug/kg	43
CLP METALS AND CYANIDE			mg/kg													
Aluminum	-		mg/kg		19500		mg/kg	40	-		mg/kg		-		mg/kg	
Antimony	-		mg/kg		2.6 UJ		mg/kg	12	-		mg/kg		-		mg/kg	
Arsenic	-		mg/kg		5.8 J		mg/kg	2	-		mg/kg		-		mg/kg	
Barium	-		mg/kg		19 J		mg/kg	40	-		mg/kg		-		mg/kg	
Beryllium	-		mg/kg		.29 J		mg/kg	1	-		mg/kg		-		mg/kg	
Cadmium	-		mg/kg		.73 U		mg/kg	1	-		mg/kg		-		mg/kg	
Calcium	-		mg/kg		542 UJ		mg/kg	1000	-		mg/kg		-		mg/kg	
Chromium	-		mg/kg		27.3 J		mg/kg	2	-		mg/kg		-		mg/kg	
Cobalt	-		mg/kg		1.4 J		mg/kg	10	-		mg/kg		-		mg/kg	
Copper	-		mg/kg		7.9		mg/kg	5	-		mg/kg		-		mg/kg	
Iron	-		mg/kg		17600		mg/kg	20	-		mg/kg		-		mg/kg	
Lead	-		mg/kg		14.6 J		mg/kg	1	-		mg/kg		-		mg/kg	
Magnesium	-		mg/kg		185 J		mg/kg	1000	-		mg/kg		-		mg/kg	

Naval Air Station Whiting Field, Milton, Florida
Site 16 Subsurface Soil Data

	22898001			22898002			22898002			22898002		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Lab Sample Number:	22898001			22898002			22898002			22898002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	16SS0403			16SS0403A			16SS0403A			16SS0403A		
Collect Date:	05-OCT-93			11-SEP-92			05-OCT-92			05-OCT-93		
Manganese	-		mg/kg		39.9		mg/kg		3		mg/kg	
Mercury	-		mg/kg		.1	UJ	mg/kg		.1		mg/kg	
Nickel	-		mg/kg		2.3	J	mg/kg		8		mg/kg	
Potassium	-		mg/kg		356	J	mg/kg		1000		mg/kg	
Selenium	-		mg/kg		.51	R	mg/kg		1		mg/kg	
Silver	-		mg/kg		.7	UJ	mg/kg		2		mg/kg	
Sodium	-		mg/kg		225	UJ	mg/kg		1000		mg/kg	
Thallium	-		mg/kg		.39	UJ	mg/kg		2		mg/kg	
Vanadium	-		mg/kg		67.5		mg/kg		10		mg/kg	
Zinc	-		mg/kg		28	J	mg/kg		4		mg/kg	
Cyanide	-		mg/kg		.1	R	mg/kg		1		mg/kg	
Total organic carbon	-		mg/kg		-		mg/kg		-		mg/kg	
Total petroleum hydrocarbons	-		mg/kg		-		mg/kg		-		mg/kg	

Naval Air Station Whiting Field, Milton, Florida
Site 16 Subsurface Soil Data

Lab Sample Number:	22910001		22910004			
Site	WHITING		WHITING			
Locator	16-SS-06-04		16-SS-10-05			
Collect Date:	05-OCT-92		06-OCT-92			
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

ug/kg

Chloromethane	12 U	ug/kg	12	11 U	ug/kg	11
Bromomethane	12 U	ug/kg	12	11 U	ug/kg	11
Vinyl chloride	12 U	ug/kg	12	11 U	ug/kg	11
Chloroethane	12 U	ug/kg	12	11 U	ug/kg	11
Methylene chloride	19 UJ	ug/kg	12	33 UJ	ug/kg	11
Acetone	87 J	ug/kg	12	11 UJ	ug/kg	11
Carbon disulfide	1 J	ug/kg	12	5 J	ug/kg	11
1,1-Dichloroethene	12 U	ug/kg	12	11 U	ug/kg	11
1,1-Dichloroethane	12 U	ug/kg	12	11 U	ug/kg	11
1,2-Dichloroethene (total)	12 U	ug/kg	12	11 U	ug/kg	11
Chloroform	12 U	ug/kg	12	11 U	ug/kg	11
1,2-Dichloroethane	12 U	ug/kg	12	11 U	ug/kg	11
2-Butanone	19	ug/kg	12	11 U	ug/kg	11
1,1,1-Trichloroethane	12 U	ug/kg	12	11 U	ug/kg	11
Carbon tetrachloride	12 U	ug/kg	12	11 U	ug/kg	11
Bromodichloromethane	12 U	ug/kg	12	11 U	ug/kg	11
1,2-Dichloropropane	12 U	ug/kg	12	11 U	ug/kg	11
cis-1,3-Dichloropropene	12 U	ug/kg	12	11 U	ug/kg	11
Trichloroethene	12 U	ug/kg	12	11 U	ug/kg	11
Dibromochloromethane	12 U	ug/kg	12	11 U	ug/kg	11
1,1,2-Trichloroethane	12 U	ug/kg	12	11 U	ug/kg	11
Benzene	12 U	ug/kg	12	11 U	ug/kg	11
trans-1,3-Dichloropropene	12 U	ug/kg	12	11 U	ug/kg	11
Bromoform	12 U	ug/kg	12	11 U	ug/kg	11
4-Methyl-2-pentanone	12 U	ug/kg	12	11 U	ug/kg	11
2-Hexanone	12 U	ug/kg	12	11 U	ug/kg	11
Tetrachloroethene	12 U	ug/kg	12	11 U	ug/kg	11
Toluene	12 U	ug/kg	12	11 U	ug/kg	11
1,1,2,2-Tetrachloroethane	12 U	ug/kg	12	11 U	ug/kg	11
Chlorobenzene	12 U	ug/kg	12	11 U	ug/kg	11
Ethylbenzene	12 U	ug/kg	12	11 U	ug/kg	11
Styrene	12 U	ug/kg	12	11 U	ug/kg	11
Xylenes (total)	2 J	ug/kg	12	4 J	ug/kg	11

CLP SEMIVOLATILES 90-SOW

ug/kg

Phenol	410 U	ug/kg	410	380 U	ug/kg	380
bis(2-Chloroethyl) ether	410 U	ug/kg	410	380 U	ug/kg	380
2-Chlorophenol	410 U	ug/kg	410	380 U	ug/kg	380
1,3-Dichlorobenzene	410 U	ug/kg	410	380 U	ug/kg	380
1,4-Dichlorobenzene	410 U	ug/kg	410	380 U	ug/kg	380

Naval Air Station Whiting Field, Milton, Florida
Site 16 Subsurface Soil Data

Lab Sample Number: 22910001 22910004
Site WHITING WHITING
Locator 16-SS-06-04 16-SS-10-05
Collect Date: 05-OCT-92 06-OCT-92

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	410	U	ug/kg	410	380	U	ug/kg	380
2-Methylphenol	410	U	ug/kg	410	380	U	ug/kg	380
2,2-oxybis(1-Chloropropane)	410	U	ug/kg	410	380	U	ug/kg	380
4-Methylphenol	410	U	ug/kg	410	380	U	ug/kg	380
N-Nitroso-di-n-propylamine	410	U	ug/kg	410	380	U	ug/kg	380
Hexachloroethane	410	U	ug/kg	410	380	U	ug/kg	380
Nitrobenzene	410	UJ	ug/kg	410	380	UJ	ug/kg	380
Isophorone	410	UJ	ug/kg	410	380	UJ	ug/kg	380
2-Nitrophenol	410	U	ug/kg	410	380	U	ug/kg	380
2,4-Dimethylphenol	410	U	ug/kg	410	380	U	ug/kg	380
bis(2-Chloroethoxy) methane	410	U	ug/kg	410	380	U	ug/kg	380
2,4-Dichlorophenol	410	U	ug/kg	410	380	U	ug/kg	380
1,2,4-Trichlorobenzene	410	U	ug/kg	410	380	U	ug/kg	380
Naphthalene	410	U	ug/kg	410	380	U	ug/kg	380
4-Chloroaniline	410	U	ug/kg	410	380	U	ug/kg	380
Hexachlorobutadiene	410	U	ug/kg	410	380	U	ug/kg	380
4-Chloro-3-methylphenol	410	U	ug/kg	410	380	U	ug/kg	380
2-Methylnaphthalene	410	U	ug/kg	410	380	U	ug/kg	380
Hexachlorocyclopentadiene	410	U	ug/kg	410	380	U	ug/kg	380
2,4,6-Trichlorophenol	410	U	ug/kg	410	380	U	ug/kg	380
2,4,5-Trichlorophenol	990	U	ug/kg	990	920	U	ug/kg	920
2-Chloronaphthalene	410	U	ug/kg	410	380	U	ug/kg	380
2-Nitroaniline	990	U	ug/kg	990	920	U	ug/kg	920
Dimethylphthalate	410	U	ug/kg	410	380	U	ug/kg	380
Acenaphthylene	410	U	ug/kg	410	380	U	ug/kg	380
2,6-Dinitrotoluene	410	UJ	ug/kg	410	380	UJ	ug/kg	380
3-Nitroaniline	990	U	ug/kg	990	920	U	ug/kg	920
Acenaphthene	77	J	ug/kg	410	380	U	ug/kg	380
2,4-Dinitrophenol	990	U	ug/kg	990	920	U	ug/kg	920
4-Nitrophenol	990	U	ug/kg	990	920	U	ug/kg	920
Dibenzofuran	410	U	ug/kg	410	380	U	ug/kg	380
2,4-Dinitrotoluene	410	UJ	ug/kg	410	380	UJ	ug/kg	380
Diethylphthalate	410	U	ug/kg	410	380	U	ug/kg	380
4-Chlorophenyl-phenylether	410	U	ug/kg	410	380	U	ug/kg	380
Fluorene	110	J	ug/kg	410	380	U	ug/kg	380
4-Nitroaniline	990	U	ug/kg	990	920	U	ug/kg	920
4,6-Dinitro-2-methylphenol	990	U	ug/kg	990	920	U	ug/kg	920
N-Nitrosodiphenylamine	410	U	ug/kg	410	380	U	ug/kg	380
4-Bromophenyl-phenylether	410	U	ug/kg	410	380	U	ug/kg	380
Hexachlorobenzene	410	U	ug/kg	410	380	U	ug/kg	380
Pentachlorophenol	990	U	ug/kg	990	920	U	ug/kg	920
Phenanthrene	340	J	ug/kg	410	380	U	ug/kg	380
Anthracene	410	U	ug/kg	410	380	U	ug/kg	380
Carbazole	410	U	ug/kg	410	380	U	ug/kg	380
Di-n-butylphthalate	410	UJ	ug/kg	410	380	UJ	ug/kg	380
Fluoranthene	270	J	ug/kg	410	380	U	ug/kg	380
Pyrene	190	J	ug/kg	410	380	U	ug/kg	380
Butylbenzylphthalate	410	U	ug/kg	410	380	U	ug/kg	380
3,3-Dichlorobenzidine	410	U	ug/kg	410	380	U	ug/kg	380
Benzo (a) anthracene	410	U	ug/kg	410	380	U	ug/kg	380
Chrysene	410	U	ug/kg	410	380	U	ug/kg	380
bis(2-Ethylhexyl) phthalate	150	J	ug/kg	410	39	J	ug/kg	380

Naval Air Station Whiting Field, Milton, Florida
Site 16 Subsurface Soil Data

Lab Sample Number:	22910001	22910004
Site	WHITING	WHITING
Locator	16-SS-06-04	16-SS-10-05
Collect Date:	05-OCT-92	06-OCT-92

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Di-n-octylphthalate	410	U	ug/kg	410	380	U	ug/kg	380
Benzo (b) fluoranthene	77	J	ug/kg	410	380	U	ug/kg	380
Benzo (k) fluoranthene	48	J	ug/kg	410	380	U	ug/kg	380
Benzo (a) pyrene	44	J	ug/kg	410	380	U	ug/kg	380
Indeno (1,2,3-cd) pyrene	410	U	ug/kg	410	380	U	ug/kg	380
Dibenzo (a,h) anthracene	410	U	ug/kg	410	380	U	ug/kg	380
Benzo (g,h,i) perylene	410	U	ug/kg	410	380	U	ug/kg	380
CLP PESTICIDES/PCBS 90-SOW ug/kg								
alpha-BHC	2.1	UJ	ug/kg	2.1	3.9	U	ug/kg	3.9
beta-BHC	2.1	UJ	ug/kg	2.1	3.9	U	ug/kg	3.9
delta-BHC	2.1	UJ	ug/kg	2.1	3.9	U	ug/kg	3.9
gamma-BHC (Lindane)	2.1	UJ	ug/kg	2.1	3.9	U	ug/kg	3.9
Heptachlor	2.1	UJ	ug/kg	2.1	3.9	U	ug/kg	3.9
Aldrin	2.1	UJ	ug/kg	2.1	3.9	U	ug/kg	3.9
Heptachlor epoxide	2.1	UJ	ug/kg	2.1	3.9	U	ug/kg	3.9
Endosulfan I	2.1	UJ	ug/kg	2.1	3.9	U	ug/kg	3.9
Dieldrin	4.1	UJ	ug/kg	4.1	7.6	U	ug/kg	7.6
4,4-DDE	30	J	ug/kg	4	83		ug/kg	8
Endrin	4.1	UJ	ug/kg	4.1	7.6	U	ug/kg	7.6
Endosulfan II	4.1	UJ	ug/kg	4.1	7.6	U	ug/kg	7.6
4,4-DDD	36	J	ug/kg	4	4.9	J	ug/kg	8
Endosulfan sulfate	4.1	UJ	ug/kg	4.1	7.6	U	ug/kg	7.6
4,4-DDT	5.7	J	ug/kg	4	52		ug/kg	8
Methoxychlor	21	UJ	ug/kg	21	39	U	ug/kg	39
Endrin ketone	4.1	UJ	ug/kg	4.1	7.6	U	ug/kg	7.6
Endrin aldehyde	4.1	UJ	ug/kg	4.1	7.6	U	ug/kg	7.6
alpha-Chlordane	2.1	UJ	ug/kg	2.1	3.9	U	ug/kg	3.9
gamma-Chlordane	2.1	UJ	ug/kg	2.1	3.9	U	ug/kg	3.9
Toxaphene	210	UJ	ug/kg	210	390	U	ug/kg	390
Aroclor-1016	41	UJ	ug/kg	41	76	U	ug/kg	76
Aroclor-1221	83	UJ	ug/kg	83	150	U	ug/kg	150
Aroclor-1232	41	UJ	ug/kg	41	76	U	ug/kg	76
Aroclor-1242	41	UJ	ug/kg	41	76	U	ug/kg	76
Aroclor-1248	41	UJ	ug/kg	41	76	U	ug/kg	76
Aroclor-1254	41	UJ	ug/kg	41	76	U	ug/kg	76
Aroclor-1260	41	UJ	ug/kg	41	76	U	ug/kg	76
CLP METALS AND CYANIDE mg/kg								
Aluminum	11000		mg/kg	40	17300		mg/kg	40
Antimony	6.7	J	mg/kg	12	5.9	J	mg/kg	12
Arsenic	15.1		mg/kg	2	11		mg/kg	2
Barium	175		mg/kg	40	122		mg/kg	40
Beryllium	.19	J	mg/kg	1	.19	J	mg/kg	1
Cadmium	9		mg/kg	1	8.7		mg/kg	1
Calcium	5870		mg/kg	1000	1370		mg/kg	1000
Chromium	24.7		mg/kg	2	36.9		mg/kg	2
Cobalt	4.5	J	mg/kg	10	9.6	J	mg/kg	10
Copper	143		mg/kg	5	3620		mg/kg	5
Iron	37500		mg/kg	20	74800		mg/kg	20
Lead	766		mg/kg	1	567		mg/kg	1
Magnesium	586	J	mg/kg	1000	400	J	mg/kg	1000

Naval Air Station Whiting Field, Milton, Florida
 Site 16 Subsurface Soil Data

Lab Sample Number:	22910001	22910004
Site	WHITING	WHITING
Locator	16-SS-06-04	16-SS-10-05
Collect Date:	05-OCT-92	06-OCT-92

VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
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Manganese	297	mg/kg	3	638	mg/kg	3
Mercury	.25 J	mg/kg	.1	.17 J	mg/kg	.1
Nickel	24.3	mg/kg	8	35.9	mg/kg	8
Potassium	412 J	mg/kg	1000	166 J	mg/kg	1000
Selenium	.55 U	mg/kg	1	.48 U	mg/kg	1
Silver	4.3	mg/kg	2	3.4	mg/kg	2
Sodium	514 J	mg/kg	1000	332 J	mg/kg	1000
Thallium	.42 U	mg/kg	2	.37 U	mg/kg	2
Vanadium	19	mg/kg	10	27.9	mg/kg	10
Zinc	518	mg/kg	4	895	mg/kg	4
Cyanide	.11 U	mg/kg	1	.14 J	mg/kg	1
Total organic carbon	-	mg/kg		-	mg/kg	
Total petroleum hydrocarbons	-	mg/kg		-	mg/kg	

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	S22454002	22454002	S22454003	22454003							
Site	WHITING	WHITING	WHITING	WHITING							
Locator	16-SL-01	16-SL-01	16-SL-02	16-SL-02							
Collect Date:	11-AUG-92	11-AUG-92	11-AUG-92	11-AUG-92							
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW											
	ug/kg										
Chloromethane	-	ug/kg	11 U	ug/kg	11	-	ug/kg	11 U	ug/kg	11	
Bromomethane	-	ug/kg	11 U	ug/kg	11	-	ug/kg	11 U	ug/kg	11	
Vinyl chloride	-	ug/kg	11 U	ug/kg	11	-	ug/kg	11 U	ug/kg	11	
Chloroethane	-	ug/kg	11 U	ug/kg	11	-	ug/kg	11 U	ug/kg	11	
Methylene chloride	-	ug/kg	11 UJ	ug/kg	6	-	ug/kg	6 UJ	ug/kg	6	
Acetone	-	ug/kg	11 U	ug/kg	11	-	ug/kg	15 UJ	ug/kg	11	
Carbon disulfide	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
1,1-Dichloroethene	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
1,1-Dichloroethane	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
1,2-Dichloroethene (total)	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
Chloroform	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
1,2-Dichloroethane	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
2-Butanone	-	ug/kg	11 U	ug/kg	11	-	ug/kg	11 U	ug/kg	11	
1,1,1-Trichloroethane	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
Carbon tetrachloride	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
Bromodichloromethane	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
1,2-Dichloropropane	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
cis-1,3-Dichloropropene	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
Trichloroethene	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
Dibromochloromethane	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
1,1,2-Trichloroethane	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
Benzene	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
trans-1,3-Dichloropropene	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
Bromoform	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
4-Methyl-2-pentanone	-	ug/kg	11 U	ug/kg	11	-	ug/kg	11 U	ug/kg	11	
2-Hexanone	-	ug/kg	11 U	ug/kg	11	-	ug/kg	11 U	ug/kg	11	
Tetrachloroethene	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
Toluene	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
1,1,2,2-Tetrachloroethane	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
Chlorobenzene	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
Ethylbenzene	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
Styrene	-	ug/kg	6 U	ug/kg	6	-	ug/kg	6 U	ug/kg	6	
Xylenes (total)	-	ug/kg	5 J	ug/kg	6	-	ug/kg	2 J	ug/kg	6	
CLP SEMIVOLATILES 90-SOW											
	ug/kg										
Phenol	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	
bis(2-Chloroethyl) ether	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	
2-Chlorophenol	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	
1,3-Dichlorobenzene	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	
1,4-Dichlorobenzene	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	
1,2-Dichlorobenzene	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	
2-Methylphenol	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	
2,2-oxybis(1-Chloropropane)	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	
4-Methylphenol	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	
N-Nitroso-di-n-propylamine	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	
Hexachloroethane	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	
Nitrobenzene	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	
Isophorone	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	
2-Nitrophenol	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	
2,4-Dimethylphenol	-	ug/kg	370 U	ug/kg	370	-	ug/kg	380 U	ug/kg	380	

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	S22454002	22454002	S22454003	22454003
Site	WHITING	WHITING	WHITING	WHITING
Locator	16-SL-01	16-SL-01	16-SL-02	16-SL-02
Collect Date:	11-AUG-92	11-AUG-92	11-AUG-92	11-AUG-92

	VALUE	QUAL	UNITS	DL												
bis(2-Chloroethoxy) methane	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
2,4-Dichlorophenol	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
1,2,4-Trichlorobenzene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Naphthalene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
4-Chloroaniline	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Hexachlorobutadiene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
4-Chloro-3-methylphenol	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
2-Methylnaphthalene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Hexachlorocyclopentadiene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
2,4,6-Trichlorophenol	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
2,4,5-Trichlorophenol	-		ug/kg		1800	U	ug/kg		1800	-	ug/kg		1800	U	ug/kg	1800
2-Chloronaphthalene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
2-Nitroaniline	-		ug/kg		1800	U	ug/kg		1800	-	ug/kg		1800	UJ	ug/kg	1800
Dimethylphthalate	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Acenaphthylene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
2,6-Dinitrotoluene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
3-Nitroaniline	-		ug/kg		1800	U	ug/kg		1800	-	ug/kg		1800	UJ	ug/kg	1800
Acenaphthene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
2,4-Dinitrophenol	-		ug/kg		1800	U	ug/kg		1800	-	ug/kg		1800	U	ug/kg	1800
4-Nitrophenol	-		ug/kg		1800	U	ug/kg		1800	-	ug/kg		1800	UJ	ug/kg	1800
Dibenzofuran	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
2,4-Dinitrotoluene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Diethylphthalate	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
4-Chlorophenyl-phenylether	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Fluorene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
4-Nitroaniline	-		ug/kg		1800	UJ	ug/kg		1800	-	ug/kg		1800	UJ	ug/kg	1800
4,6-Dinitro-2-methylphenol	-		ug/kg		1800	U	ug/kg		1800	-	ug/kg		1800	U	ug/kg	1800
N-Nitrosodiphenylamine	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
4-Bromophenyl-phenylether	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Hexachlorobenzene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Pentachlorophenol	-		ug/kg		1800	U	ug/kg		1800	-	ug/kg		1800	U	ug/kg	1800
Phenanthrene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Anthracene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Carbazole	-		ug/kg													
Di-n-butylphthalate	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	UJ	ug/kg	380
Fluoranthene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Pyrene	-		ug/kg		370	UJ	ug/kg		370	-	ug/kg		380	UJ	ug/kg	380
Butylbenzylphthalate	-		ug/kg		370	UJ	ug/kg		370	-	ug/kg		380	UJ	ug/kg	380
3,3-Dichlorobenzidine	-		ug/kg		730	U	ug/kg		730	-	ug/kg		760	U	ug/kg	760
Benzo (a) anthracene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Chrysene	-		ug/kg		370	UJ	ug/kg		370	-	ug/kg		380	UJ	ug/kg	380
bis(2-Ethylhexyl) phthalate	-		ug/kg		370	UJ	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Di-n-octylphthalate	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Benzo (b) fluoranthene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Benzo (k) fluoranthene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Benzo (a) pyrene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Indeno (1,2,3-cd) pyrene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Dibenzo (a,h) anthracene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
Benzo (g,h,i) perylene	-		ug/kg		370	U	ug/kg		370	-	ug/kg		380	U	ug/kg	380
CLP PESTICIDES/PCBS 90-SOW	ug/kg															
alpha-BHC	-		ug/kg		8.9	U	ug/kg		8.9	-	ug/kg		9.2	U	ug/kg	9.2

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	S22454002	22454002	S22454003	22454003								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	16-SL-01	16-SL-01	16-SL-02	16-SL-02								
Collect Date:	11-AUG-92	11-AUG-92	11-AUG-92	11-AUG-92								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
beta-BHC	-	ug/kg		8.9 U	ug/kg	8.9	-	ug/kg		9.2 U	ug/kg	9.2
delta-BHC	-	ug/kg		8.9 U	ug/kg	8.9	-	ug/kg		9.2 U	ug/kg	9.2
gamma-BHC (Lindane)	-	ug/kg		8.9 U	ug/kg	8.9	-	ug/kg		9.2 U	ug/kg	9.2
Heptachlor	-	ug/kg		8.9 U	ug/kg	8.9	-	ug/kg		9.2 U	ug/kg	9.2
Aldrin	-	ug/kg		8.9 U	ug/kg	8.9	-	ug/kg		9.2 U	ug/kg	9.2
Heptachlor epoxide	-	ug/kg		8.9 U	ug/kg	8.9	-	ug/kg		9.2 U	ug/kg	9.2
Endosulfan I	-	ug/kg		8.9 U	ug/kg	8.9	-	ug/kg		9.2 U	ug/kg	9.2
Dieldrin	-	ug/kg		33	ug/kg	18	-	ug/kg		18 U	ug/kg	18
4,4-DDE	-	ug/kg		18 U	ug/kg	18	-	ug/kg		5.5 J	ug/kg	18
Endrin	-	ug/kg		18 U	ug/kg	18	-	ug/kg		18 U	ug/kg	18
Endosulfan II	-	ug/kg		18 U	ug/kg	18	-	ug/kg		18 U	ug/kg	18
4,4-DDD	-	ug/kg		18 U	ug/kg	18	-	ug/kg		18 U	ug/kg	18
Endosulfan sulfate	-	ug/kg		18 U	ug/kg	18	-	ug/kg		18 U	ug/kg	18
4,4-DDT	-	ug/kg		18 U	ug/kg	18	-	ug/kg		9.1 J	ug/kg	18
Methoxychlor	-	ug/kg		89 U	ug/kg	89	-	ug/kg		92 U	ug/kg	92
Endrin ketone	-	ug/kg		18 U	ug/kg	18	-	ug/kg		18 U	ug/kg	18
Endrin aldehyde	-	ug/kg		-	ug/kg	-	-	ug/kg		-	ug/kg	-
alpha-Chlordane	-	ug/kg		89 U	ug/kg	89	-	ug/kg		92 U	ug/kg	92
gamma-Chlordane	-	ug/kg		89 U	ug/kg	89	-	ug/kg		92 U	ug/kg	92
Toxaphene	-	ug/kg		180 U	ug/kg	180	-	ug/kg		180 U	ug/kg	180
Aroclor-1016	-	ug/kg		89 U	ug/kg	89	-	ug/kg		92 U	ug/kg	92
Aroclor-1221	-	ug/kg		89 U	ug/kg	89	-	ug/kg		92 U	ug/kg	92
Aroclor-1232	-	ug/kg		89 U	ug/kg	89	-	ug/kg		92 U	ug/kg	92
Aroclor-1242	-	ug/kg		89 U	ug/kg	89	-	ug/kg		92 U	ug/kg	92
Aroclor-1248	-	ug/kg		89 U	ug/kg	89	-	ug/kg		92 U	ug/kg	92
Aroclor-1254	-	ug/kg		180 U	ug/kg	180	-	ug/kg		180 U	ug/kg	180
Aroclor-1260	-	ug/kg		180 U	ug/kg	180	-	ug/kg		180 U	ug/kg	180

CLP METALS AND CYANIDE

mg/kg

Aluminum	10900	mg/kg	40	-	mg/kg	18600	mg/kg	40	-	mg/kg
Antimony	2.8 U	mg/kg	12	-	mg/kg	2.7 U	mg/kg	12	-	mg/kg
Arsenic	1.9 J	mg/kg	2	-	mg/kg	1.4 J	mg/kg	2	-	mg/kg
Barium	19.4 J	mg/kg	40	-	mg/kg	14.7 J	mg/kg	40	-	mg/kg
Beryllium	.12 J	mg/kg	1	-	mg/kg	.12 J	mg/kg	1	-	mg/kg
Cadmium	.63 U	mg/kg	1	-	mg/kg	.61 U	mg/kg	1	-	mg/kg
Calcium	427 J	mg/kg	1000	-	mg/kg	345 J	mg/kg	1000	-	mg/kg
Chromium	10.5	mg/kg	2	-	mg/kg	14.7	mg/kg	2	-	mg/kg
Cobalt	1.3 J	mg/kg	10	-	mg/kg	.95 J	mg/kg	10	-	mg/kg
Copper	9.7	mg/kg	5	-	mg/kg	8.3	mg/kg	5	-	mg/kg
Iron	6300	mg/kg	20	-	mg/kg	8150	mg/kg	20	-	mg/kg
Lead	76	mg/kg	1	-	mg/kg	6.7 J	mg/kg	1	-	mg/kg
Magnesium	106 J	mg/kg	1000	-	mg/kg	134 J	mg/kg	1000	-	mg/kg
Manganese	80.3	mg/kg	3	-	mg/kg	19.2	mg/kg	3	-	mg/kg
Mercury	.08 U	mg/kg	.1	-	mg/kg	.08 U	mg/kg	.1	-	mg/kg
Nickel	2.4 U	mg/kg	8	-	mg/kg	2.4 U	mg/kg	8	-	mg/kg
Potassium	137 U	mg/kg	1000	-	mg/kg	133 U	mg/kg	1000	-	mg/kg
Selenium	.42 U	mg/kg	1	-	mg/kg	.41 U	mg/kg	1	-	mg/kg
Silver	.34 U	mg/kg	2	-	mg/kg	.33 U	mg/kg	2	-	mg/kg
Sodium	196 J	mg/kg	1000	-	mg/kg	189 J	mg/kg	1000	-	mg/kg
Thallium	.47 U	mg/kg	2	-	mg/kg	.46 U	mg/kg	2	-	mg/kg
Vanadium	23.2	mg/kg	10	-	mg/kg	28.9	mg/kg	10	-	mg/kg
Zinc	22.7	mg/kg	4	-	mg/kg	12.5	mg/kg	4	-	mg/kg

Naval Air Station Whiting Field, Milton, Florida
 Site 16 Surface Soil Data

Lab Sample Number:
 Site
 Locator
 Collect Date:

VALUE	QUAL UNITS	DL									
	S22454002			22454002			S22454003			22454003	
	WHITING			WHITING			WHITING			WHITING	
	16-SL-01			16-SL-01			16-SL-02			16-SL-02	
	11-AUG-92			11-AUG-92			11-AUG-92			11-AUG-92	

Cyanide	.25	U	mg/kg	1	-	mg/kg	.24	U	mg/kg	1	-	mg/kg
Total organic carbon	-		mg/kg		-	mg/kg	-		mg/kg		-	mg/kg
Total petroleum hydrocarbons	-		mg/kg		-	mg/kg	-		mg/kg		-	mg/kg

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	S22454004	22454004		RAB56001	RAB56018							
Site	WHITING	WHITING		WHITING	WHITING							
Locator	16-SL-03	16-SL-03		16S00101	16S00101D							
Collect Date:	11-AUG-92	11-AUG-92		08-JAN-96	08-JAN-96							
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

	ug/kg											
CLP VOLATILES 90-SOW												
Chloromethane	-	ug/kg	12 U	ug/kg	12	12 U	ug/kg	12	12 UJ	ug/kg	12	
Bromomethane	-	ug/kg	12 U	ug/kg	12	12 U	ug/kg	12	12 U	ug/kg	12	
Vinyl chloride	-	ug/kg	12 U	ug/kg	12	12 U	ug/kg	12	12 UJ	ug/kg	12	
Chloroethane	-	ug/kg	12 U	ug/kg	12	12 UJ	ug/kg	12	12 UJ	ug/kg	12	
Methylene chloride	-	ug/kg	10 UJ	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
Acetone	-	ug/kg	12 U	ug/kg	12	12 UJ	ug/kg	12	12 UJ	ug/kg	12	
Carbon disulfide	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 UJ	ug/kg	12	
1,1-Dichloroethene	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
1,1-Dichloroethane	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
1,2-Dichloroethene (total)	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
Chloroform	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
1,2-Dichloroethane	-	ug/kg	6 U	ug/kg	6	12 UJ	ug/kg	12	12 U	ug/kg	12	
2-Butanone	-	ug/kg	12 U	ug/kg	12	12 UJ	ug/kg	12	12 U	ug/kg	12	
1,1,1-Trichloroethane	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
Carbon tetrachloride	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
Bromodichloromethane	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
1,2-Dichloropropane	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
cis-1,3-Dichloropropene	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
Trichloroethene	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
Dibromochloromethane	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
1,1,2-Trichloroethane	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
Benzene	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
trans-1,3-Dichloropropene	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
Bromoform	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
4-Methyl-2-pentanone	-	ug/kg	12 U	ug/kg	12	12 U	ug/kg	12	12 U	ug/kg	12	
2-Hexanone	-	ug/kg	12 U	ug/kg	12	12 U	ug/kg	12	12 UJ	ug/kg	12	
Tetrachloroethene	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
Toluene	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
1,1,2,2-Tetrachloroethane	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
Chlorobenzene	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
Ethylbenzene	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
Styrene	-	ug/kg	6 U	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
Xylenes (total)	-	ug/kg	1 J	ug/kg	6	12 U	ug/kg	12	12 U	ug/kg	12	
CLP SEMIVOLATILES 90-SOW												
Phenol	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380	
bis(2-Chloroethyl) ether	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380	
2-Chlorophenol	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380	
1,3-Dichlorobenzene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380	
1,4-Dichlorobenzene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380	

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	S22454004	22454004	RA856001	RA856018							
Site	WHITING	WHITING	WHITING	WHITING							
Locator	16-SL-03	16-SL-03	16S00101	16S00101D							
Collect Date:	11-AUG-92	11-AUG-92	08-JAN-96	08-JAN-96							
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
1,2-Dichlorobenzene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
2-Methylphenol	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
2,2-oxybis(1-Chloropropane)	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
4-Methylphenol	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
N-Nitroso-di-n-propylamine	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Hexachloroethane	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Nitrobenzene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Isophorone	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
2-Nitrophenol	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
2,4-Dimethylphenol	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
bis(2-Chloroethoxy) methane	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
2,4-Dichlorophenol	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
1,2,4-Trichlorobenzene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Naphthalene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
4-Chloroaniline	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Hexachlorobutadiene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
4-Chloro-3-methylphenol	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
2-Methylnaphthalene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Hexachlorocyclopentadiene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
2,4,6-Trichlorophenol	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
2,4,5-Trichlorophenol	-	ug/kg	2000 U	ug/kg	2000	980 U	ug/kg	980	970 U	ug/kg	970
2-Chloronaphthalene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
2-Nitroaniline	-	ug/kg	2000 UJ	ug/kg	2000	980 U	ug/kg	980	970 U	ug/kg	970
Dimethylphthalate	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Acenaphthylene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
2,6-Dinitrotoluene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
3-Nitroaniline	-	ug/kg	2000 UJ	ug/kg	2000	980 U	ug/kg	980	970 U	ug/kg	970
Acenaphthene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
2,4-Dinitrophenol	-	ug/kg	2000 U	ug/kg	2000	980 U	ug/kg	980	970 U	ug/kg	970
4-Nitrophenol	-	ug/kg	2000 UJ	ug/kg	2000	980 U	ug/kg	980	970 U	ug/kg	970
Dibenzofuran	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
2,4-Dinitrotoluene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Diethylphthalate	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
4-Chlorophenyl-phenylether	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Fluorene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
4-Nitroaniline	-	ug/kg	2000 UJ	ug/kg	2000	980 U	ug/kg	980	970 U	ug/kg	970
4,6-Dinitro-2-methylphenol	-	ug/kg	2000 U	ug/kg	2000	980 U	ug/kg	980	970 U	ug/kg	970
N-Nitrosodiphenylamine	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
4-Bromophenyl-phenylether	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Hexachlorobenzene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Pentachlorophenol	-	ug/kg	2000 U	ug/kg	2000	980 U	ug/kg	980	970 U	ug/kg	970
Phenanthrene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Anthracene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Carbazole	-	ug/kg	-	ug/kg	-	390 U	ug/kg	390	380 U	ug/kg	380
Di-n-butylphthalate	-	ug/kg	410 UJ	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Fluoranthene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Pyrene	-	ug/kg	410 UJ	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Butylbenzylphthalate	-	ug/kg	410 UJ	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
3,3-Dichlorobenzidine	-	ug/kg	820 U	ug/kg	820	390 U	ug/kg	390	380 U	ug/kg	380
Benzo (a) anthracene	-	ug/kg	410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Chrysene	-	ug/kg	410 UJ	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
bis(2-Ethylhexyl) phthalate	-	ug/kg	43 J	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	S22454004	22454004	RA856001	RA856018								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	16-SL-03	16-SL-03	16S00101	16S00101D								
Collect Date:	11-AUG-92	11-AUG-92	08-JAN-96	08-JAN-96								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Di-n-octylphthalate	-	ug/kg		410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Benzo (b) fluoranthene	-	ug/kg		410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Benzo (k) fluoranthene	-	ug/kg		410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Benzo (a) pyrene	-	ug/kg		410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Indeno (1,2,3-cd) pyrene	-	ug/kg		410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Dibenzo (a,h) anthracene	-	ug/kg		410 U	ug/kg	410	390 U	ug/kg	390	380 U	ug/kg	380
Benzo (g,h,i) perylene	-	ug/kg		410 U	ug/kg	410	390 UJ	ug/kg	390	380 U	ug/kg	380
CLP PESTICIDES/PCBS 90-SOW	ug/kg											
alpha-BHC	-	ug/kg		9.9 U	ug/kg	9.9	2 U	ug/kg	2	-	ug/kg	
beta-BHC	-	ug/kg		9.9 U	ug/kg	9.9	2 U	ug/kg	2	-	ug/kg	
delta-BHC	-	ug/kg		9.9 U	ug/kg	9.9	2 U	ug/kg	2	-	ug/kg	
gamma-BHC (Lindane)	-	ug/kg		9.9 U	ug/kg	9.9	2 U	ug/kg	2	-	ug/kg	
Heptachlor	-	ug/kg		9.9 U	ug/kg	9.9	2 U	ug/kg	2	-	ug/kg	
Aldrin	-	ug/kg		9.9 U	ug/kg	9.9	2 U	ug/kg	2	-	ug/kg	
Heptachlor epoxide	-	ug/kg		9.9 U	ug/kg	9.9	2 U	ug/kg	2	-	ug/kg	
Endosulfan I	-	ug/kg		9.9 U	ug/kg	9.9	2 U	ug/kg	2	-	ug/kg	
Dieldrin	-	ug/kg		20 U	ug/kg	20	3.9 U	ug/kg	3.9	-	ug/kg	
4,4-DDE	-	ug/kg		5.5 J	ug/kg	20	3.2 J	ug/kg	4	-	ug/kg	
Endrin	-	ug/kg		20 U	ug/kg	20	3.9 U	ug/kg	3.9	-	ug/kg	
Endosulfan II	-	ug/kg		20 U	ug/kg	20	3.9 U	ug/kg	3.9	-	ug/kg	
4,4-DDD	-	ug/kg		20 U	ug/kg	20	3.9 U	ug/kg	3.9	-	ug/kg	
Endosulfan sulfate	-	ug/kg		20 U	ug/kg	20	3.9 UJ	ug/kg	3.9	-	ug/kg	
4,4-DDT	-	ug/kg		5.2 J	ug/kg	20	3.8 J	ug/kg	4	-	ug/kg	
Methoxychlor	-	ug/kg		99 U	ug/kg	99	20 U	ug/kg	20	-	ug/kg	
Endrin ketone	-	ug/kg		20 U	ug/kg	20	3.9 U	ug/kg	3.9	-	ug/kg	
Endrin aldehyde	-	ug/kg		-	ug/kg	-	3.9 U	ug/kg	3.9	-	ug/kg	
alpha-Chlordane	-	ug/kg		99 U	ug/kg	99	2 U	ug/kg	2	-	ug/kg	
gamma-Chlordane	-	ug/kg		99 U	ug/kg	99	2 U	ug/kg	2	-	ug/kg	
Toxaphene	-	ug/kg		200 U	ug/kg	200	200 U	ug/kg	200	-	ug/kg	
Aroclor-1016	-	ug/kg		99 U	ug/kg	99	39 U	ug/kg	39	-	ug/kg	
Aroclor-1221	-	ug/kg		99 U	ug/kg	99	79 U	ug/kg	79	-	ug/kg	
Aroclor-1232	-	ug/kg		99 U	ug/kg	99	39 U	ug/kg	39	-	ug/kg	
Aroclor-1242	-	ug/kg		99 U	ug/kg	99	39 U	ug/kg	39	-	ug/kg	
Aroclor-1248	-	ug/kg		99 U	ug/kg	99	39 U	ug/kg	39	-	ug/kg	
Aroclor-1254	-	ug/kg		200 U	ug/kg	200	39 U	ug/kg	39	-	ug/kg	
Aroclor-1260	-	ug/kg		200 U	ug/kg	200	39 U	ug/kg	39	-	ug/kg	
CLP METALS AND CYANIDE	mg/kg											
Aluminum	14200	mg/kg	40	-	mg/kg		4250 J	mg/kg	40	5840 J	mg/kg	40
Antimony	3 U	mg/kg	12	-	mg/kg		12 UJ	mg/kg	12	12 UJ	mg/kg	12
Arsenic	3.1	mg/kg	2	-	mg/kg		.94 J	mg/kg	2	1.2 J	mg/kg	2
Barium	42.9 J	mg/kg	40	-	mg/kg		13.2 J	mg/kg	40	13.6 J	mg/kg	40
Beryllium	.12 J	mg/kg	1	-	mg/kg		.09 J	mg/kg	1	1 U	mg/kg	1
Cadmium	1.6	mg/kg	1	-	mg/kg		.28 J	mg/kg	1	.3 J	mg/kg	1
Calcium	1180 J	mg/kg	1000	-	mg/kg		210 J	mg/kg	1000	173 J	mg/kg	1000
Chromium	14.9	mg/kg	2	-	mg/kg		4	mg/kg	2	5.8	mg/kg	2
Cobalt	1.7 J	mg/kg	10	-	mg/kg		10 U	mg/kg	10	10 U	mg/kg	10
Copper	50.8	mg/kg	5	-	mg/kg		4.8 J	mg/kg	5	5 UJ	mg/kg	5
Iron	13600	mg/kg	20	-	mg/kg		2340 J	mg/kg	20	2910 J	mg/kg	20
Lead	121	mg/kg	1	-	mg/kg		7.8 J	mg/kg	.6	7.5 J	mg/kg	.6
Magnesium	228 J	mg/kg	1000	-	mg/kg		103 J	mg/kg	1000	150 J	mg/kg	1000

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	S22454004	22454004	RAB56001	RAB56018					
Site	WHITING	WHITING	WHITING	WHITING					
Locator	16-SL-03	16-SL-03	16S00101	16S00101D					
Collect Date:	11-AUG-92	11-AUG-92	08-JAN-96	08-JAN-96					
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Manganese	228	mg/kg	3	-	mg/kg		185	mg/kg	3	151	mg/kg	3
Mercury	.1	mg/kg	.1	-	mg/kg		.1 U	mg/kg	.1	.1 U	mg/kg	.1
Nickel	5.5 J	mg/kg	8	-	mg/kg		8 U	mg/kg	8	1.9 J	mg/kg	8
Potassium	230 J	mg/kg	1000	-	mg/kg		1000 UJ	mg/kg	1000	1000 UJ	mg/kg	1000
Selenium	.46 U	mg/kg	1	-	mg/kg		.19 J	mg/kg	1	1 U	mg/kg	1
Silver	.87 J	mg/kg	2	-	mg/kg		2 U	mg/kg	2	2 U	mg/kg	2
Sodium	232 J	mg/kg	1000	-	mg/kg		129 J	mg/kg	1000	1000 UJ	mg/kg	1000
Thallium	.5 U	mg/kg	2	-	mg/kg		2 U	mg/kg	2	2 U	mg/kg	2
Vanadium	22.7	mg/kg	10	-	mg/kg		6.8 J	mg/kg	10	8.6 J	mg/kg	10
Zinc	128	mg/kg	4	-	mg/kg		6.4	mg/kg	4	6.9	mg/kg	4
Cyanide	.27 U	mg/kg	1	-	mg/kg		.12 J	mg/kg	.5	.12 J	mg/kg	.5
Total organic carbon	-	mg/kg		-	mg/kg		-	mg/kg		-	mg/kg	
Total petroleum hydrocarbons	-	mg/kg		-	mg/kg		-	mg/kg		-	mg/kg	

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	RA856018		RA856006		RA856007		RA856003		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	16S00101D		16S00201		16S00301		16S00401		
Collect Date:	09-JAN-96		09-JAN-96		09-JAN-96		08-JAN-96		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

		VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	
CLP VOLATILES 90-SOW	ug/kg										
Chloromethane	-	ug/kg	11 U	ug/kg	11	13 UJ	ug/kg	13	11 U	ug/kg	11
Bromomethane	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Vinyl chloride	-	ug/kg	11 U	ug/kg	11	13 UJ	ug/kg	13	11 U	ug/kg	11
Chloroethane	-	ug/kg	11 UJ	ug/kg	11	13 U	ug/kg	13	11 UJ	ug/kg	11
Methylene chloride	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Acetone	-	ug/kg	11 UJ	ug/kg	11	13 UJ	ug/kg	13	11 UJ	ug/kg	11
Carbon disulfide	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
1,1-Dichloroethene	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
1,1-Dichloroethane	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
1,2-Dichloroethene (total)	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Chloroform	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
1,2-Dichloroethane	-	ug/kg	11 UJ	ug/kg	11	13 UJ	ug/kg	13	11 UJ	ug/kg	11
2-Butanone	-	ug/kg	11 UJ	ug/kg	11	13 UJ	ug/kg	13	11 UJ	ug/kg	11
1,1,1-Trichloroethane	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Carbon tetrachloride	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Bromodichloromethane	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
1,2-Dichloropropane	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
cis-1,3-Dichloropropene	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Trichloroethene	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Dibromochloromethane	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
1,1,2-Trichloroethane	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Benzene	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
trans-1,3-Dichloropropene	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Bromoform	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
4-Methyl-2-pentanone	-	ug/kg	11 U	ug/kg	11	13 UJ	ug/kg	13	11 U	ug/kg	11
2-Hexanone	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Tetrachloroethene	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Toluene	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
1,1,2,2-Tetrachloroethane	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Chlorobenzene	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Ethylbenzene	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Styrene	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
Xylenes (total)	-	ug/kg	11 U	ug/kg	11	13 U	ug/kg	13	11 U	ug/kg	11
CLP SEMIVOLATILES 90-SOW	ug/kg										
Phenol	-	ug/kg	370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
bis(2-Chloroethyl) ether	-	ug/kg	370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
2-Chlorophenol	-	ug/kg	370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
1,3-Dichlorobenzene	-	ug/kg	370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
1,4-Dichlorobenzene	-	ug/kg	370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	RA856018	RA856006	RA856007	RA856003								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	16S00101D	16S00201	16S00301	16S00401								
Collect Date:	09-JAN-96	09-JAN-96	09-JAN-96	08-JAN-96								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
1,2-Dichlorobenzene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
2-Methylphenol	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
2,2-oxybis(1-Chloropropane)	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
4-Methylphenol	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
N-Nitroso-di-n-propylamine	-	ug/kg		370 U	ug/kg	370	420 UJ	ug/kg	420	370 U	ug/kg	370
Hexachloroethane	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Nitrobenzene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Isophorone	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
2-Nitrophenol	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
2,4-Dimethylphenol	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
bis(2-Chloroethoxy) methane	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
2,4-Dichlorophenol	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
1,2,4-Trichlorobenzene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Naphthalene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
4-Chloroaniline	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Hexachlorobutadiene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
4-Chloro-3-methylphenol	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
2-Methylnaphthalene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Hexachlorocyclopentadiene	-	ug/kg		370 U	ug/kg	370	420 UJ	ug/kg	420	370 U	ug/kg	370
2,4,6-Trichlorophenol	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
2,4,5-Trichlorophenol	-	ug/kg		920 U	ug/kg	920	1100 U	ug/kg	1100	920 U	ug/kg	920
2-Chloronaphthalene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
2-Nitroaniline	-	ug/kg		920 U	ug/kg	920	1100 U	ug/kg	1100	920 U	ug/kg	920
Dimethylphthalate	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Acenaphthylene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
2,6-Dinitrotoluene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
3-Nitroaniline	-	ug/kg		920 U	ug/kg	920	1100 U	ug/kg	1100	920 U	ug/kg	920
Acenaphthene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
2,4-Dinitrophenol	-	ug/kg		920 U	ug/kg	920	1100 U	ug/kg	1100	920 U	ug/kg	920
4-Nitrophenol	-	ug/kg		920 U	ug/kg	920	1100 U	ug/kg	1100	920 U	ug/kg	920
Dibenzofuran	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
2,4-Dinitrotoluene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Diethylphthalate	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
4-Chlorophenyl-phenylether	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Fluorene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
4-Nitroaniline	-	ug/kg		920 U	ug/kg	920	1100 U	ug/kg	1100	920 U	ug/kg	920
4,6-Dinitro-2-methylphenol	-	ug/kg		920 U	ug/kg	920	1100 U	ug/kg	1100	920 U	ug/kg	920
N-Nitrosodiphenylamine	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
4-Bromophenyl-phenylether	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Hexachlorobenzene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Pentachlorophenol	-	ug/kg		920 U	ug/kg	920	1100 U	ug/kg	1100	920 U	ug/kg	920
Phenanthrene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Anthracene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Carbazole	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Di-n-butylphthalate	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Fluoranthene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Pyrene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Butylbenzylphthalate	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
3,3-Dichlorobenzidine	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Benzo (a) anthracene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Chrysene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
bis(2-Ethylhexyl) phthalate	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

RA856018	RA856006	RA856007	RA856003
WHITING	WHITING	WHITING	WHITING
16S00101D	16S00201	16S00301	16S00401
09-JAN-96	09-JAN-96	09-JAN-96	08-JAN-96
VALUE	VALUE	VALUE	VALUE
QUAL UNITS	QUAL UNITS	QUAL UNITS	QUAL UNITS
DL	DL	DL	DL

Di-n-octylphthalate	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Benzo (b) fluoranthene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Benzo (k) fluoranthene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Benzo (a) pyrene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Indeno (1,2,3-cd) pyrene	-	ug/kg		370 U	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Dibenzo (a,h) anthracene	-	ug/kg		370 UJ	ug/kg	370	420 U	ug/kg	420	370 U	ug/kg	370
Benzo (g,h,i) perylene	-	ug/kg		370 UJ	ug/kg	370	420 U	ug/kg	420	370 UJ	ug/kg	370

CLP PESTICIDES/PCBS 90-SOW

ug/kg

alpha-BHC	2 UJ	ug/kg	2	1.9 U	ug/kg	1.9	2.2 UJ	ug/kg	2.2	1.9 U	ug/kg	1.9
beta-BHC	2 UJ	ug/kg	2	1.9 U	ug/kg	1.9	2.2 UJ	ug/kg	2.2	1.9 U	ug/kg	1.9
delta-BHC	2 UJ	ug/kg	2	1.9 U	ug/kg	1.9	2.2 UJ	ug/kg	2.2	1.9 U	ug/kg	1.9
gamma-BHC (Lindane)	2 UJ	ug/kg	2	1.9 U	ug/kg	1.9	2.2 UJ	ug/kg	2.2	1.9 U	ug/kg	1.9
Heptachlor	2 UJ	ug/kg	2	1.9 U	ug/kg	1.9	2.2 UJ	ug/kg	2.2	1.9 U	ug/kg	1.9
Aldrin	2 UJ	ug/kg	2	1.9 U	ug/kg	1.9	2.2 UJ	ug/kg	2.2	1.9 U	ug/kg	1.9
Heptachlor epoxide	2 UJ	ug/kg	2	1.9 U	ug/kg	1.9	2.2 UJ	ug/kg	2.2	1.9 U	ug/kg	1.9
Endosulfan I	2 UJ	ug/kg	2	1.9 U	ug/kg	1.9	2.2 UJ	ug/kg	2.2	1.9 U	ug/kg	1.9
Dieldrin	3.8 UJ	ug/kg	3.8	3.7 U	ug/kg	3.7	2.5 J	ug/kg	4	3.7 U	ug/kg	3.7
4,4-DDE	2 J	ug/kg	4	3.7 U	ug/kg	3.7	4.2 UJ	ug/kg	4.2	3.7 U	ug/kg	3.7
Endrin	3.8 UJ	ug/kg	3.8	3.7 U	ug/kg	3.7	4.2 UJ	ug/kg	4.2	3.7 U	ug/kg	3.7
Endosulfan II	3.8 UJ	ug/kg	3.8	3.7 U	ug/kg	3.7	4.2 UJ	ug/kg	4.2	3.7 U	ug/kg	3.7
4,4-DDD	3.8 UJ	ug/kg	3.8	3.7 U	ug/kg	3.7	4.2 UJ	ug/kg	4.2	3.7 U	ug/kg	3.7
Endosulfan sulfate	3.8 UJ	ug/kg	3.8	3.7 UJ	ug/kg	3.7	4.2 UJ	ug/kg	4.2	3.7 UJ	ug/kg	3.7
4,4-DDT	2.7 J	ug/kg	4	3.7 U	ug/kg	3.7	4.2 UJ	ug/kg	4.2	3.7 U	ug/kg	3.7
Methoxychlor	20 UJ	ug/kg	20	19 U	ug/kg	19	22 UJ	ug/kg	22	19 U	ug/kg	19
Endrin ketone	3.8 UJ	ug/kg	3.8	3.7 U	ug/kg	3.7	4.2 UJ	ug/kg	4.2	3.7 U	ug/kg	3.7
Endrin aldehyde	3.8 UJ	ug/kg	3.8	3.7 U	ug/kg	3.7	4.2 UJ	ug/kg	4.2	3.7 U	ug/kg	3.7
alpha-Chlordane	2 UJ	ug/kg	2	1.9 U	ug/kg	1.9	2.2 UJ	ug/kg	2.2	1.9 U	ug/kg	1.9
gamma-Chlordane	2 UJ	ug/kg	2	1.9 U	ug/kg	1.9	2.2 UJ	ug/kg	2.2	1.9 U	ug/kg	1.9
Toxaphene	200 UJ	ug/kg	200	190 U	ug/kg	190	220 UJ	ug/kg	220	190 U	ug/kg	190
Aroclor-1016	38 UJ	ug/kg	38	37 U	ug/kg	37	42 UJ	ug/kg	42	37 U	ug/kg	37
Aroclor-1221	78 UJ	ug/kg	78	74 U	ug/kg	74	86 UJ	ug/kg	86	74 U	ug/kg	74
Aroclor-1232	38 UJ	ug/kg	38	37 U	ug/kg	37	42 UJ	ug/kg	42	37 U	ug/kg	37
Aroclor-1242	38 UJ	ug/kg	38	37 U	ug/kg	37	42 UJ	ug/kg	42	37 U	ug/kg	37
Aroclor-1248	38 UJ	ug/kg	38	37 U	ug/kg	37	42 UJ	ug/kg	42	37 U	ug/kg	37
Aroclor-1254	38 UJ	ug/kg	38	37 U	ug/kg	37	36 J	ug/kg	42	37 U	ug/kg	37
Aroclor-1260	38 UJ	ug/kg	38	37 U	ug/kg	37	42 UJ	ug/kg	42	37 U	ug/kg	37

CLP METALS AND CYANIDE

mg/kg

Aluminum	-	mg/kg		6570 J	mg/kg	40	10600 J	mg/kg	40	11100 J	mg/kg	40
Antimony	-	mg/kg		12 UJ	mg/kg	12	12 UJ	mg/kg	12	12 UJ	mg/kg	12
Arsenic	-	mg/kg		1.6 J	mg/kg	2	2.5 J	mg/kg	2	1.5 J	mg/kg	2
Barium	-	mg/kg		11.2 J	mg/kg	40	42.8 J	mg/kg	40	13.1 J	mg/kg	40
Beryllium	-	mg/kg		1 U	mg/kg	1	.11 J	mg/kg	1	.09 J	mg/kg	1
Cadmium	-	mg/kg		.36 J	mg/kg	1	.43 J	mg/kg	1	.25 J	mg/kg	1
Calcium	-	mg/kg		260 J	mg/kg	1000	907 J	mg/kg	1000	80.8 J	mg/kg	1000
Chromium	-	mg/kg		4.5	mg/kg	2	11.2	mg/kg	2	10.3	mg/kg	2
Cobalt	-	mg/kg		10 U	mg/kg	10	1.4 J	mg/kg	10	10 U	mg/kg	10
Copper	-	mg/kg		3.8 J	mg/kg	5	13.2	mg/kg	5	4.4 J	mg/kg	5
Iron	-	mg/kg		4090 J	mg/kg	20	5450 J	mg/kg	20	5160 J	mg/kg	20
Lead	-	mg/kg		6.5 J	mg/kg	.6	74.3 J	mg/kg	.6	4.4 J	mg/kg	.6
Magnesium	-	mg/kg		91.3 J	mg/kg	1000	264 J	mg/kg	1000	127 J	mg/kg	1000

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

RA856018
WHITING
16S00101D
09-JAN-96

RA856006
WHITING
16S00201
09-JAN-96

RA856007
WHITING
16S00301
09-JAN-96

RA856003
WHITING
16S00401
08-JAN-96

	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Manganese	-	mg/kg		97.2	mg/kg	3	123	mg/kg	3	95.8	mg/kg	3
Mercury	-	mg/kg		.1 U	mg/kg	.1	.1 U	mg/kg	.1	.1 U	mg/kg	.1
Nickel	-	mg/kg		8 U	mg/kg	8	2.7 J	mg/kg	8	2.3 J	mg/kg	8
Potassium	-	mg/kg		1000 UJ	mg/kg	1000	1000 UJ	mg/kg	1000	1000 UJ	mg/kg	1000
Selenium	-	mg/kg		1 U	mg/kg	1	1 U	mg/kg	1	.15 J	mg/kg	1
Silver	-	mg/kg		2 U	mg/kg	2	2 U	mg/kg	2	2 U	mg/kg	2
Sodium	-	mg/kg		120 J	mg/kg	1000	157 J	mg/kg	1000	1000 UJ	mg/kg	1000
Thallium	-	mg/kg		2 U	mg/kg	2	.18 J	mg/kg	2	.13 J	mg/kg	2
Vanadium	-	mg/kg		10.2 J	mg/kg	10	19.4	mg/kg	10	17.5	mg/kg	10
Zinc	-	mg/kg		8	mg/kg	4	59.2	mg/kg	4	6.3	mg/kg	4
Cyanide	-	mg/kg		.5 U	mg/kg	.5	.13 J	mg/kg	.5	.5 U	mg/kg	.5
Total organic carbon	-	mg/kg		-	mg/kg		-	mg/kg		-	mg/kg	
Total petroleum hydrocarbons	-	mg/kg		-	mg/kg		-	mg/kg		-	mg/kg	

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	RA856002			RA856009			RA856009DL			RA870004		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	16S00501			16S00601			16S00601DL			16S00701		
Collect Date:	08-JAN-96			09-JAN-96			09-JAN-96			10-JAN-96		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL

CLP VOLATILES 90-SOW

ug/kg

Chloromethane	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Bromomethane	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Vinyl chloride	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Chloroethane	11 UJ	ug/kg	11	12 UJ	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Methylene chloride	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 UJ	ug/kg	12
Acetone	11 UJ	ug/kg	11	12 UJ	ug/kg	12	-	ug/kg	12 UJ	ug/kg	12
Carbon disulfide	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 UJ	ug/kg	12
1,1-Dichloroethene	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 UJ	ug/kg	12
1,1-Dichloroethane	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
1,2-Dichloroethene (total)	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Chloroform	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
1,2-Dichloroethane	11 UJ	ug/kg	11	12 UJ	ug/kg	12	-	ug/kg	12 U	ug/kg	12
2-Butanone	11 UJ	ug/kg	11	12 UJ	ug/kg	12	-	ug/kg	12 UJ	ug/kg	12
1,1,1-Trichloroethane	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Carbon tetrachloride	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Bromodichloromethane	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
1,2-Dichloropropane	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
cis-1,3-Dichloropropene	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Trichloroethene	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Dibromochloromethane	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
1,1,2-Trichloroethane	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Benzene	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
trans-1,3-Dichloropropene	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Bromoform	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
4-Methyl-2-pentanone	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 UJ	ug/kg	12
2-Hexanone	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 UJ	ug/kg	12
Tetrachloroethene	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Toluene	1 J	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
1,1,2,2-Tetrachloroethane	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Chlorobenzene	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Ethylbenzene	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Styrene	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12
Xylenes (total)	11 U	ug/kg	11	12 U	ug/kg	12	-	ug/kg	12 U	ug/kg	12

CLP SEMIVOLATILES 90-SOW

ug/kg

Phenol	360 U	ug/kg	360	420 U	ug/kg	420	840 R	ug/kg	840	400 U	ug/kg	400
bis(2-Chloroethyl) ether	360 U	ug/kg	360	420 U	ug/kg	420	840 R	ug/kg	840	400 U	ug/kg	400
2-Chlorophenol	360 U	ug/kg	360	420 U	ug/kg	420	840 R	ug/kg	840	400 U	ug/kg	400
1,3-Dichlorobenzene	360 U	ug/kg	360	420 U	ug/kg	420	840 R	ug/kg	840	400 U	ug/kg	400
1,4-Dichlorobenzene	360 U	ug/kg	360	420 U	ug/kg	420	840 R	ug/kg	840	400 U	ug/kg	400

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	R856002			R856009			R856009DL			R870004						
Site	WHITING			WHITING			WHITING			WHITING						
Locator	16S00501			16S00601			16S00601DL			16S00701						
Collect Date:	08-JAN-96			09-JAN-96			09-JAN-96			10-JAN-96						
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL				
1,2-Dichlorobenzene	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
2-Methylphenol	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
2,2-oxybis(1-Chloropropane)	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
4-Methylphenol	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
N-Nitroso-di-n-propylamine	360	U	ug/kg	360	420	UJ	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Hexachloroethane	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Nitrobenzene	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Isophorone	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
2-Nitrophenol	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
2,4-Dimethylphenol	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
bis(2-Chloroethoxy) methane	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
2,4-Dichlorophenol	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
1,2,4-Trichlorobenzene	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Naphthalene	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
4-Chloroaniline	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Hexachlorobutadiene	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
4-Chloro-3-methylphenol	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
2-Methylnaphthalene	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Hexachlorocyclopentadiene	360	U	ug/kg	360	420	UJ	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
2,4,6-Trichlorophenol	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
2,4,5-Trichlorophenol	900	U	ug/kg	900	1100	U	ug/kg	1100	2100	R	ug/kg	2100	1000	U	ug/kg	1000
2-Chloronaphthalene	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
2-Nitroaniline	900	U	ug/kg	900	1100	U	ug/kg	1100	2100	R	ug/kg	2100	1000	U	ug/kg	1000
Dimethylphthalate	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Acenaphthylene	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
2,6-Dinitrotoluene	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
3-Nitroaniline	900	U	ug/kg	900	1100	U	ug/kg	1100	2100	R	ug/kg	2100	1000	U	ug/kg	1000
Acenaphthene	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
2,4-Dinitrophenol	900	U	ug/kg	900	1100	U	ug/kg	1100	2100	R	ug/kg	2100	1000	U	ug/kg	1000
4-Nitrophenol	900	U	ug/kg	900	1100	U	ug/kg	1100	2100	R	ug/kg	2100	1000	U	ug/kg	1000
Dibenzofuran	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
2,4-Dinitrotoluene	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Diethylphthalate	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
4-Chlorophenyl-phenylether	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Fluorene	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
4-Nitroaniline	900	U	ug/kg	900	1100	U	ug/kg	1100	2100	R	ug/kg	2100	1000	U	ug/kg	1000
4,6-Dinitro-2-methylphenol	900	U	ug/kg	900	1100	U	ug/kg	1100	2100	R	ug/kg	2100	1000	U	ug/kg	1000
N-Nitrosodiphenylamine	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
4-Bromophenyl-phenylether	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Hexachlorobenzene	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Pentachlorophenol	900	U	ug/kg	900	1100	U	ug/kg	1100	2100	R	ug/kg	2100	1000	U	ug/kg	1000
Phenanthrene	360	U	ug/kg	360	440		ug/kg	420	320	R	ug/kg	840	52	J	ug/kg	400
Anthracene	360	U	ug/kg	360	95	J	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Carbazole	360	U	ug/kg	360	97	J	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Di-n-butylphthalate	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Fluoranthene	360	U	ug/kg	360	2300		ug/kg	420	2900	R	ug/kg	840	260	J	ug/kg	400
Pyrene	360	U	ug/kg	360	1700		ug/kg	420	2500	R	ug/kg	840	170	J	ug/kg	400
Butylbenzylphthalate	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
3,3-Dichlorobenzidine	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	U	ug/kg	400
Benzo (a) anthracene	360	U	ug/kg	360	2300		ug/kg	420	2700	R	ug/kg	840	250	J	ug/kg	400
Chrysene	360	U	ug/kg	360	3200		ug/kg	420	3200	R	ug/kg	840	270	J	ug/kg	400
bis(2-Ethylhexyl) phthalate	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	110	J	ug/kg	400

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number: Site Locator Collect Date:	RA856002 WHITING 16S00501 08-JAN-96			RA856009 WHITING 16S00601 09-JAN-96			RA856009DL WHITING 16S00601DL 09-JAN-96			RA870004 WHITING 16S00701 10-JAN-96						
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL				
Di-n-octylphthalate	360	U	ug/kg	360	420	U	ug/kg	420	840	R	ug/kg	840	400	J	ug/kg	400
Benzo (b) fluoranthene	360	U	ug/kg	360	4000	R	ug/kg	420	3600		ug/kg	840	350	J	ug/kg	400
Benzo (k) fluoranthene	360	U	ug/kg	360	3200		ug/kg	420	2600	R	ug/kg	840	340	J	ug/kg	400
Benzo (a) pyrene	360	U	ug/kg	360	3400	R	ug/kg	420	3100		ug/kg	840	310	J	ug/kg	400
Indeno (1,2,3-cd) pyrene	360	U	ug/kg	360	1900		ug/kg	420	2200	R	ug/kg	840	240	J	ug/kg	400
Dibenzo (a,h) anthracene	360	U	ug/kg	360	700		ug/kg	420	540	R	ug/kg	840	110	J	ug/kg	400
Benzo (g,h,i) perylene	360	UJ	ug/kg	360	1200		ug/kg	420	1700	R	ug/kg	840	120	J	ug/kg	400
CLP PESTICIDES/PCBS 90-SOW ug/kg																
alpha-BHC	1.8	U	ug/kg	1.8	11	U	ug/kg	11	-		ug/kg		10	U	ug/kg	10
beta-BHC	1.8	U	ug/kg	1.8	11	U	ug/kg	11	-		ug/kg		10	U	ug/kg	10
delta-BHC	1.8	U	ug/kg	1.8	11	U	ug/kg	11	-		ug/kg		10	U	ug/kg	10
gamma-BHC (Lindane)	1.8	U	ug/kg	1.8	11	U	ug/kg	11	-		ug/kg		10	U	ug/kg	10
Heptachlor	1.8	U	ug/kg	1.8	11	U	ug/kg	11	-		ug/kg		10	U	ug/kg	10
Aldrin	1.8	U	ug/kg	1.8	11	U	ug/kg	11	-		ug/kg		10	U	ug/kg	10
Heptachlor epoxide	1.8	U	ug/kg	1.8	11	U	ug/kg	11	-		ug/kg		10	U	ug/kg	10
Endosulfan I	1.8	U	ug/kg	1.8	11	U	ug/kg	11	-		ug/kg		10	U	ug/kg	10
Dieldrin	3.6	U	ug/kg	3.6	130		ug/kg	21	-		ug/kg		20	U	ug/kg	20
4,4-DDE	3.6	U	ug/kg	3.6	100		ug/kg	21	-		ug/kg		53		ug/kg	20
Endrin	3.6	U	ug/kg	3.6	21	U	ug/kg	21	-		ug/kg		20	U	ug/kg	20
Endosulfan II	3.6	U	ug/kg	3.6	21	U	ug/kg	21	-		ug/kg		20	U	ug/kg	20
4,4-DDD	3.6	U	ug/kg	3.6	21	U	ug/kg	21	-		ug/kg		18	J	ug/kg	20
Endosulfan sulfate	3.6	UJ	ug/kg	3.6	21	UJ	ug/kg	21	-		ug/kg		20	UJ	ug/kg	20
4,4-DDT	3.6	U	ug/kg	3.6	89		ug/kg	21	-		ug/kg		22		ug/kg	20
Methoxychlor	18	U	ug/kg	18	110	U	ug/kg	110	-		ug/kg		100	U	ug/kg	100
Endrin ketone	3.6	U	ug/kg	3.6	21	U	ug/kg	21	-		ug/kg		20	U	ug/kg	20
Endrin aldehyde	3.6	U	ug/kg	3.6	21	U	ug/kg	21	-		ug/kg		20	U	ug/kg	20
alpha-Chlordane	1.8	U	ug/kg	1.8	11	U	ug/kg	11	-		ug/kg		10	U	ug/kg	10
gamma-Chlordane	1.8	U	ug/kg	1.8	11	U	ug/kg	11	-		ug/kg		10	U	ug/kg	10
Toxaphene	180	U	ug/kg	180	1100	U	ug/kg	1100	-		ug/kg		1000	U	ug/kg	1000
Aroclor-1016	36	U	ug/kg	36	210	U	ug/kg	210	-		ug/kg		200	U	ug/kg	200
Aroclor-1221	73	U	ug/kg	73	420	U	ug/kg	420	-		ug/kg		410	U	ug/kg	410
Aroclor-1232	36	U	ug/kg	36	210	U	ug/kg	210	-		ug/kg		200	U	ug/kg	200
Aroclor-1242	36	U	ug/kg	36	210	U	ug/kg	210	-		ug/kg		200	U	ug/kg	200
Aroclor-1248	36	U	ug/kg	36	210	U	ug/kg	210	-		ug/kg		200	U	ug/kg	200
Aroclor-1254	36	U	ug/kg	36	210	U	ug/kg	210	-		ug/kg		200	U	ug/kg	200
Aroclor-1260	36	U	ug/kg	36	210	U	ug/kg	210	-		ug/kg		200	U	ug/kg	200
CLP METALS AND CYANIDE mg/kg																
Aluminum	5610	J	mg/kg	40	7890	J	mg/kg	40	-		mg/kg		8820	J	mg/kg	40
Antimony	12	UJ	mg/kg	12	12	UJ	mg/kg	12	-		mg/kg		5.9	J	mg/kg	12
Arsenic	1.3	J	mg/kg	2	2.2	J	mg/kg	2	-		mg/kg		5.6		mg/kg	2
Barium	6.1	J	mg/kg	40	53.6		mg/kg	40	-		mg/kg		257		mg/kg	40
Beryllium	.06	J	mg/kg	1	.08	J	mg/kg	1	-		mg/kg		1	U	mg/kg	1
Cadmium	1	U	mg/kg	1	2.2		mg/kg	1	-		mg/kg		7.6		mg/kg	1
Calcium	70.8	J	mg/kg	1000	796	J	mg/kg	1000	-		mg/kg		2350		mg/kg	1000
Chromium	4		mg/kg	2	11.5		mg/kg	2	-		mg/kg		29.2		mg/kg	2
Cobalt	.69	J	mg/kg	10	1.5	J	mg/kg	10	-		mg/kg		4.1	J	mg/kg	10
Copper	5	UJ	mg/kg	5	71.7		mg/kg	5	-		mg/kg		202		mg/kg	5
Iron	3220	J	mg/kg	20	10300	J	mg/kg	20	-		mg/kg		30300		mg/kg	20
Lead	5.2	J	mg/kg	.6	236	J	mg/kg	.6	-		mg/kg		759		mg/kg	.6
Magnesium	82.7	J	mg/kg	1000	154	J	mg/kg	1000	-		mg/kg		443	J	mg/kg	1000

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

	Lab Sample Number: RA856002			RA856009			RA856009DL			RA870004		
	Site	WHITING		WHITING			WHITING			WHITING		
	Locator	16S00501		16S00601			16S00601DL			16S00701		
	Collect Date:	08-JAN-96		09-JAN-96			09-JAN-96			10-JAN-96		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Manganese	112	mg/kg	3	132	mg/kg	3	-	mg/kg		275	mg/kg	3
Mercury	.1 U	mg/kg	.1	.09	mg/kg	.1	-	mg/kg		.65 J	mg/kg	.1
Nickel	8 U	mg/kg	8	4 J	mg/kg	8	-	mg/kg		17.7	mg/kg	8
Potassium	1000 U	mg/kg	1000	1000 UJ	mg/kg	1000	-	mg/kg		180 J	mg/kg	1000
Selenium	.15 J	mg/kg	1	1 U	mg/kg	1	-	mg/kg		1 U	mg/kg	1
Silver	2 U	mg/kg	2	1.2 J	mg/kg	2	-	mg/kg		7.1	mg/kg	2
Sodium	1000 UJ	mg/kg	1000	137 J	mg/kg	1000	-	mg/kg		361 J	mg/kg	1000
Thallium	2 U	mg/kg	2	2 U	mg/kg	2	-	mg/kg		2 U	mg/kg	2
Vanadium	7.3 J	mg/kg	10	14.9	mg/kg	10	-	mg/kg		14.4	mg/kg	10
Zinc	4.8	mg/kg	4	155	mg/kg	4	-	mg/kg		773	mg/kg	4
Cyanide	.14 J	mg/kg	.5	.2 J	mg/kg	.5	-	mg/kg		.5 UJ	mg/kg	.5
Total organic carbon	-	mg/kg		-	mg/kg		-	mg/kg		-	mg/kg	
Total petroleum hydrocarbons	-	mg/kg		-	mg/kg		-	mg/kg		-	mg/kg	

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	RA856008			RA856008RE			RA856004			RA856004R		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	16S00801			16S00801RE			16S00901			16S00901R		
Collect Date:	09-JAN-96			09-JAN-96			08-JAN-96			08-JAN-96		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL

CLP VOLATILES 90-SOW																
	ug/kg															
Chloromethane	12	U	ug/kg	12	-	ug/kg	11	UJ	ug/kg	11	-	ug/kg				
Bromomethane	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Vinyl chloride	12	U	ug/kg	12	-	ug/kg	11	UJ	ug/kg	11	-	ug/kg				
Chloroethane	12	UJ	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Methylene chloride	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Acetone	12	UJ	ug/kg	12	-	ug/kg	11	UJ	ug/kg	11	-	ug/kg				
Carbon disulfide	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
1,1-Dichloroethene	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
1,1-Dichloroethane	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
1,2-Dichloroethene (total)	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Chloroform	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
1,2-Dichloroethane	12	UJ	ug/kg	12	-	ug/kg	11	UJ	ug/kg	11	-	ug/kg				
2-Butanone	12	UJ	ug/kg	12	-	ug/kg	11	UJ	ug/kg	11	-	ug/kg				
1,1,1-Trichloroethane	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Carbon tetrachloride	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Bromodichloromethane	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
1,2-Dichloropropane	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
cis-1,3-Dichloropropene	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Trichloroethene	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Dibromochloromethane	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
1,1,2-Trichloroethane	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Benzene	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
trans-1,3-Dichloropropene	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Bromoform	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
4-Methyl-2-pentanone	12	U	ug/kg	12	-	ug/kg	11	UJ	ug/kg	11	-	ug/kg				
2-Hexanone	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Tetrachloroethene	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Toluene	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
1,1,2,2-Tetrachloroethane	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Chlorobenzene	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Ethylbenzene	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Styrene	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
Xylenes (total)	12	U	ug/kg	12	-	ug/kg	11	U	ug/kg	11	-	ug/kg				
CLP SEMIVOLATILES 90-SOW																
	ug/kg															
Phenol	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
bis(2-Chloroethyl) ether	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
2-Chlorophenol	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
1,3-Dichlorobenzene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
1,4-Dichlorobenzene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	RA856008	RA856008RE	RA856004	RA856004R
Site	WHITING	WHITING	WHITING	WHITING
Locator	16S00801	16S00801RE	16S00901	16S00901R
Collect Date:	09-JAN-96	09-JAN-96	08-JAN-96	08-JAN-96

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
2-Methylphenol	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
2,2-oxybis(1-Chloropropane)	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
4-Methylphenol	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
N-Nitroso-di-n-propylamine	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Hexachloroethane	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Nitrobenzene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Isophorone	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
2-Nitrophenol	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
2,4-Dimethylphenol	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
bis(2-Chloroethoxy) methane	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
2,4-Dichlorophenol	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
1,2,4-Trichlorobenzene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Naphthalene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
4-Chloroaniline	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Hexachlorobutadiene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
4-Chloro-3-methylphenol	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
2-Methylnaphthalene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Hexachlorocyclopentadiene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
2,4,6-Trichlorophenol	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
2,4,5-Trichlorophenol	1000	R	ug/kg	980	1000	UJ	ug/kg	1000	950	R	ug/kg	950	950	U	ug/kg	950
2-Chloronaphthalene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
2-Nitroaniline	1000	R	ug/kg	980	1000	UJ	ug/kg	1000	950	R	ug/kg	950	950	U	ug/kg	950
Dimethylphthalate	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Acenaphthylene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
2,6-Dinitrotoluene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
3-Nitroaniline	1000	R	ug/kg	980	1000	UJ	ug/kg	1000	950	R	ug/kg	950	950	U	ug/kg	950
Acenaphthene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
2,4-Dinitrophenol	1000	R	ug/kg	980	1000	UJ	ug/kg	1000	950	R	ug/kg	950	950	U	ug/kg	950
4-Nitrophenol	1000	R	ug/kg	980	1000	UJ	ug/kg	1000	950	R	ug/kg	950	950	U	ug/kg	950
Dibenzofuran	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
2,4-Dinitrotoluene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Diethylphthalate	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
4-Chlorophenyl-phenylether	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Fluorene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
4-Nitroaniline	1000	R	ug/kg	980	1000	UJ	ug/kg	1000	950	R	ug/kg	950	950	U	ug/kg	950
4,6-Dinitro-2-methylphenol	1000	R	ug/kg	980	1000	UJ	ug/kg	1000	950	R	ug/kg	950	950	U	ug/kg	950
N-Nitrosodiphenylamine	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
4-Bromophenyl-phenylether	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Hexachlorobenzene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Pentachlorophenol	1000	R	ug/kg	980	1000	UJ	ug/kg	1000	950	R	ug/kg	950	950	U	ug/kg	950
Phenanthrene	400	R	ug/kg	400	400	UJ	ug/kg	400	44	R	ug/kg	380	380	U	ug/kg	380
Anthracene	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Carbazole	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Di-n-butylphthalate	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Fluoranthene	400	R	ug/kg	400	400	UJ	ug/kg	400	110	R	ug/kg	380	86	ug/kg	380	380
Pyrene	400	R	ug/kg	400	400	UJ	ug/kg	400	220	R	ug/kg	380	150	ug/kg	380	380
Butylbenzylphthalate	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
3,3-Dichlorobenzidine	400	R	ug/kg	400	400	UJ	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380
Benzo (a) anthracene	400	R	ug/kg	400	400	UJ	ug/kg	400	70	R	ug/kg	380	67	J	ug/kg	380
Chrysene	400	R	ug/kg	400	400	UJ	ug/kg	400	120	R	ug/kg	380	120	J	ug/kg	380
bis(2-Ethylhexyl) phthalate	400	R	ug/kg	400	50	J	ug/kg	400	380	R	ug/kg	380	380	U	ug/kg	380

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	RA856008	RA856008RE	RA856004	RA856004R								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	16S00801	16S00801RE	16S00901	16S00901R								
Collect Date:	09-JAN-96	09-JAN-96	08-JAN-96	08-JAN-96								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Di-n-octylphthalate	400 R	ug/kg	400	400 UJ	ug/kg	400	380 R	ug/kg	380	380 U	ug/kg	380
Benzo (b) fluoranthene	400 R	ug/kg	400	400 UJ	ug/kg	400	290 R	ug/kg	380	300 J	ug/kg	380
Benzo (k) fluoranthene	400 R	ug/kg	400	400 UJ	ug/kg	400	210 R	ug/kg	380	380 U	ug/kg	380
Benzo (a) pyrene	400 R	ug/kg	400	400 UJ	ug/kg	400	140 R	ug/kg	380	130 J	ug/kg	380
Indeno (1,2,3-cd) pyrene	400 R	ug/kg	400	400 UJ	ug/kg	400	69 R	ug/kg	380	90 J	ug/kg	380
Dibenzo (a,h) anthracene	400 R	ug/kg	400	400 UJ	ug/kg	400	380 R	ug/kg	380	380 UJ	ug/kg	380
Dibenzo (g,h,i) perylene	400 R	ug/kg	400	400 UJ	ug/kg	400	48 R	ug/kg	380	380 UJ	ug/kg	380
CLP PESTICIDES/PCBS 90-SOW ug/kg												
alpha-BHC	2.1 U	ug/kg	2.1	-	ug/kg		3.7 U	ug/kg	3.7	-	ug/kg	
beta-BHC	2.1 U	ug/kg	2.1	-	ug/kg		3.7 U	ug/kg	3.7	-	ug/kg	
delta-BHC	2.1 U	ug/kg	2.1	-	ug/kg		3.7 U	ug/kg	3.7	-	ug/kg	
gamma-BHC (Lindane)	2.1 U	ug/kg	2.1	-	ug/kg		3.7 U	ug/kg	3.7	-	ug/kg	
Heptachlor	2.1 U	ug/kg	2.1	-	ug/kg		3.7 U	ug/kg	3.7	-	ug/kg	
Aldrin	2.1 U	ug/kg	2.1	-	ug/kg		3.7 U	ug/kg	3.7	-	ug/kg	
Heptachlor epoxide	2.1 U	ug/kg	2.1	-	ug/kg		3.7 U	ug/kg	3.7	-	ug/kg	
Endosulfan I	2.1 U	ug/kg	2.1	-	ug/kg		3.7 U	ug/kg	3.7	-	ug/kg	
Dieldrin	9.2	ug/kg	4	-	ug/kg		17	ug/kg	7	-	ug/kg	
4,4-DDE	4 U	ug/kg	4	-	ug/kg		11	ug/kg	7	-	ug/kg	
Endrin	4 U	ug/kg	4	-	ug/kg		7.2 U	ug/kg	7.2	-	ug/kg	
Endosulfan II	4 U	ug/kg	4	-	ug/kg		7.2 U	ug/kg	7.2	-	ug/kg	
4,4-DDD	4 U	ug/kg	4	-	ug/kg		7.2 U	ug/kg	7.2	-	ug/kg	
Endosulfan sulfate	4 UJ	ug/kg	4	-	ug/kg		7.2 UJ	ug/kg	7.2	-	ug/kg	
4,4-DDT	4 U	ug/kg	4	-	ug/kg		16	ug/kg	7	-	ug/kg	
Methoxychlor	21 U	ug/kg	21	-	ug/kg		37 U	ug/kg	37	-	ug/kg	
Endrin ketone	4 U	ug/kg	4	-	ug/kg		7.2 U	ug/kg	7.2	-	ug/kg	
Endrin aldehyde	4 U	ug/kg	4	-	ug/kg		7.2 U	ug/kg	7.2	-	ug/kg	
alpha-Chlordane	2.1 U	ug/kg	2.1	-	ug/kg		2.6 J	ug/kg	4	-	ug/kg	
gamma-Chlordane	2.1 U	ug/kg	2.1	-	ug/kg		2.2 J	ug/kg	4	-	ug/kg	
Toxaphene	210 U	ug/kg	210	-	ug/kg		370 U	ug/kg	370	-	ug/kg	
Aroclor-1016	40 U	ug/kg	40	-	ug/kg		72 U	ug/kg	72	-	ug/kg	
Aroclor-1221	82 U	ug/kg	82	-	ug/kg		150 U	ug/kg	150	-	ug/kg	
Aroclor-1232	40 U	ug/kg	40	-	ug/kg		72 U	ug/kg	72	-	ug/kg	
Aroclor-1242	40 U	ug/kg	40	-	ug/kg		72 U	ug/kg	72	-	ug/kg	
Aroclor-1248	40 U	ug/kg	40	-	ug/kg		72 U	ug/kg	72	-	ug/kg	
Aroclor-1254	130	ug/kg	40	-	ug/kg		72 U	ug/kg	72	-	ug/kg	
Aroclor-1260	40 U	ug/kg	40	-	ug/kg		72 U	ug/kg	72	-	ug/kg	
CLP METALS AND CYANIDE mg/kg												
Aluminum	9300 J	mg/kg	40	-	mg/kg		8050 J	mg/kg	40	-	mg/kg	
Antimony	12 UJ	mg/kg	12	-	mg/kg		12 UJ	mg/kg	12	-	mg/kg	
Arsenic	3.4	mg/kg	2	-	mg/kg		2.8	mg/kg	2	-	mg/kg	
Barium	13.3 J	mg/kg	40	-	mg/kg		55.7	mg/kg	40	-	mg/kg	
Beryllium	.11 J	mg/kg	1	-	mg/kg		.11 J	mg/kg	1	-	mg/kg	
Cadmium	.36 J	mg/kg	1	-	mg/kg		.67 J	mg/kg	1	-	mg/kg	
Calcium	302 J	mg/kg	1000	-	mg/kg		1080 J	mg/kg	1000	-	mg/kg	
Chromium	11	mg/kg	2	-	mg/kg		11.3	mg/kg	2	-	mg/kg	
Cobalt	10 U	mg/kg	10	-	mg/kg		10 U	mg/kg	10	-	mg/kg	
Copper	5.2 J	mg/kg	5	-	mg/kg		20	mg/kg	5	-	mg/kg	
Iron	6380 J	mg/kg	20	-	mg/kg		5370 J	mg/kg	20	-	mg/kg	
Lead	19.8 J	mg/kg	.6	-	mg/kg		173 J	mg/kg	.6	-	mg/kg	
Magnesium	54.6 J	mg/kg	1000	-	mg/kg		298 J	mg/kg	1000	-	mg/kg	

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

	Lab Sample Number: RA856008			RA856008RE			RA856004			RA856004R		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Manganese	21.5	mg/kg	3	-	mg/kg		120	mg/kg	3	-	mg/kg	
Mercury	.1 U	mg/kg	.1	-	mg/kg		.1 U	mg/kg	.1	-	mg/kg	
Nickel	8 U	mg/kg	8	-	mg/kg		5.1 J	mg/kg	8	-	mg/kg	
Potassium	1000 UJ	mg/kg	1000	-	mg/kg		1000 UJ	mg/kg	1000	-	mg/kg	
Selenium	1 U	mg/kg	1	-	mg/kg		1 U	mg/kg	1	-	mg/kg	
Silver	2 U	mg/kg	2	-	mg/kg		2 U	mg/kg	2	-	mg/kg	
Sodium	149 J	mg/kg	1000	-	mg/kg		124 J	mg/kg	1000	-	mg/kg	
Thallium	2 U	mg/kg	2	-	mg/kg		2 U	mg/kg	2	-	mg/kg	
Vanadium	28.2	mg/kg	10	-	mg/kg		21.8	mg/kg	10	-	mg/kg	
Zinc	13.1	mg/kg	4	-	mg/kg		161	mg/kg	4	-	mg/kg	
Cyanide	.5 U	mg/kg	.5	-	mg/kg		.18 J	mg/kg	.5	-	mg/kg	
Total organic carbon	-	mg/kg		-	mg/kg		-	mg/kg		-	mg/kg	
Total petroleum hydrocarbons	-	mg/kg		-	mg/kg		-	mg/kg		-	mg/kg	

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	RA856014			RA856015			RA870005			RA856010		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	16S01001			16S01001D			16S01101			16S01201		
Collect Date:	09-JAN-96			09-JAN-96			10-JAN-96			09-JAN-96		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL

	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
CLP VOLATILES 90-SOW			ug/kg									
Chloromethane	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Bromomethane	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Vinyl chloride	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Chloroethane	11	U	ug/kg	11	11	UJ	ug/kg	11	12	U	ug/kg	12
Methylene chloride	11	U	ug/kg	11	11	U	ug/kg	11	12	UJ	ug/kg	12
Acetone	14	U	ug/kg	14	11	UJ	ug/kg	11	12	UJ	ug/kg	12
Carbon disulfide	11	UJ	ug/kg	11	11	U	ug/kg	11	12	UJ	ug/kg	12
1,1-Dichloroethene	11	UJ	ug/kg	11	11	U	ug/kg	11	12	UJ	ug/kg	12
1,1-Dichloroethane	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
1,2-Dichloroethene (total)	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Chloroform	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
1,2-Dichloroethane	11	U	ug/kg	11	11	UJ	ug/kg	11	12	U	ug/kg	12
2-Butanone	11	U	ug/kg	11	11	UJ	ug/kg	11	12	UJ	ug/kg	12
1,1,1-Trichloroethane	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Carbon tetrachloride	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Bromodichloromethane	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
1,2-Dichloropropane	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
cis-1,3-Dichloropropene	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Trichloroethene	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Dibromochloromethane	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
1,1,2-Trichloroethane	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Benzene	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
trans-1,3-Dichloropropene	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Bromoform	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
4-Methyl-2-pentanone	11	U	ug/kg	11	11	U	ug/kg	11	12	UJ	ug/kg	12
2-Hexanone	11	U	ug/kg	11	11	U	ug/kg	11	12	UJ	ug/kg	12
Tetrachloroethene	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Toluene	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
1,1,2,2-Tetrachloroethane	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Chlorobenzene	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Ethylbenzene	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Styrene	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
Xylenes (total)	11	U	ug/kg	11	11	U	ug/kg	11	12	U	ug/kg	12
CLP SEMIVOLATILES 90-SOW			ug/kg									
Phenol	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380
bis(2-Chloroethyl) ether	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380
2-Chlorophenol	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380
1,3-Dichlorobenzene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380
1,4-Dichlorobenzene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380
									420	U	ug/kg	420
									420	U	ug/kg	420
									420	U	ug/kg	420
									420	U	ug/kg	420

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number: Site Locator Collect Date:	RA856014 WHITING 16S01001 09-JAN-96			RA856015 WHITING 16S01001D 09-JAN-96			RA870005 WHITING 16S01101 10-JAN-96			RA856010 WHITING 16S01201 09-JAN-96						
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL				
1,2-Dichlorobenzene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
2-Methylphenol	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
2,2-oxybis(1-Chloropropane)	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
4-Methylphenol	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
N-Nitroso-di-n-propylamine	350	UJ	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	UJ	ug/kg	420
Hexachloroethane	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Nitrobenzene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Isophorone	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
2-Nitrophenol	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
2,4-Dimethylphenol	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
bis(2-Chloroethoxy) methane	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
2,4-Dichlorophenol	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
1,2,4-Trichlorobenzene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Naphthalene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
4-Chloroaniline	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Hexachlorobutadiene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
4-Chloro-3-methylphenol	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
2-Methylnaphthalene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Hexachlorocyclopentadiene	350	UJ	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	UJ	ug/kg	420
2,4,6-Trichlorophenol	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
2,4,5-Trichlorophenol	870	U	ug/kg	870	880	U	ug/kg	880	970	U	ug/kg	970	1100	U	ug/kg	1100
2-Chloronaphthalene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
2-Nitroaniline	870	U	ug/kg	870	880	U	ug/kg	880	970	U	ug/kg	970	1100	U	ug/kg	1100
Dimethylphthalate	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Acenaphthylene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
2,6-Dinitrotoluene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
3-Nitroaniline	870	U	ug/kg	870	880	U	ug/kg	880	970	U	ug/kg	970	1100	U	ug/kg	1100
Acenaphthene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
2,4-Dinitrophenol	870	U	ug/kg	870	880	U	ug/kg	880	970	U	ug/kg	970	1100	U	ug/kg	1100
4-Nitrophenol	870	U	ug/kg	870	880	U	ug/kg	880	970	U	ug/kg	970	1100	U	ug/kg	1100
Dibenzofuran	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
2,4-Dinitrotoluene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Diethylphthalate	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
4-Chlorophenyl-phenylether	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Fluorene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
4-Nitroaniline	870	U	ug/kg	870	880	U	ug/kg	880	970	U	ug/kg	970	1100	U	ug/kg	1100
4,6-Dinitro-2-methylphenol	870	U	ug/kg	870	880	U	ug/kg	880	970	U	ug/kg	970	1100	U	ug/kg	1100
N-Nitrosodiphenylamine	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
4-Bromophenyl-phenylether	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Hexachlorobenzene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Pentachlorophenol	870	U	ug/kg	870	880	U	ug/kg	880	970	U	ug/kg	970	1100	U	ug/kg	1100
Phenanthrene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Anthracene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Carbazole	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Di-n-butylphthalate	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Fluoranthene	350	U	ug/kg	350	350	U	ug/kg	350	59	J	ug/kg	380	420	U	ug/kg	420
Pyrene	350	U	ug/kg	350	350	U	ug/kg	350	44	J	ug/kg	380	420	U	ug/kg	420
Butylbenzylphthalate	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
3,3-Dichlorobenzidine	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Benzo (a) anthracene	350	U	ug/kg	350	350	U	ug/kg	350	56	J	ug/kg	380	420	U	ug/kg	420
Chrysene	350	U	ug/kg	350	350	U	ug/kg	350	62	J	ug/kg	380	54	J	ug/kg	420
bis(2-Ethylhexyl) phthalate	350	U	ug/kg	350	58	J	ug/kg	350	78	J	ug/kg	380	420	U	ug/kg	420

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

RA856014
WHITING
16S01001
09-JAN-96

RA856015
WHITING
16S01001D
09-JAN-96

RA870005
WHITING
16S01101
10-JAN-96

RA856010
WHITING
16S01201
09-JAN-96

	VALUE	QUAL	UNITS	DL												
Di-n-octylphthalate	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Benzo (b) fluoranthene	350	U	ug/kg	350	350	U	ug/kg	350	86	J	ug/kg	380	420	U	ug/kg	420
Benzo (k) fluoranthene	350	U	ug/kg	350	350	UJ	ug/kg	350	73	J	ug/kg	380	420	U	ug/kg	420
Benzo (a) pyrene	350	U	ug/kg	350	350	U	ug/kg	350	71	J	ug/kg	380	120	J	ug/kg	420
Indeno (1,2,3-cd) pyrene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	62	J	ug/kg	420
Dibenzo (a,h) anthracene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	420	U	ug/kg	420
Benzo (g,h,i) perylene	350	U	ug/kg	350	350	U	ug/kg	350	380	U	ug/kg	380	490		ug/kg	420
CLP PESTICIDES/PCBS 90-SOW ug/kg																
alpha-BHC	1.8	UJ	ug/kg	1.8	3.6	U	ug/kg	3.6	2	U	ug/kg	2	2.2	UJ	ug/kg	2.2
beta-BHC	1.8	UJ	ug/kg	1.8	3.6	U	ug/kg	3.6	2	U	ug/kg	2	2.2	UJ	ug/kg	2.2
delta-BHC	1.8	UJ	ug/kg	1.8	3.6	U	ug/kg	3.6	2	U	ug/kg	2	2.2	UJ	ug/kg	2.2
gamma-BHC (Lindane)	1.8	UJ	ug/kg	1.8	3.6	U	ug/kg	3.6	2	U	ug/kg	2	2.2	UJ	ug/kg	2.2
Heptachlor	1.8	UJ	ug/kg	1.8	3.6	U	ug/kg	3.6	2	U	ug/kg	2	2.2	UJ	ug/kg	2.2
Aldrin	1.8	UJ	ug/kg	1.8	3.6	U	ug/kg	3.6	2	U	ug/kg	2	2.2	UJ	ug/kg	2.2
Heptachlor epoxide	1.8	UJ	ug/kg	1.8	3.6	U	ug/kg	3.6	2	U	ug/kg	2	2.2	UJ	ug/kg	2.2
Endosulfan I	1.8	UJ	ug/kg	1.8	3.6	U	ug/kg	3.6	2	U	ug/kg	2	2.2	UJ	ug/kg	2.2
Dieldrin	33	J	ug/kg	3	60		ug/kg	7	3.8	U	ug/kg	3.8	2.9	J	ug/kg	4
4,4-DDE	13	J	ug/kg	3	22		ug/kg	7	51		ug/kg	4	26	J	ug/kg	4
Endrin	3.5	UJ	ug/kg	3.5	7	U	ug/kg	7	3.8	U	ug/kg	3.8	4.2	UJ	ug/kg	4.2
Endosulfan II	3.5	UJ	ug/kg	3.5	7	U	ug/kg	7	3.8	U	ug/kg	3.8	4.2	UJ	ug/kg	4.2
4,4-DDD	3.5	UJ	ug/kg	3.5	7	U	ug/kg	7	2.1	J	ug/kg	4	4.2	UJ	ug/kg	4.2
Endosulfan sulfate	3.5	UJ	ug/kg	3.5	7	UJ	ug/kg	7	3.8	UJ	ug/kg	3.8	4.2	UJ	ug/kg	4.2
4,4-DDT	6.4	J	ug/kg	3	9		ug/kg	7	28		ug/kg	4	7.1	J	ug/kg	4
Methoxychlor	18	UJ	ug/kg	18	36	U	ug/kg	36	20	U	ug/kg	20	22	UJ	ug/kg	22
Endrin ketone	3.5	UJ	ug/kg	3.5	7	U	ug/kg	7	3.8	U	ug/kg	3.8	4.2	UJ	ug/kg	4.2
Endrin aldehyde	3.5	UJ	ug/kg	3.5	7	U	ug/kg	7	3.8	U	ug/kg	3.8	4.2	UJ	ug/kg	4.2
alpha-Chlordane	6.8	J	ug/kg	2	12	J	ug/kg	4	2	U	ug/kg	2	2.2	UJ	ug/kg	2.2
gamma-Chlordane	4	J	ug/kg	2	7.9	J	ug/kg	4	2	U	ug/kg	2	2.2	UJ	ug/kg	2.2
Toxaphene	180	UJ	ug/kg	180	360	U	ug/kg	360	200	U	ug/kg	200	220	UJ	ug/kg	220
Aroclor-1016	35	UJ	ug/kg	35	70	U	ug/kg	70	38	U	ug/kg	38	42	UJ	ug/kg	42
Aroclor-1221	71	UJ	ug/kg	71	140	U	ug/kg	140	78	U	ug/kg	78	85	UJ	ug/kg	85
Aroclor-1232	35	UJ	ug/kg	35	70	U	ug/kg	70	38	U	ug/kg	38	42	UJ	ug/kg	42
Aroclor-1242	35	UJ	ug/kg	35	70	U	ug/kg	70	38	U	ug/kg	38	42	UJ	ug/kg	42
Aroclor-1248	35	UJ	ug/kg	35	70	U	ug/kg	70	38	U	ug/kg	38	42	UJ	ug/kg	42
Aroclor-1254	35	UJ	ug/kg	35	70	U	ug/kg	70	38	U	ug/kg	38	42	UJ	ug/kg	42
Aroclor-1260	48	J	ug/kg	35	110	J	ug/kg	70	38	U	ug/kg	38	42	UJ	ug/kg	42
CLP METALS AND CYANIDE mg/kg																
Aluminum	2000	J	mg/kg	40	1780	J	mg/kg	40	8210	J	mg/kg	40	13900	J	mg/kg	40
Antimony	12	UJ	mg/kg	12												
Arsenic	.76	J	mg/kg	2	.64	J	mg/kg	2	12.1		mg/kg	2	6.6		mg/kg	2
Barium	4.9	J	mg/kg	40	4	J	mg/kg	40	92.5		mg/kg	40	39.5	J	mg/kg	40
Beryllium	1	U	mg/kg	1	1	U	mg/kg	1	.06	J	mg/kg	1	.23	J	mg/kg	1
Cadmium	1	U	mg/kg	1	.23	J	mg/kg	1	5.3		mg/kg	1	2.1		mg/kg	1
Calcium	101	J	mg/kg	1000	99.8	J	mg/kg	1000	1230		mg/kg	1000	658	J	mg/kg	1000
Chromium	3.9	J	mg/kg	2	3.3		mg/kg	2	24.5		mg/kg	2	19.3		mg/kg	2
Cobalt	10	U	mg/kg	10	10	U	mg/kg	10	3.9	J	mg/kg	10	1.2	J	mg/kg	10
Copper	10.2		mg/kg	5	8.6		mg/kg	5	139		mg/kg	5	80.1		mg/kg	5
Iron	1470	J	mg/kg	20	1310	J	mg/kg	20	48900		mg/kg	20	13500	J	mg/kg	20
Lead	13.5	J	mg/kg	.6	12.4	J	mg/kg	.6	436		mg/kg	.6	128	J	mg/kg	.6
Magnesium	38.5	J	mg/kg	1000	29.9	J	mg/kg	1000	255	J	mg/kg	1000	168	J	mg/kg	1000

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

	Lab Sample Number: RA856014			RA856015			RA870005			RA856010		
	WHITING			WHITING			WHITING			WHITING		
	Site 16S01001			16S01001D			16S01101			16S01201		
	Locator			09-JAN-96			10-JAN-96			09-JAN-96		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Manganese	5.6	mg/kg	3	4.9	mg/kg	3	270	mg/kg	3	88.1	mg/kg	3
Mercury	.2	mg/kg	.1	.17	mg/kg	.1	.18 J	mg/kg	.1	.11	mg/kg	.1
Nickel	8 U	mg/kg	8	8 U	mg/kg	8	26	mg/kg	8	5.9 J	mg/kg	8
Potassium	1000 U	mg/kg	1000	77.6 J	mg/kg	1000	107 J	mg/kg	1000	1000 UJ	mg/kg	1000
Selenium	.13 J	mg/kg	1	1 U	mg/kg	1	1 U	mg/kg	1	.19 J	mg/kg	1
Silver	4.1	mg/kg	2	3.6	mg/kg	2	2.2 J	mg/kg	2	1.3 J	mg/kg	2
Sodium	139 J	mg/kg	1000	118 J	mg/kg	1000	189 J	mg/kg	1000	145 J	mg/kg	1000
Thallium	2 U	mg/kg	2	2 U	mg/kg	2	2 U	mg/kg	2	2 U	mg/kg	2
Vanadium	3.4 J	mg/kg	10	3.2 J	mg/kg	10	16.7	mg/kg	10	26.5	mg/kg	10
Zinc	4.1 J	mg/kg	4	3.4 J	mg/kg	4	488	mg/kg	4	177	mg/kg	4
Cyanide	.1 J	mg/kg	.5	.17 J	mg/kg	.5	.5 UJ	mg/kg	.5	.16 J	mg/kg	.5
Total organic carbon	-	mg/kg		-	mg/kg		-	mg/kg		-	mg/kg	
Total petroleum hydrocarbons	-	mg/kg		-	mg/kg		-	mg/kg		-	mg/kg	

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	RA856011		RA870003		RA856005		RA870007		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	16S01301		16S01401		16S01501		16S01601		
Collect Date:	09-JAN-96		10-JAN-96		08-JAN-96		10-JAN-96		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

	VALUE	QUAL UNITS	DL									
CLP VOLATILES 90-SOW												
ug/kg												
Chloromethane	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Bromomethane	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Vinyl chloride	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Chloroethane	11 UJ	ug/kg	11	11 U	ug/kg	11	11 UJ	ug/kg	11	12 U	ug/kg	12
Methylene chloride	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 UJ	ug/kg	12
Acetone	11 UJ	ug/kg	11	11 U	ug/kg	11	11 UJ	ug/kg	11	12 UJ	ug/kg	12
Carbon disulfide	11 U	ug/kg	11	11 UJ	ug/kg	11	11 U	ug/kg	11	12 UJ	ug/kg	12
1,1-Dichloroethene	11 U	ug/kg	11	11 UJ	ug/kg	11	11 U	ug/kg	11	12 UJ	ug/kg	12
1,1-Dichloroethane	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
1,2-Dichloroethene (total)	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Chloroform	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
1,2-Dichloroethane	11 UJ	ug/kg	11	11 U	ug/kg	11	11 UJ	ug/kg	11	12 U	ug/kg	12
2-Butanone	11 UJ	ug/kg	11	11 U	ug/kg	11	11 UJ	ug/kg	11	12 UJ	ug/kg	12
1,1,1-Trichloroethane	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Carbon tetrachloride	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Bromodichloromethane	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
1,2-Dichloropropane	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
cis-1,3-Dichloropropene	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Trichloroethene	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Dibromochloromethane	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
1,1,2-Trichloroethane	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Benzene	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
trans-1,3-Dichloropropene	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Bromoform	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
4-Methyl-2-pentanone	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 UJ	ug/kg	12
2-Hexanone	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 UJ	ug/kg	12
Tetrachloroethene	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Toluene	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
1,1,2,2-Tetrachloroethane	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Chlorobenzene	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Ethylbenzene	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Styrene	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
Xylenes (total)	11 U	ug/kg	11	11 U	ug/kg	11	11 U	ug/kg	11	12 U	ug/kg	12
CLP SEMIVOLATILES 90-SOW												
ug/kg												
Phenol	370 U	ug/kg	370	370 U	ug/kg	370	360 U	ug/kg	360	400 U	ug/kg	400
bis(2-Chloroethyl) ether	370 U	ug/kg	370	370 U	ug/kg	370	360 U	ug/kg	360	400 U	ug/kg	400
2-Chlorophenol	370 U	ug/kg	370	370 U	ug/kg	370	360 U	ug/kg	360	400 U	ug/kg	400
1,3-Dichlorobenzene	370 U	ug/kg	370	370 U	ug/kg	370	360 U	ug/kg	360	400 U	ug/kg	400
1,4-Dichlorobenzene	370 U	ug/kg	370	370 U	ug/kg	370	360 U	ug/kg	360	400 U	ug/kg	400

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number: Site Locator Collect Date:	RA856011 WHITING 16S01301 09-JAN-96			RA870003 WHITING 16S01401 10-JAN-96			RA856005 WHITING 16S01501 08-JAN-96			RA870007 WHITING 16S01601 10-JAN-96						
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL				
1,2-Dichlorobenzene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
2-Methylphenol	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
2,2-oxybis(1-Chloropropane)	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
4-Methylphenol	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
N-Nitroso-di-n-propylamine	370	UJ	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Hexachloroethane	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Nitrobenzene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Isophorone	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
2-Nitrophenol	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
2,4-Dimethylphenol	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
bis(2-Chloroethoxy) methane	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
2,4-Dichlorophenol	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
1,2,4-Trichlorobenzene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Naphthalene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
4-Chloroaniline	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Hexachlorobutadiene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
4-Chloro-3-methylphenol	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
2-Methylnaphthalene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Hexachlorocyclopentadiene	370	UJ	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
2,4,6-Trichlorophenol	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
2,4,5-Trichlorophenol	920	U	ug/kg	920	920	U	ug/kg	920	900	U	ug/kg	900	1000	U	ug/kg	1000
2-Chloronaphthalene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
2-Nitroaniline	920	U	ug/kg	920	920	U	ug/kg	920	900	U	ug/kg	900	1000	U	ug/kg	1000
Dimethylphthalate	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Acenaphthylene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
2,6-Dinitrotoluene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
3-Nitroaniline	920	U	ug/kg	920	920	U	ug/kg	920	900	U	ug/kg	900	1000	U	ug/kg	1000
Acenaphthene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
2,4-Dinitrophenol	920	U	ug/kg	920	920	U	ug/kg	920	900	U	ug/kg	900	1000	U	ug/kg	1000
4-Nitrophenol	920	U	ug/kg	920	920	U	ug/kg	920	900	U	ug/kg	900	1000	UJ	ug/kg	1000
Dibenzofuran	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
2,4-Dinitrotoluene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Diethylphthalate	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
4-Chlorophenyl-phenylether	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Fluorene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
4-Nitroaniline	920	U	ug/kg	920	920	U	ug/kg	920	900	U	ug/kg	900	1000	U	ug/kg	1000
4,6-Dinitro-2-methylphenol	920	U	ug/kg	920	920	U	ug/kg	920	900	U	ug/kg	900	1000	U	ug/kg	1000
N-Nitrosodiphenylamine	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
4-Bromophenyl-phenylether	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Hexachlorobenzene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Pentachlorophenol	920	U	ug/kg	920	920	U	ug/kg	920	900	U	ug/kg	900	1000	U	ug/kg	1000
Phenanthrene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Anthracene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Carbazole	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Di-n-butylphthalate	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Fluoranthene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Pyrene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Butylbenzylphthalate	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
3,3-Dichlorobenzidine	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Benzo (a) anthracene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
Chrysene	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	400	U	ug/kg	400
bis(2-Ethylhexyl) phthalate	370	U	ug/kg	370	370	U	ug/kg	370	360	U	ug/kg	360	45	J	ug/kg	400

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:	RA856011			RA870003			RA856005			RA870007						
Site	WHITING			WHITING			WHITING			WHITING						
Locator	16S01301			16S01401			16S01501			16S01601						
Collect Date:	09-JAN-96			10-JAN-96			08-JAN-96			10-JAN-96						
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL				
Di-n-octylphthalate	370 U		ug/kg	370	370 U		ug/kg	370	360 U		ug/kg	360	400 U		ug/kg	400
Benzo (b) fluoranthene	370 U		ug/kg	370	370 U		ug/kg	370	360 U		ug/kg	360	400 U		ug/kg	400
Benzo (k) fluoranthene	370 U		ug/kg	370	370 U		ug/kg	370	360 U		ug/kg	360	400 U		ug/kg	400
Benzo (a) pyrene	370 U		ug/kg	370	370 U		ug/kg	370	360 U		ug/kg	360	400 U		ug/kg	400
Indeno (1,2,3-cd) pyrene	370 U		ug/kg	370	370 U		ug/kg	370	360 U		ug/kg	360	400 U		ug/kg	400
Dibenzo (a,h) anthracene	370 U		ug/kg	370	370 U		ug/kg	370	360 U		ug/kg	360	400 U		ug/kg	400
Benzo (g,h,i) perylene	370 U		ug/kg	370	370 U		ug/kg	370	360 U		ug/kg	360	400 U		ug/kg	400
CLP PESTICIDES/PCBS 90-SOW																
alpha-BHC	1.9 UJ		ug/kg	1.9	1.9 U		ug/kg	1.9	1.8 U		ug/kg	1.8	2 U		ug/kg	2
beta-BHC	1.9 UJ		ug/kg	1.9	1.9 U		ug/kg	1.9	1.8 U		ug/kg	1.8	2 U		ug/kg	2
delta-BHC	1.9 UJ		ug/kg	1.9	1.9 U		ug/kg	1.9	1.8 U		ug/kg	1.8	2 U		ug/kg	2
gamma-BHC (Lindane)	1.9 UJ		ug/kg	1.9	1.9 U		ug/kg	1.9	1.8 U		ug/kg	1.8	2 U		ug/kg	2
Heptachlor	1.9 UJ		ug/kg	1.9	1.9 U		ug/kg	1.9	1.8 U		ug/kg	1.8	2 U		ug/kg	2
Aldrin	1.9 UJ		ug/kg	1.9	1.9 U		ug/kg	1.9	1.8 U		ug/kg	1.8	2 U		ug/kg	2
Heptachlor epoxide	1.9 UJ		ug/kg	1.9	1.9 U		ug/kg	1.9	1.8 U		ug/kg	1.8	2 U		ug/kg	2
Endosulfan I	1.9 UJ		ug/kg	1.9	1.9 U		ug/kg	1.9	1.8 U		ug/kg	1.8	2 U		ug/kg	2
Dieldrin	7.2 J		ug/kg	4	3.7 U		ug/kg	3.7	3.6 U		ug/kg	3.6	4 U		ug/kg	4
4,4-DDE	3.7 UJ		ug/kg	3.7	3.7 U		ug/kg	3.7	3.6 U		ug/kg	3.6	4 U		ug/kg	4
Endrin	3.7 UJ		ug/kg	3.7	3.7 U		ug/kg	3.7	3.6 U		ug/kg	3.6	4 U		ug/kg	4
Endosulfan II	3.7 UJ		ug/kg	3.7	3.7 U		ug/kg	3.7	3.6 U		ug/kg	3.6	4 U		ug/kg	4
4,4-DDD	3.7 UJ		ug/kg	3.7	3.7 U		ug/kg	3.7	3.6 U		ug/kg	3.6	4 U		ug/kg	4
Endosulfan sulfate	3.7 UJ		ug/kg	3.7	3.7 UJ		ug/kg	3.7	3.6 UJ		ug/kg	3.6	4 UJ		ug/kg	4
4,4-DDT	3.7 UJ		ug/kg	3.7	3.7 U		ug/kg	3.7	3.6 U		ug/kg	3.6	4 U		ug/kg	4
Methoxychlor	19 UJ		ug/kg	19	19 U		ug/kg	19	18 U		ug/kg	18	20 U		ug/kg	20
Endrin ketone	3.7 UJ		ug/kg	3.7	3.7 U		ug/kg	3.7	3.6 U		ug/kg	3.6	4 U		ug/kg	4
Endrin aldehyde	3.7 UJ		ug/kg	3.7	3.7 U		ug/kg	3.7	3.6 U		ug/kg	3.6	4 U		ug/kg	4
alpha-Chlordane	1.6 J		ug/kg	2	1.9 U		ug/kg	1.9	1.8 U		ug/kg	1.8	2 U		ug/kg	2
gamma-Chlordane	1 J		ug/kg	2	1.9 U		ug/kg	1.9	1.8 U		ug/kg	1.8	2 U		ug/kg	2
Toxaphene	190 UJ		ug/kg	190	190 U		ug/kg	190	180 U		ug/kg	180	200 U		ug/kg	200
Aroclor-1016	37 UJ		ug/kg	37	37 U		ug/kg	37	36 U		ug/kg	36	40 U		ug/kg	40
Aroclor-1221	74 UJ		ug/kg	74	74 U		ug/kg	74	73 U		ug/kg	73	81 U		ug/kg	81
Aroclor-1232	37 UJ		ug/kg	37	37 U		ug/kg	37	36 U		ug/kg	36	40 U		ug/kg	40
Aroclor-1242	37 UJ		ug/kg	37	37 U		ug/kg	37	36 U		ug/kg	36	40 U		ug/kg	40
Aroclor-1248	37 UJ		ug/kg	37	37 U		ug/kg	37	36 U		ug/kg	36	40 U		ug/kg	40
Aroclor-1254	37 UJ		ug/kg	37	37 U		ug/kg	37	36 U		ug/kg	36	40 U		ug/kg	40
Aroclor-1260	37 UJ		ug/kg	37	37 U		ug/kg	37	36 U		ug/kg	36	40 U		ug/kg	40
CLP METALS AND CYANIDE																
Aluminum	9130 J		mg/kg	40	8050 J		mg/kg	40	5010 J		mg/kg	40	7280 J		mg/kg	40
Antimony	12 UJ		mg/kg	12	12 UJ		mg/kg	12	12 UJ		mg/kg	12	12 UJ		mg/kg	12
Arsenic	1.6 J		mg/kg	2	1.5 J		mg/kg	2	1.4 J		mg/kg	2	2.2 J		mg/kg	2
Barium	12.3 J		mg/kg	40	19.7 J		mg/kg	40	7.8 J		mg/kg	40	10.7 J		mg/kg	40
Beryllium	.1 J		mg/kg	1	.09 J		mg/kg	1	.06 J		mg/kg	1	1 U		mg/kg	1
Cadmium	.21 J		mg/kg	1	.21 J		mg/kg	1	.23 J		mg/kg	1	.38 J		mg/kg	1
Calcium	441 J		mg/kg	1000	670 J		mg/kg	1000	96.5 J		mg/kg	1000	327 J		mg/kg	1000
Chromium	8		mg/kg	2	5.4		mg/kg	2	3.2		mg/kg	2	5.5		mg/kg	2
Cobalt	.7 J		mg/kg	10	.85 J		mg/kg	10	10 U		mg/kg	10	10 U		mg/kg	10
Copper	5.6		mg/kg	5	6.1		mg/kg	5	2.9 J		mg/kg	5	5.4 J		mg/kg	5
Iron	4760 J		mg/kg	20	4030		mg/kg	20	2920 J		mg/kg	20	5290		mg/kg	20
Lead	60 J		mg/kg	.6	22.9		mg/kg	.6	4.4 J		mg/kg	.6	15.8		mg/kg	.6
Magnesium	142 J		mg/kg	1000	186 J		mg/kg	1000	84.2 J		mg/kg	1000	95.8 J		mg/kg	1000

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number:
Site
Locator
Collect Date:

RA856011
WHITING
16S01301
09-JAN-96

RA870003
WHITING
16S01401
10-JAN-96

RA856005
WHITING
16S01501
08-JAN-96

RA870007
WHITING
16S01601
10-JAN-96

	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Manganese	54.7	mg/kg	3	372	mg/kg	3	253	mg/kg	3	32.3	mg/kg	3
Mercury	.1 U	mg/kg	.1	.05 J	mg/kg	.1	.1 U	mg/kg	.1	.06 J	mg/kg	.1
Nickel	8 U	mg/kg	8	4.1 J	mg/kg	8	8 U	mg/kg	8	8 U	mg/kg	8
Potassium	1000 UJ	mg/kg	1000	69.7 J	mg/kg	1000	1000 U	mg/kg	1000	76.9 J	mg/kg	1000
Selenium	1 U	mg/kg	1	.15 J	mg/kg	1	.2 J	mg/kg	1	1 U	mg/kg	1
Silver	2 U	mg/kg	2	2 U	mg/kg	2	2 U	mg/kg	2	2 U	mg/kg	2
Sodium	117 J	mg/kg	1000	181 J	mg/kg	1000	114 J	mg/kg	1000	186 J	mg/kg	1000
Thallium	2 U	mg/kg	2	2 U	mg/kg	2	2 U	mg/kg	2	2 U	mg/kg	2
Vanadium	14	mg/kg	10	11.2	mg/kg	10	7 J	mg/kg	10	13.3	mg/kg	10
Zinc	16.3	mg/kg	4	8	mg/kg	4	4.7	mg/kg	4	16.7	mg/kg	4
Cyanide	.5 U	mg/kg	.5	.5 U	mg/kg	.5	.51 J	mg/kg	.5	.5 UJ	mg/kg	.5
Total organic carbon	-	mg/kg		-	mg/kg		-	mg/kg		-	mg/kg	
Total petroleum hydrocarbons	-	mg/kg		-	mg/kg		-	mg/kg		-	mg/kg	

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number: RA870006
Site: WHITING
Locator: 16S01701
Collect Date: 10-JAN-96

VALUE QUAL UNITS DL

	VALUE	QUAL UNITS	DL
CLP VOLATILES 90-SOW			
Chloromethane	11 U	ug/kg	11
Bromomethane	11 U	ug/kg	11
Vinyl chloride	11 U	ug/kg	11
Chloroethane	11 U	ug/kg	11
Methylene chloride	11 UJ	ug/kg	11
Acetone	11 UJ	ug/kg	11
Carbon disulfide	11 UJ	ug/kg	11
1,1-Dichloroethene	11 UJ	ug/kg	11
1,1-Dichloroethane	11 U	ug/kg	11
1,2-Dichloroethene (total)	11 U	ug/kg	11
Chloroform	11 U	ug/kg	11
1,2-Dichloroethane	11 U	ug/kg	11
2-Butanone	11 UJ	ug/kg	11
1,1,1-Trichloroethane	11 U	ug/kg	11
Carbon tetrachloride	11 U	ug/kg	11
Bromodichloromethane	11 U	ug/kg	11
1,2-Dichloropropane	11 U	ug/kg	11
cis-1,3-Dichloropropene	11 U	ug/kg	11
Trichloroethene	11 U	ug/kg	11
Dibromochloromethane	11 U	ug/kg	11
1,1,2-Trichloroethane	11 U	ug/kg	11
Benzene	11 U	ug/kg	11
trans-1,3-Dichloropropene	11 U	ug/kg	11
Bromoform	11 U	ug/kg	11
4-Methyl-2-pentanone	11 UJ	ug/kg	11
2-Hexanone	11 UJ	ug/kg	11
Tetrachloroethene	11 U	ug/kg	11
Toluene	11 U	ug/kg	11
1,1,2,2-Tetrachloroethane	11 U	ug/kg	11
Chlorobenzene	11 U	ug/kg	11
Ethylbenzene	11 U	ug/kg	11
Styrene	11 U	ug/kg	11
Xylenes (total)	11 U	ug/kg	11
CLP SEMIVOLATILES 90-SOW			
Phenol	360 U	ug/kg	360
bis(2-Chloroethyl) ether	360 U	ug/kg	360
2-Chlorophenol	360 U	ug/kg	360
1,3-Dichlorobenzene	360 U	ug/kg	360
1,4-Dichlorobenzene	360 U	ug/kg	360

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number: RA870006
Site WHITING
Locator 16S01701
Collect Date: 10-JAN-96

VALUE QUAL UNITS DL

	VALUE	QUAL	UNITS	DL
1,2-Dichlorobenzene	360	U	ug/kg	360
2-Methylphenol	360	U	ug/kg	360
2,2-oxybis(1-Chloropropane)	360	U	ug/kg	360
4-Methylphenol	360	U	ug/kg	360
N-Nitroso-di-n-propylamine	360	U	ug/kg	360
Hexachloroethane	360	U	ug/kg	360
Nitrobenzene	360	U	ug/kg	360
Isophorone	360	U	ug/kg	360
2-Nitrophenol	360	U	ug/kg	360
2,4-Dimethylphenol	360	U	ug/kg	360
bis(2-Chloroethoxy) methane	360	U	ug/kg	360
2,4-Dichlorophenol	360	U	ug/kg	360
1,2,4-Trichlorobenzene	360	U	ug/kg	360
Naphthalene	360	U	ug/kg	360
4-Chloroaniline	360	U	ug/kg	360
Hexachlorobutadiene	360	U	ug/kg	360
4-Chloro-3-methylphenol	360	U	ug/kg	360
2-Methylnaphthalene	360	U	ug/kg	360
Hexachlorocyclopentadiene	360	U	ug/kg	360
2,4,6-Trichlorophenol	360	U	ug/kg	360
2,4,5-Trichlorophenol	910	U	ug/kg	910
2-Chloronaphthalene	360	U	ug/kg	360
2-Nitroaniline	910	U	ug/kg	910
Dimethylphthalate	360	U	ug/kg	360
Acenaphthylene	360	U	ug/kg	360
2,6-Dinitrotoluene	360	U	ug/kg	360
3-Nitroaniline	910	U	ug/kg	910
Acenaphthene	360	U	ug/kg	360
2,4-Dinitrophenol	910	U	ug/kg	910
4-Nitrophenol	910	U	ug/kg	910
Dibenzofuran	360	U	ug/kg	360
2,4-Dinitrotoluene	360	U	ug/kg	360
Diethylphthalate	360	U	ug/kg	360
4-Chlorophenyl-phenylether	360	U	ug/kg	360
Fluorene	360	U	ug/kg	360
4-Nitroaniline	910	U	ug/kg	910
4,6-Dinitro-2-methylphenol	910	U	ug/kg	910
N-Nitrosodiphenylamine	360	U	ug/kg	360
4-Bromophenyl-phenylether	360	U	ug/kg	360
Hexachlorobenzene	360	U	ug/kg	360
Pentachlorophenol	910	U	ug/kg	910
Phenanthrene	360	U	ug/kg	360
Anthracene	360	U	ug/kg	360
Carbazole	360	U	ug/kg	360
Di-n-butylphthalate	360	U	ug/kg	360
Fluoranthene	360	U	ug/kg	360
Pyrene	360	U	ug/kg	360
Butylbenzylphthalate	360	U	ug/kg	360
3,3-Dichlorobenzidine	360	U	ug/kg	360
Benzo (a) anthracene	360	U	ug/kg	360
Chrysene	360	U	ug/kg	360
bis(2-Ethylhexyl) phthalate	48	J	ug/kg	360

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number: RA870006
Site: WHITING
Locator: 16S01701
Collect Date: 10-JAN-96

	VALUE	QUAL	UNITS	DL
Di-n-octylphthalate	360	U	ug/kg	360
Benzo (b) fluoranthene	360	U	ug/kg	360
Benzo (k) fluoranthene	360	U	ug/kg	360
Benzo (a) pyrene	360	U	ug/kg	360
Indeno (1,2,3-cd) pyrene	360	U	ug/kg	360
Dibenzo (a,h) anthracene	360	U	ug/kg	360
Benzo (g,h,i) perylene	360	U	ug/kg	360
CLP PESTICIDES/PCBS 90-SOW ug/kg				
alpha-BHC	1.9	U	ug/kg	1.9
beta-BHC	1.9	U	ug/kg	1.9
delta-BHC	1.9	U	ug/kg	1.9
gamma-BHC (Lindane)	1.9	U	ug/kg	1.9
Heptachlor	1.9	U	ug/kg	1.9
Aldrin	1.9	U	ug/kg	1.9
Heptachlor epoxide	1.9	U	ug/kg	1.9
Endosulfan I	1.9	U	ug/kg	1.9
Dieldrin	3.6	U	ug/kg	3.6
4,4-DDE	3.6	U	ug/kg	3.6
Endrin	3.6	U	ug/kg	3.6
Endosulfan II	3.6	U	ug/kg	3.6
4,4-DDD	3.6	U	ug/kg	3.6
Endosulfan sulfate	3.6	UJ	ug/kg	3.6
4,4-DDT	3.6	U	ug/kg	3.6
Methoxychlor	19	U	ug/kg	19
Endrin ketone	3.6	U	ug/kg	3.6
Endrin aldehyde	3.6	U	ug/kg	3.6
alpha-Chlordane	1.9	U	ug/kg	1.9
gamma-Chlordane	1.9	U	ug/kg	1.9
Toxaphene	190	U	ug/kg	190
Aroclor-1016	36	U	ug/kg	36
Aroclor-1221	74	U	ug/kg	74
Aroclor-1232	36	U	ug/kg	36
Aroclor-1242	36	U	ug/kg	36
Aroclor-1248	36	U	ug/kg	36
Aroclor-1254	36	U	ug/kg	36
Aroclor-1260	36	U	ug/kg	36
CLP METALS AND CYANIDE mg/kg				
Aluminum	4320	J	mg/kg	40
Antimony	12	UJ	mg/kg	12
Arsenic	1.3	J	mg/kg	2
Barium	6.7	J	mg/kg	40
Beryllium	1	U	mg/kg	1
Cadmium	.26	J	mg/kg	1
Calcium	158	J	mg/kg	1000
Chromium	3.5		mg/kg	2
Cobalt	10	U	mg/kg	10
Copper	5.8		mg/kg	5
Iron	3070		mg/kg	20
Lead	29.6		mg/kg	.6
Magnesium	56.6	J	mg/kg	1000

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Soil Data

Lab Sample Number: RA870006
Site: WHITING
Locator: 16S01701
Collect Date: 10-JAN-96

VALUE QUAL UNITS DL

Manganese	34.3	mg/kg	3
Mercury	.06 J	mg/kg	.1
Nickel	2.5 J	mg/kg	8
Potassium	1000 U	mg/kg	1000
Selenium	1 U	mg/kg	1
Silver	2 U	mg/kg	2
Sodium	170 J	mg/kg	1000
Thallium	2 U	mg/kg	2
Vanadium	7.3 J	mg/kg	10
Zinc	14.7	mg/kg	4
Cyanide	.5 UJ	mg/kg	.5
Total organic carbon	-	mg/kg	
Total petroleum hydrocarbons	-	mg/kg	

APPENDIX E
SURFACE WATER ANALYTICAL DATA

Naval Air Station Whiting Field, Milton, Florida
 Site 16 Surface Water Data

Lab Sample Number: RA903003
 Site WHITING
 Locator 16W00101
 Collect Date: 05-JAN-96

VALUE QUAL UNITS DL

CLP VOLATILES 90-SOW

ug/l

Chloromethane	10 U	ug/l	10
Bromomethane	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10
Chloroethane	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10
Acetone	10 U	ug/l	10
Carbon disulfide	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10
Chloroform	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10
2-Butanone	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10
Benzene	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10
Bromoform	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10
Toluene	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10
Styrene	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10

CLP SEMIVOLATILES 90-SOW

ug/l

Phenol	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10
Isophorone	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Water Data

Lab Sample Number: RA903003
Site: WHITING
Locator: 16W00101
Collect Date: 05-JAN-96

	VALUE	QUAL	UNITS	DL
bis(2-Chloroethoxy) methane	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10
Naphthalene	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25
2-Chloronaphthalene	10	U	ug/l	10
2-Nitroaniline	25	U	ug/l	25
Dimethylphthalate	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10
3-Nitroaniline	25	U	ug/l	25
Acenaphthene	10	U	ug/l	10
2,4-Dinitrophenol	25	U	ug/l	25
4-Nitrophenol	25	U	ug/l	25
Dibenzofuran	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10
Fluorene	10	U	ug/l	10
4-Nitroaniline	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25
N-Nitrosodiphenylamine	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10
Anthracene	10	U	ug/l	10
Carbazole	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10
Pyrene	10	U	ug/l	10
Butylbenzylphthalate	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10
Chrysene	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10
Dibenzo (a,h) anthracene	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10
CLP PESTICIDES/PCBS 90-SOW	ug/l			
alpha-BHC	.05	UJ	ug/l	.05

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Water Data

Lab Sample Number: RA903003
Site: WHITING
Locator: 16W00101
Collect Date: 05-JAN-96

	VALUE	QUAL	UNITS	DL
beta-BHC	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1
CLP METALS AND CYANIDE				
	ug/l			
Aluminum	758		ug/l	200
Antimony	60	U	ug/l	60
Arsenic	10	U	ug/l	10
Barium	28.6	J	ug/l	200
Beryllium	.21	J	ug/l	5
Cadmium	5	U	ug/l	5
Calcium	8890		ug/l	5000
Chromium	10	U	ug/l	10
Cobalt	50	U	ug/l	50
Copper	25	UJ	ug/l	25
Iron	730		ug/l	100
Lead	5.2		ug/l	3
Magnesium	1170	J	ug/l	5000
Manganese	4.4	J	ug/l	15
Mercury	.2	U	ug/l	.2
Nickel	40	U	ug/l	40
Potassium	2780	J	ug/l	5000
Selenium	5	U	ug/l	5
Silver	10	U	ug/l	10
Sodium	1120	J	ug/l	5000
Thallium	10	U	ug/l	10
Vanadium	50	U	ug/l	50
Zinc	29.2		ug/l	20

Naval Air Station Whiting Field, Milton, Florida
Site 16 Surface Water Data

Lab Sample Number: RA903003
Site WHITING
Locator 16W00101
Collect Date: 05-JAN-96

VALUE	QUAL	UNITS	DL
10 U		ug/l	10

Cyanide

Qualifiers: U = NOT DETECTED J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED R = RESULT IS REJECTED AND UNUSABLE

APPENDIX F
GROUNDWATER ANALYTICAL DATA

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- VOLATILES -- REPORT NO. 10499

Lab Sample Number:	90226004	90214002	90272002	90272001							
Site	WHITING	WHITING	WHITING	WHITING							
Locator	WHF16-1	WHF16-2	WHF16-2B	WHF16-2C							
Collect Date:	16-NOV-93	24-NOV-93	06-DEC-93	06-DEC-93							
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

Chloromethane	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
Bromomethane	10 U	ug/l	10									
Vinyl chloride	10 U	ug/l	10									
Chloroethane	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon disulfide	10 U	ug/l	10									
1,1-Dichloroethene	10 U	ug/l	10									
1,1-Dichloroethane	10 U	ug/l	10									
1,2-Dichloroethene (total)	10 U	ug/l	10	4 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	3 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	3 J	ug/l	10	10 U	ug/l	10	20	ug/l	10
2-Butanone	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10									
Carbon tetrachloride	10 U	ug/l	10									
Bromodichloromethane	10 U	ug/l	10									
1,2-Dichloropropane	10 U	ug/l	10									
cis-1,3-Dichloropropene	10 U	ug/l	10									
Trichloroethene	10 U	ug/l	10	6 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10									
1,1,2-Trichloroethane	10 U	ug/l	10									
Benzene	10 U	ug/l	10	59 J	ug/l	10	10 U	ug/l	10	560 J	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10									
Bromoform	10 U	ug/l	10									
4-Methyl-2-pentanone	10 U	ug/l	10									
2-Hexanone	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10									
Toluene	10 U	ug/l	10									
1,1,2,2-Tetrachloroethane	10 U	ug/l	10									
Chlorobenzene	10 U	ug/l	10									
Ethylbenzene	10 U	ug/l	10									
Styrene	10 U	ug/l	10									
Xylenes (total)	10 U	ug/l	10									

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- VOLATILES -- REPORT NO. 10499

Lab Sample Number: Site Locator Collect Date:	90225001 WHITING WHF16-3B 15-NOV-93			90221002 WHITING WHF16-3C 12-NOV-93			90220001 WHITING WHF16-3D 11-NOV-93			90220002 WHITING WHF16-3DA 11-NOV-93		
	VALUE	QUAL	DL	VALUE	QUAL	DL	VALUE	QUAL	DL	VALUE	QUAL	DL
CLP VOLATILES 90-SOW												
Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
Methylene chloride	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
Acetone	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	2 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	3 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	4 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- VOLATILES -- REPORT NO. 10499

Lab Sample Number:	90226001		90226002		90226003		90225002		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	WHF16-4B		WHF16-4BA		WHF16-4CD		WHF16-4D		
Collect Date:	16-NOV-93		16-NOV-93		16-NOV-93		15-NOV-93		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

Chloromethane	5 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10									
Vinyl chloride	10 U	ug/l	10									
Chloroethane	10 U	ug/l	10									
Methylene chloride	2 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 UJ	ug/l	10									
Carbon disulfide	10 U	ug/l	10									
1,1-Dichloroethene	10 U	ug/l	10									
1,1-Dichloroethane	10 U	ug/l	10									
1,2-Dichloroethene (total)	10 U	ug/l	10									
Chloroform	10 U	ug/l	10									
1,2-Dichloroethane	10 U	ug/l	10									
2-Butanone	10 U	ug/l	10									
1,1,1-Trichloroethane	10 U	ug/l	10									
Carbon tetrachloride	10 U	ug/l	10									
Bromodichloromethane	10 U	ug/l	10									
1,2-Dichloropropane	10 U	ug/l	10									
cis-1,3-Dichloropropene	10 U	ug/l	10									
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	4 J	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10									
1,1,2-Trichloroethane	10 U	ug/l	10									
Benzene	10 U	ug/l	10									
trans-1,3-Dichloropropene	10 U	ug/l	10									
Bromoform	10 U	ug/l	10									
4-Methyl-2-pentanone	10 U	ug/l	10									
2-Hexanone	10 U	ug/l	10									
Tetrachloroethene	10 U	ug/l	10									
Toluene	10 U	ug/l	10									
1,1,2,2-Tetrachloroethane	10 U	ug/l	10									
Chlorobenzene	10 U	ug/l	10									
Ethylbenzene	10 U	ug/l	10									
Styrene	10 U	ug/l	10									
Xylenes (total)	10 U	ug/l	10									

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- VOLATILES -- REPORT NO. 10499

Lab Sample Number:	90236003	RC016004	ME340009	ME340010
Site	WHITING	WHITING	WHITING	WHITING
Locator	WHF16-5	16G00101	16G00101	16G00101D
Collect Date:	17-NOV-93	19-AUG-96	24-JUL-97	24-JUL-97

	VALUE	QUAL UNITS	DL									
CLP VOLATILES 90-SOW												
Chloromethane	10 U	ug/l	10									
Bromomethane	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10									
Chloroethane	10 U	ug/l	10									
Methylene chloride	10 U	ug/l	10									
Acetone	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10									
1,1-Dichloroethane	10 U	ug/l	10									
1,2-Dichloroethene (total)	10 U	ug/l	10									
Chloroform	10 U	ug/l	10									
1,2-Dichloroethane	10 U	ug/l	10									
2-Butanone	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10									
Carbon tetrachloride	10 U	ug/l	10									
Bromodichloromethane	10 U	ug/l	10									
1,2-Dichloropropane	10 U	ug/l	10									
cis-1,3-Dichloropropene	10 U	ug/l	10									
Trichloroethene	10 U	ug/l	10									
Dibromochloromethane	10 U	ug/l	10									
1,1,2-Trichloroethane	10 U	ug/l	10									
Benzene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10									
Bromoform	10 U	ug/l	10									
4-Methyl-2-pentanone	10 U	ug/l	10									
2-Hexanone	10 U	ug/l	10									
Tetrachloroethene	10 U	ug/l	10									
Toluene	10 U	ug/l	10									
1,1,2,2-Tetrachloroethane	10 U	ug/l	10									
Chlorobenzene	10 U	ug/l	10									
Ethylbenzene	10 U	ug/l	10									
Styrene	10 U	ug/l	10									
Xylenes (total)	10 U	ug/l	10									

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- VOLATILES -- REPORT NO. 10499

Lab Sample Number:	RB980006		RB980016		MC424004		ME322004		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	16G00201		16G00202		16G00202		16G00202		
Collect Date:	14-AUG-96		15-AUG-96		19-NOV-96		23-JUL-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW	VALUE	QUAL UNITS	DL									
Chloromethane	10 UJ	ug/l	10	10 UJ	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Chloroethane	10 UJ	ug/l	10	10 UJ	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Acetone	10 UJ	ug/l	10	10 UJ	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
1,1-Dichloroethane	10 UJ	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
1,2-Dichloroethene (total)	10 U	ug/l	10	41	ug/l	10	46 J	ug/l	50	50	ug/l	50
Chloroform	10 U	ug/l	10	1 J	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	24 J	ug/l	50
2-Butanone	10 UJ	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Trichloroethene	10 U	ug/l	10	6 J	ug/l	10	7 J	ug/l	50	7 J	ug/l	50
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Benzene	10 U	ug/l	10	640 R	ug/l	10	800	ug/l	50	820	ug/l	50
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Bromoform	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Toluene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Ethylbenzene	10 U	ug/l	10	3 J	ug/l	10	50 U	ug/l	50	6 J	ug/l	50
Styrene	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	50 U	ug/l	50	50 U	ug/l	50

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- VOLATILES -- REPORT NO. 10499

Lab Sample Number:	RB980017	MC424005	ME322005	RC016005					
Site	WHITING	WHITING	WHITING	WHITING					
Locator	16G00203	16G00203	16G00203	16G00301					
Collect Date:	15-AUG-96	19-NOV-96	23-JUL-97	20-AUG-96					
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

Chloromethane	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	5 J	ug/l	10	31	ug/l	10	1 J	ug/l	10	10 UJ	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	1 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- VOLATILES -- REPORT NO. 10499

Lab Sample Number:	ME340008	RC016006	ME322002	RC016008							
Site	WHITING	WHITING	WHITING	WHITING							
Locator	16G00301	16G00302	16G00302	16G00303							
Collect Date:	24-JUL-97	20-AUG-96	22-JUL-97	21-AUG-96							
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW												
Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Bromomethane	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 U	ug/l	10	16 UJ	ug/l	16	10 U	ug/l	10	10 UJ	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	3 J	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	1 J	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	2 J	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	2 J	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- VOLATILES -- REPORT NO. 10499

Lab Sample Number:	ME322003		RC016007		ME340006		RC016002		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	16G00303		16G00304		16G00304		16G00401		
Collect Date:	22-JUL-97		20-AUG-96		24-JUL-97		19-AUG-96		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane (total)	12	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	1 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	8 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	2 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	130	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- VOLATILES -- REPORT NO. 10499

Lab Sample Number:	ME306003		ME306004		RC016003		ME306005		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	16G00401		16G00401D		16G00402		16G00402		
Collect Date:	22-JUL-97		22-JUL-97		19-AUG-96		22-JUL-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

	VALUE	QUAL UNITS	DL									
CLP VOLATILES 90-SOW												
Chloromethane	10 U	ug/l	10									
Bromomethane	10 U	ug/l	10									
Vinyl chloride	10 U	ug/l	10									
Chloroethane	10 U	ug/l	10									
Methylene chloride	10 U	ug/l	10									
Acetone	18 U	ug/l	18	14 U	ug/l	14	13 UJ	ug/l	13	10 U	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10									
1,1-Dichloroethane	10 U	ug/l	10									
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	1 J	ug/l	10
Chloroform	10 U	ug/l	10									
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	1 J	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10									
Carbon tetrachloride	10 U	ug/l	10									
Bromodichloromethane	10 U	ug/l	10									
1,2-Dichloropropane	10 U	ug/l	10									
cis-1,3-Dichloropropene	10 U	ug/l	10									
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	2 J	ug/l	10	3 J	ug/l	10
Dibromochloromethane	10 U	ug/l	10									
1,1,2-Trichloroethane	10 U	ug/l	10									
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	28	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10									
Bromoform	10 U	ug/l	10									
4-Methyl-2-pentanone	10 U	ug/l	10									
2-Hexanone	10 U	ug/l	10									
Tetrachloroethene	10 U	ug/l	10									
Toluene	10 U	ug/l	10									
1,1,2,2-Tetrachloroethane	10 U	ug/l	10									
Chlorobenzene	10 U	ug/l	10									
Ethylbenzene	10 U	ug/l	10									
Styrene	10 U	ug/l	10									
Xylenes (total)	10 U	ug/l	10									

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- VOLATILES -- REPORT NO. 10499

Lab Sample Number:	RB980020		MC448003		ME306006		RB980021	
Site	WHITING		WHITING		WHITING		WHITING	
Locator	16G00403		16G00403		16G00403		16G00403D	
Collect Date:	16-AUG-96		22-NOV-96		22-JUL-97		16-AUG-96	
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

Chloromethane	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Acetone	10 UJ	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 UJ	ug/l	10
Carbon disulfide	10 UJ	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 UJ	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
1,2-Dichloroethene (total)	1 J	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	2 J	ug/l	10
Chloroform	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	50 U	ug/l	50	29 J	ug/l	40	10 U	ug/l	10
2-Butanone	10 UJ	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 UJ	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Benzene	600 R	ug/l	10	550	ug/l	50	760	ug/l	40	600 R	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Bromoform	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Toluene	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Styrene	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	50 U	ug/l	50	40 U	ug/l	40	10 U	ug/l	10

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- VOLATILES -- REPORT NO. 10499

Lab Sample Number:	RC016009		RC016013		RB980019		ME340002	
Site	WHITING		WHITING		WHITING		WHITING	
Locator	16G00501		16G00501D		16G00601		16G00601	
Collect Date:	21-AUG-96		21-AUG-96		16-AUG-96		23-JUL-97	
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 R	ug/l	10	10 R	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- VOLATILES -- REPORT NO. 10499

Lab Sample Number:	RB980018	ME340004	RB887015	ME348004								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	16G00602	16G00602	16G00701	16G00701								
Collect Date:	15-AUG-96	23-JUL-97	25-JUL-96	25-JUL-97								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

Chloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Acetone	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
Carbon disulfide	10 UJ	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- VOLATILES -- REPORT NO. 10499

Lab Sample Number:	RB887016	MC448001	ME348002	RB887017					
Site	WHITING	WHITING	WHITING	WHITING					
Locator	16G00702	16G00702	16G00702	16G00703					
Collect Date:	25-JUL-96	21-NOV-96	25-JUL-97	25-JUL-96					
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL				
Chloromethane	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Bromomethane	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Vinyl chloride	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Chloroethane	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Methylene chloride	10	UJ	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	UJ	ug/l	10
Acetone	10	UJ	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	UJ	ug/l	10
Carbon disulfide	10	UJ	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	UJ	ug/l	10
1,1-Dichloroethene	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
1,1-Dichloroethane	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
1,2-Dichloroethene (total)	39		ug/l	10	22	J	ug/l	80	25	J	ug/l	40	10		ug/l	10
Chloroform	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
1,2-Dichloroethane	10	U	ug/l	10	80	U	ug/l	80	32	J	ug/l	40	10	U	ug/l	10
2-Butanone	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
1,1,1-Trichloroethane	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Carbon tetrachloride	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Bromodichloromethane	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
1,2-Dichloropropane	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
cis-1,3-Dichloropropene	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Trichloroethene	5	J	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	2	J	ug/l	10
Dibromochloromethane	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
1,1,2-Trichloroethane	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Benzene	640	R	ug/l	10	880		ug/l	80	800	R	ug/l	40	590	R	ug/l	10
trans-1,3-Dichloropropene	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Bromoform	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
4-Methyl-2-pentanone	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
2-Hexanone	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Tetrachloroethene	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Toluene	1	J	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
1,1,2,2-Tetrachloroethane	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Chlorobenzene	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Ethylbenzene	5	J	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Styrene	10	U	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10
Xylenes (total)	1	J	ug/l	10	80	U	ug/l	80	40	U	ug/l	40	10	U	ug/l	10

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- VOLATILES -- REPORT NO. 10499

Lab Sample Number:	MC448002		ME348003			
Site	WHITING		WHITING			
Locator	16G00703		16G00703			
Collect Date:	21-NOV-96		25-JUL-97			
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

Chloromethane	80 U	ug/l	80	20 U	ug/l	20
Bromomethane	80 U	ug/l	80	20 U	ug/l	20
Vinyl chloride	80 U	ug/l	80	20 U	ug/l	20
Chloroethane	80 U	ug/l	80	20 U	ug/l	20
Methylene chloride	80 U	ug/l	80	20 U	ug/l	20
Acetone	80 U	ug/l	80	20 U	ug/l	20
Carbon disulfide	80 U	ug/l	80	20 U	ug/l	20
1,1-Dichloroethene	80 U	ug/l	80	20 U	ug/l	20
1,1-Dichloroethane	80 U	ug/l	80	20 U	ug/l	20
1,2-Dichloroethene (total)	10 J	ug/l	80	10 J	ug/l	20
Chloroform	80 U	ug/l	80	20 U	ug/l	20
1,2-Dichloroethane	80 U	ug/l	80	20 U	ug/l	20
2-Butanone	80 U	ug/l	80	20 U	ug/l	20
1,1,1-Trichloroethane	80 U	ug/l	80	20 U	ug/l	20
Carbon tetrachloride	80 U	ug/l	80	20 U	ug/l	20
Bromodichloromethane	80 U	ug/l	80	20 U	ug/l	20
1,2-Dichloropropane	80 U	ug/l	80	20 U	ug/l	20
cis-1,3-Dichloropropene	80 U	ug/l	80	20 U	ug/l	20
Trichloroethene	80 U	ug/l	80	20 U	ug/l	20
Dibromochloromethane	80 U	ug/l	80	20 U	ug/l	20
1,1,2-Trichloroethane	80 U	ug/l	80	20 U	ug/l	20
Benzene	860 U	ug/l	80	480 R	ug/l	20
trans-1,3-Dichloropropene	80 U	ug/l	80	20 U	ug/l	20
Bromoform	80 U	ug/l	80	20 U	ug/l	20
4-Methyl-2-pentanone	80 U	ug/l	80	20 U	ug/l	20
2-Hexanone	80 U	ug/l	80	20 U	ug/l	20
Tetrachloroethene	80 U	ug/l	80	20 U	ug/l	20
Toluene	80 U	ug/l	80	20 U	ug/l	20
1,1,2,2-Tetrachloroethane	80 U	ug/l	80	20 U	ug/l	20
Chlorobenzene	80 U	ug/l	80	20 U	ug/l	20
Ethylbenzene	80 U	ug/l	80	20 U	ug/l	20
Styrene	80 U	ug/l	80	20 U	ug/l	20
Xylenes (total)	80 U	ug/l	80	20 U	ug/l	20

U= NOT DETECTED J=ESTIMATED VALUE
 UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
 R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number:	90226004	90214002	90272002	90272001								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	WHF16-1	WHF16-2	WHF16-2B	WHF16-2C								
Collect Date:	16-NOV-93	24-NOV-93	06-DEC-93	06-DEC-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP SEMIVOLATILES 90-SOW

Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10									
1,3-Dichlorobenzene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10									
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10									
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10									
2,4-Dimethylphenol	10 U	ug/l	10									
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10									
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10									
Hexachlorobutadiene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10									
2-Methylnaphthalene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10									
2,4,5-Trichlorophenol	25 U	ug/l	25									
2-Chloronaphthalene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 UJ	ug/l	25									
4-Nitrophenol	25 UJ	ug/l	25	25 U	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Nitroaniline	25 UJ	ug/l	25									
4,6-Dinitro-2-methylphenol	25 U	ug/l	25	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
N-Nitrosodiphenylamine	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Bromophenyl-phenylether	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobenzene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pentachlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
Phenanthrene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Anthracene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbazole	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Di-n-butylphthalate	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number: Site Locator Collect Date:	90226004 WHITING WHF16-1 16-NOV-93			90214002 WHITING WHF16-2 24-NOV-93			90272002 WHITING WHF16-2B 06-DEC-93			90272001 WHITING WHF16-2C 06-DEC-93		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Fluoranthene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pyrene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Butylbenzylphthalate	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3,3-Dichlorobenzidine	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) anthracene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chrysene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Ethylhexyl) phthalate	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Di-n-octylphthalate	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (b) fluoranthene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (k) fluoranthene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) pyrene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibenzo (a,h) anthracene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (g,h,i) perylene	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

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UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number:	90225001	90221002	90220001	90220002
Site	WHITING	WHITING	WHITING	WHITING
Locator	WHF16-3B	WHF16-3C	WHF16-3D	WHF16-3DA
Collect Date:	15-NOV-93	12-NOV-93	11-NOV-93	11-NOV-93

	VALUE	QUAL	UNITS	DL												
CLP SEMIVOLATILES 90-SOW																
Phenol	10	U	ug/l	10												
bis(2-Chloroethyl) ether	10	U	ug/l	10												
2-Chlorophenol	10	U	ug/l	10												
1,3-Dichlorobenzene	10	U	ug/l	10												
1,4-Dichlorobenzene	10	U	ug/l	10												
1,2-Dichlorobenzene	10	U	ug/l	10												
2-Methylphenol	10	U	ug/l	10												
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
4-Methylphenol	10	U	ug/l	10												
N-Nitroso-di-n-propylamine	10	U	ug/l	10												
Hexachloroethane	10	U	ug/l	10												
Nitrobenzene	10	U	ug/l	10												
Isophorone	10	U	ug/l	10												
2-Nitrophenol	10	U	ug/l	10												
2,4-Dimethylphenol	10	U	ug/l	10												
bis(2-Chloroethoxy) methane	10	U	ug/l	10												
2,4-Dichlorophenol	10	U	ug/l	10												
1,2,4-Trichlorobenzene	10	U	ug/l	10												
Naphthalene	10	U	ug/l	10												
4-Chloroaniline	10	U	ug/l	10												
Hexachlorobutadiene	10	U	ug/l	10												
4-Chloro-3-methylphenol	10	U	ug/l	10												
2-Methylnaphthalene	10	U	ug/l	10												
Hexachlorocyclopentadiene	10	U	ug/l	10												
2,4,6-Trichlorophenol	10	U	ug/l	10												
2,4,5-Trichlorophenol	25	U	ug/l	25												
2-Chloronaphthalene	10	U	ug/l	10												
2-Nitroaniline	25	U	ug/l	25												
Dimethylphthalate	10	U	ug/l	10												
Acenaphthylene	10	U	ug/l	10												
2,6-Dinitrotoluene	10	U	ug/l	10												
3-Nitroaniline	25	U	ug/l	25												
Acenaphthene	10	U	ug/l	10												
2,4-Dinitrophenol	25	UJ	ug/l	25	25	UJ	ug/l	25	25	UJ	ug/l	25	25	U	ug/l	25
4-Nitrophenol	25	UJ	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dibenzofuran	10	U	ug/l	10												
2,4-Dinitrotoluene	10	U	ug/l	10												
Diethylphthalate	10	U	ug/l	10												
4-Chlorophenyl-phenylether	10	U	ug/l	10												
Fluorene	10	U	ug/l	10												

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number:	90225001			90221002			90220001			90220002		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	WHF16-3B			WHF16-3C			WHF16-3D			WHF16-3DA		
Collect Date:	15-NOV-93			12-NOV-93			11-NOV-93			11-NOV-93		
	VALUE	QUAL UNITS	DL									
4-Nitroaniline	25 UJ	ug/l	25									
4,6-Dinitro-2-methylphenol	25 U	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
N-Nitrosodiphenylamine	10 U	ug/l	10									
4-Bromophenyl-phenylether	10 U	ug/l	10									
Hexachlorobenzene	10 U	ug/l	10									
Pentachlorophenol	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Phenanthrene	10 U	ug/l	10									
Anthracene	10 U	ug/l	10									
Carbazole	10 U	ug/l	10									
Di-n-butylphthalate	10 U	ug/l	10									
Fluoranthene	10 U	ug/l	10									
Pyrene	10 U	ug/l	10									
Butylbenzylphthalate	10 U	ug/l	10									
3,3-Dichlorobenzidine	10 U	ug/l	10									
Benzo (a) anthracene	10 U	ug/l	10									
Chrysene	10 U	ug/l	10									
bis(2-Ethylhexyl) phthalate	10 U	ug/l	10									
Di-n-octylphthalate	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (b) fluoranthene	10 U	ug/l	10									
Benzo (k) fluoranthene	10 U	ug/l	10									
Benzo (a) pyrene	10 U	ug/l	10									
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10									
Dibenzo (a,h) anthracene	10 U	ug/l	10									
Benzo (g,h,i) perylene	10 U	ug/l	10									

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number:	90226001		90226002		90226003		90225002		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	WHF16-4B		WHF16-4BA		WHF16-4CD		WHF16-4D		
Collect Date:	16-NOV-93		16-NOV-93		16-NOV-93		15-NOV-93		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP SEMIVOLATILES 90-SOW

Phenol	10 U	ug/l	10									
bis(2-Chloroethyl) ether	10 U	ug/l	10									
2-Chlorophenol	10 U	ug/l	10									
1,3-Dichlorobenzene	10 U	ug/l	10									
1,4-Dichlorobenzene	10 U	ug/l	10									
1,2-Dichlorobenzene	10 U	ug/l	10									
2-Methylphenol	10 U	ug/l	10									
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10									
4-Methylphenol	10 U	ug/l	10									
N-Nitroso-di-n-propylamine	10 U	ug/l	10									
Hexachloroethane	10 U	ug/l	10									
Nitrobenzene	10 U	ug/l	10									
Isophorone	10 U	ug/l	10									
2-Nitrophenol	10 U	ug/l	10									
2,4-Dimethylphenol	10 U	ug/l	10									
bis(2-Chloroethoxy) methane	10 U	ug/l	10									
2,4-Dichlorophenol	10 U	ug/l	10									
1,2,4-Trichlorobenzene	10 U	ug/l	10									
Naphthalene	10 U	ug/l	10									
4-Chloroaniline	10 U	ug/l	10									
Hexachlorobutadiene	10 U	ug/l	10									
4-Chloro-3-methylphenol	10 U	ug/l	10									
2-Methylnaphthalene	10 U	ug/l	10									
Hexachlorocyclopentadiene	10 U	ug/l	10									
2,4,6-Trichlorophenol	10 U	ug/l	10									
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	26 U	ug/l	26
2-Chloronaphthalene	10 U	ug/l	10									
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	26 U	ug/l	26
Dimethylphthalate	10 U	ug/l	10									
Acenaphthylene	10 U	ug/l	10									
2,6-Dinitrotoluene	10 U	ug/l	10									
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	26 U	ug/l	26
Acenaphthene	10 U	ug/l	10									
2,4-Dinitrophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	26 UJ	ug/l	26
4-Nitrophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	26 UJ	ug/l	26
Dibenzofuran	10 U	ug/l	10									
2,4-Dinitrotoluene	10 U	ug/l	10									
Diethylphthalate	10 U	ug/l	10									
4-Chlorophenyl-phenylether	10 U	ug/l	10									
Fluorene	10 U	ug/l	10									

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number:
Site
Locator
Collect Date:

90226001
WHITING
WHF16-4B
16-NOV-93
VALUE QUAL UNITS DL

90226002
WHITING
WHF16-4BA
16-NOV-93
VALUE QUAL UNITS DL

90226003
WHITING
WHF16-4CD
16-NOV-93
VALUE QUAL UNITS DL

90225002
WHITING
WHF16-4D
15-NOV-93
VALUE QUAL UNITS DL

	VALUE	QUAL UNITS	DL									
4-Nitroaniline	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	26 UJ	ug/l	26
4,6-Dinitro-2-methylphenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	26 U	ug/l	26
N-Nitrosodiphenylamine	10 U	ug/l	10									
4-Bromophenyl-phenylether	10 U	ug/l	10									
Hexachlorobenzene	10 U	ug/l	10									
Pentachlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	26 UJ	ug/l	26
Phenanthrene	10 U	ug/l	10									
Anthracene	10 U	ug/l	10									
Carbazole	10 U	ug/l	10									
Di-n-butylphthalate	10 U	ug/l	10									
Fluoranthene	10 U	ug/l	10									
Pyrene	10 U	ug/l	10									
Butylbenzylphthalate	10 U	ug/l	10									
3,3-Dichlorobenzidine	10 U	ug/l	10									
Benzo (a) anthracene	10 U	ug/l	10									
Chrysene	10 U	ug/l	10									
bis(2-Ethylhexyl) phthalate	10 U	ug/l	10	10 U	ug/l	10	10	ug/l	10	10 U	ug/l	10
Di-n-octylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 UJ	ug/l	10
Benzo (b) fluoranthene	10 U	ug/l	10									
Benzo (k) fluoranthene	10 U	ug/l	10									
Benzo (a) pyrene	10 U	ug/l	10									
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10									
Dibenzo (a,h) anthracene	10 U	ug/l	10									
Benzo (g,h,i) perylene	10 U	ug/l	10									

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number:	90236003			RC016004				RB980006				RB980016
Site	WHITING			WHITING				WHITING				WHITING
Locator	WHF16-5			16G00101				16G00201				16G00202
Collect Date:	17-NOV-93			19-AUG-96				14-AUG-96				15-AUG-96
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL

CLP SEMIVOLATILES 90-SOW

Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	1 J	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	50 U	ug/l	50	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	50 U	ug/l	50	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	50 U	ug/l	50	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	50 U	ug/l	50	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
4-Nitrophenol	50 U	ug/l	50	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number:	90236003	RC016004	RB980006	RB980016
Site	WHITING	WHITING	WHITING	WHITING
Locator	WHF16-5	16G00101	16G00201	16G00202
Collect Date:	17-NOV-93	19-AUG-96	14-AUG-96	15-AUG-96

	VALUE	QUAL	UNITS	DL												
4-Nitroaniline	50	U	ug/l	50	25	UJ	ug/l	25	25	UJ	ug/l	25	25	UJ	ug/l	25
4,6-Dinitro-2-methylphenol	50	U	ug/l	50	25	UJ	ug/l	25	25	UJ	ug/l	25	25	UJ	ug/l	25
N-Nitrosodiphenylamine	10	U	ug/l	10												
4-Bromophenyl-phenylether	10	U	ug/l	10												
Hexachlorobenzene	10	U	ug/l	10												
Pentachlorophenol	50	U	ug/l	50	25	UJ	ug/l	25	25	UJ	ug/l	25	25	UJ	ug/l	25
Phenanthrene	10	U	ug/l	10												
Anthracene	10	U	ug/l	10												
Carbazole	-				10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	UJ	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10												
Pyrene	10	U	ug/l	10												
Butylbenzylphthalate	10	U	ug/l	10												
3,3-Dichlorobenzidine	20	U	ug/l	20	10	UJ	ug/l	10	10	UJ	ug/l	10	10	UJ	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10												
Chrysene	10	U	ug/l	10												
bis(2-Ethylhexyl) phthalate	2	J	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	1	J	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10												
Benzo (b) fluoranthene	10	U	ug/l	10												
Benzo (k) fluoranthene	10	U	ug/l	10												
Benzo (a) pyrene	10	U	ug/l	10												
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10												
Dibenzo (a,h) anthracene	10	U	ug/l	10												
Benzo (g,h,i) perylene	10	U	ug/l	10												

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number:	RB980017	RC016005	RC016006	RC016008								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	16G00203	16G00301	16G00302	16G00303								
Collect Date:	15-AUG-96	20-AUG-96	20-AUG-96	21-AUG-96								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP SEMIVOLATILES 90-SOW

Phenol	5 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 UJ	ug/l	25	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number:
Site
Locator
Collect Date:

RB980017
WHITING
16G00203
15-AUG-96

RC016005
WHITING
16G00301
20-AUG-96

RC016006
WHITING
16G00302
20-AUG-96

RC016008
WHITING
16G00303
21-AUG-96

	VALUE	QUAL UNITS	DL									
4-Nitroaniline	25 UJ	ug/l	25	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4,6-Dinitro-2-methylphenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
N-Nitrosodiphenylamine	10 U	ug/l	10									
4-Bromophenyl-phenylether	10 U	ug/l	10									
Hexachlorobenzene	10 U	ug/l	10									
Pentachlorophenol	25 UJ	ug/l	25	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Phenanthrene	10 U	ug/l	10									
Anthracene	10 U	ug/l	10									
Carbazole	10 U	ug/l	10									
Di-n-butylphthalate	10 U	ug/l	10									
Fluoranthene	10 U	ug/l	10									
Pyrene	10 U	ug/l	10									
Butylbenzylphthalate	10 U	ug/l	10									
3,3-Dichlorobenzidine	10 UJ	ug/l	10	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) anthracene	10 U	ug/l	10									
Chrysene	10 U	ug/l	10									
bis(2-Ethylhexyl) phthalate	10 U	ug/l	10									
Di-n-octylphthalate	10 U	ug/l	10									
Benzo (b) fluoranthene	10 U	ug/l	10									
Benzo (k) fluoranthene	10 U	ug/l	10									
Benzo (a) pyrene	10 U	ug/l	10									
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10									
Dibenzo (a,h) anthracene	10 U	ug/l	10									
Benzo (g,h,i) perylene	10 U	ug/l	10									

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number:	RC016007			RC016002				RC016003				RB980020
Site	WHITING			WHITING				WHITING				WHITING
Locator	16G00304			16G00401				16G00402				16G00403
Collect Date:	20-AUG-96			19-AUG-96				19-AUG-96				16-AUG-96
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP SEMIVOLATILES 90-S0W

Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	8 J	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	1 J	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 U	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number: Site Locator Collect Date:	RC016007 WHITING 16G00304 20-AUG-96			RC016002 WHITING 16G00401 19-AUG-96			RC016003 WHITING 16G00402 19-AUG-96			RB980020 WHITING 16G00403 16-AUG-96		
	VALUE	QUAL UNITS	DL									
4-Nitroaniline	25 U	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
4,6-Dinitro-2-methylphenol	25 U	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
N-Nitrosodiphenylamine	10 U	ug/l	10									
4-Bromophenyl-phenylether	10 U	ug/l	10									
Hexachlorobenzene	10 U	ug/l	10									
Pentachlorophenol	25 U	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25
Phenanthrene	10 U	ug/l	10									
Anthracene	10 U	ug/l	10									
Carbazole	10 U	ug/l	10									
Di-n-butylphthalate	10 U	ug/l	10									
Fluoranthene	10 U	ug/l	10									
Pyrene	10 U	ug/l	10									
Butylbenzylphthalate	10 U	ug/l	10									
3,3-Dichlorobenzidine	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10
Benzo (a) anthracene	10 U	ug/l	10									
Chrysene	10 U	ug/l	10									
bis(2-Ethylhexyl) phthalate	53	ug/l	10	10 U	ug/l	10	1 J	ug/l	10	1 J	ug/l	10
Di-n-octylphthalate	10 U	ug/l	10									
Benzo (b) fluoranthene	10 U	ug/l	10									
Benzo (k) fluoranthene	10 U	ug/l	10									
Benzo (a) pyrene	10 U	ug/l	10									
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10									
Dibenzo (a,h) anthracene	10 U	ug/l	10									
Benzo (g,h,i) perylene	10 U	ug/l	10									

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number:	RB980021	RC016009	RC016013	RB980019							
Site	WHITING	WHITING	WHITING	WHITING							
Locator	16G00403D	16G00501	16G00501D	16G00601							
Collect Date:	16-AUG-96	21-AUG-96	21-AUG-96	16-AUG-96							
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP SEMIVOLATILES 90-SOW

Phenol	8 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	2 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number:	RB980021		RC016009		RC016013		RB980019		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	16G00403D		16G00501		16G00501D		16G00601		
Collect Date:	16-AUG-96		21-AUG-96		21-AUG-96		16-AUG-96		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

	VALUE	QUAL UNITS	DL									
4-Nitroaniline	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4,6-Dinitro-2-methylphenol	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
N-Nitrosodiphenylamine	10 U	ug/l	10									
4-Bromophenyl-phenylether	10 U	ug/l	10									
Hexachlorobenzene	10 U	ug/l	10									
Pentachlorophenol	25 UJ	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Phenanthrene	10 U	ug/l	10									
Anthracene	10 U	ug/l	10									
Carbazole	10 U	ug/l	10									
Di-n-butylphthalate	10 U	ug/l	10									
Fluoranthene	10 U	ug/l	10									
Pyrene	10 U	ug/l	10									
Butylbenzylphthalate	10 U	ug/l	10									
3,3-Dichlorobenzidine	10 UJ	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) anthracene	10 U	ug/l	10									
Chrysene	10 U	ug/l	10									
bis(2-Ethylhexyl) phthalate	10 U	ug/l	10	2 J	ug/l	10	10 U	ug/l	10	1 J	ug/l	10
Di-n-octylphthalate	10 U	ug/l	10									
Benzo (b) fluoranthene	10 U	ug/l	10									
Benzo (k) fluoranthene	10 U	ug/l	10									
Benzo (a) pyrene	10 U	ug/l	10									
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10									
Dibenzo (a,h) anthracene	10 U	ug/l	10									
Benzo (g,h,i) perylene	10 U	ug/l	10									

U= NOT DETECTED J=ESTIMATED VALUE
 UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
 R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number:	RB980018	RB887015	RB887016	RB887017								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	16G00602	16G00701	16G00702	16G00703								
Collect Date:	15-AUG-96	25-JUL-96	25-JUL-96	25-JUL-96								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP SEMIVOLATILES 90-SOW

Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	4 J	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10									
2-Chlorophenol	10 U	ug/l	10									
1,3-Dichlorobenzene	10 U	ug/l	10									
1,4-Dichlorobenzene	10 U	ug/l	10									
1,2-Dichlorobenzene	10 U	ug/l	10									
2-Methylphenol	10 U	ug/l	10									
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10									
4-Methylphenol	10 U	ug/l	10									
N-Nitroso-di-n-propylamine	10 U	ug/l	10									
Hexachloroethane	10 U	ug/l	10									
Nitrobenzene	10 U	ug/l	10									
Isophorone	10 U	ug/l	10									
2-Nitrophenol	10 U	ug/l	10									
2,4-Dimethylphenol	10 U	ug/l	10									
bis(2-Chloroethoxy) methane	10 U	ug/l	10									
2,4-Dichlorophenol	10 U	ug/l	10									
1,2,4-Trichlorobenzene	10 U	ug/l	10									
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	1 J	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10									
Hexachlorobutadiene	10 U	ug/l	10									
4-Chloro-3-methylphenol	10 U	ug/l	10									
2-Methylnaphthalene	10 U	ug/l	10									
Hexachlorocyclopentadiene	10 U	ug/l	10									
2,4,6-Trichlorophenol	10 U	ug/l	10									
2,4,5-Trichlorophenol	25 U	ug/l	25									
2-Chloronaphthalene	10 U	ug/l	10									
2-Nitroaniline	25 U	ug/l	25									
Dimethylphthalate	10 U	ug/l	10									
Acenaphthylene	10 U	ug/l	10									
2,6-Dinitrotoluene	10 U	ug/l	10									
3-Nitroaniline	25 U	ug/l	25									
Acenaphthene	10 U	ug/l	10									
2,4-Dinitrophenol	25 U	ug/l	25									
4-Nitrophenol	25 U	ug/l	25									
Dibenzofuran	10 U	ug/l	10									
2,4-Dinitrotoluene	10 U	ug/l	10									
Diethylphthalate	10 U	ug/l	10									
4-Chlorophenyl-phenylether	10 U	ug/l	10									
Fluorene	10 U	ug/l	10									

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- SEMIVOLATILES -- REPORT NO. 10500

Lab Sample Number:	RB980018			RB887015				RB887016				RB887017		
Site	WHITING			WHITING				WHITING				WHITING		
Locator	16G00602			16G00701				16G00702				16G00703		
Collect Date:	15-AUG-96			25-JUL-96				25-JUL-96				25-JUL-96		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL		

4-Nitroaniline	25 U	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25	25 UJ	ug/l	25		
4,6-Dinitro-2-methylphenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25		
N-Nitrosodiphenylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
4-Bromophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Hexachlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Pentachlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25		
Phenanthrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Carbazole	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Di-n-butylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Butylbenzylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
3,3-Dichlorobenzidine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Benzo (a) anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Chrysene	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10		
bis(2-Ethylhexyl) phthalate	6 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Di-n-octylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Benzo (b) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Benzo (k) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Benzo (a) pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Dibenzo (a,h) anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10		
Benzo (g,h,i) perylene	10 U	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10	10 UJ	ug/l	10		

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- PESTICIDES/PCBS -- REPORT NO. 10501

Lab Sample Number:	90226004		90214002		90272002		90272001		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	WHF16-1		WHF16-2		WHF16-2B		WHF16-2C		
Collect Date:	16-NOV-93		24-NOV-93		06-DEC-93		06-DEC-93		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP PESTICIDES/PCBS 90-SOW

alpha-BHC	.05 U	ug/l	.05									
beta-BHC	.05 U	ug/l	.05									
delta-BHC	.05 U	ug/l	.05									
gamma-BHC (Lindane)	.05 U	ug/l	.05									
Heptachlor	.05 U	ug/l	.05									
Aldrin	.05 U	ug/l	.05									
Heptachlor epoxide	.05 U	ug/l	.05									
Endosulfan I	.05 U	ug/l	.05									
Dieldrin	.1 U	ug/l	.1									
4,4-DDE	.1 U	ug/l	.1									
Endrin	.1 U	ug/l	.1									
Endosulfan II	.1 U	ug/l	.1									
4,4-DDD	.1 U	ug/l	.1									
Endosulfan sulfate	.1 U	ug/l	.1									
4,4-DDT	.1 U	ug/l	.1									
Methoxychlor	.5 U	ug/l	.5									
Endrin ketone	.1 U	ug/l	.1									
Endrin aldehyde	.1 U	ug/l	.1									
alpha-Chlordane	.05 U	ug/l	.05									
gamma-Chlordane	.05 U	ug/l	.05									
Toxaphene	5 U	ug/l	5									
Aroclor-1016	1 U	ug/l	1									
Aroclor-1221	2 U	ug/l	2									
Aroclor-1232	1 U	ug/l	1									
Aroclor-1242	1 U	ug/l	1									
Aroclor-1248	1 U	ug/l	1									
Aroclor-1254	1 U	ug/l	1									
Aroclor-1260	1 U	ug/l	1									

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- PESTICIDES/PCBs -- REPORT NO. 10501

Lab Sample Number:	90225001		90221002		90220001		90220002		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	WHF16-3B		WHF16-3C		WHF16-3D		WHF16-3DA		
Collect Date:	15-NOV-93		12-NOV-93		11-NOV-93		11-NOV-93		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP PESTICIDES/PCBS 90-SOW

alpha-BHC	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
beta-BHC	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
delta-BHC	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
gamma-BHC (Lindane)	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
Heptachlor	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
Aldrin	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
Heptachlor epoxide	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
Endosulfan I	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
Dieldrin	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDE	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
Endrin	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
Endosulfan II	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDD	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
Endosulfan sulfate	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDT	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
Methoxychlor	.5 U	ug/l	.5	.5 UJ	ug/l	.5	.5 UJ	ug/l	.5	.5 UJ	ug/l	.5
Endrin ketone	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
Endrin aldehyde	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
alpha-Chlordane	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
gamma-Chlordane	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05
Toxaphene	5 U	ug/l	5	5 UJ	ug/l	5	5 UJ	ug/l	5	5 UJ	ug/l	5
Aroclor-1016	1 U	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1
Aroclor-1221	2 U	ug/l	2	2 UJ	ug/l	2	2 UJ	ug/l	2	2 UJ	ug/l	2
Aroclor-1232	1 U	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1
Aroclor-1242	1 U	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1
Aroclor-1248	1 U	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1
Aroclor-1254	1 U	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1
Aroclor-1260	1 U	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1	1 UJ	ug/l	1

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- PESTICIDES/PCBs -- REPORT NO. 10501

Lab Sample Number:	90226001		90226002		90226003		90225002					
Site:	WHITING		WHITING		WHITING		WHITING					
Locator:	WHF16-4B		WHF16-4BA		WHF16-4CD		WHF16-4D					
Collect Date:	16-NOV-93		16-NOV-93		16-NOV-93		15-NOV-93					
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL

CLP PESTICIDES/PCBS 90-SOW

alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	UJ	ug/l	.5	.5	U	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1	.1	U	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05	.05	U	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	UJ	ug/l	5	5	U	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	2	2	U	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1	1	U	ug/l	1

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- PESTICIDES/PCBs -- REPORT NO. 10501

Lab Sample Number:	90236003			RC016004				RB980006				RB980016
Site	WHITING			WHITING				WHITING				WHITING
Locator	WHF16-5			16G00101				16G00201				16G00202
Collect Date:	17-NOV-93			19-AUG-96				14-AUG-96				15-AUG-96
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL

CLP PESTICIDES/PCBS 90-SQW

alpha-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
beta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
delta-BHC	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-BHC (Lindane)	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Aldrin	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Heptachlor epoxide	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Endosulfan I	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Dieldrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDE	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan II	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDD	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endosulfan sulfate	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
4,4-DDT	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Methoxychlor	.5	UJ	ug/l	.5	.5	U	ug/l	.5	.5	UJ	ug/l	.5
Endrin ketone	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
Endrin aldehyde	.1	UJ	ug/l	.1	.1	U	ug/l	.1	.1	UJ	ug/l	.1
alpha-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
gamma-Chlordane	.05	UJ	ug/l	.05	.05	U	ug/l	.05	.05	UJ	ug/l	.05
Toxaphene	5	UJ	ug/l	5	5	U	ug/l	5	5	UJ	ug/l	5
Aroclor-1016	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1221	2	UJ	ug/l	2	2	U	ug/l	2	2	UJ	ug/l	2
Aroclor-1232	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1242	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1248	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1254	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1
Aroclor-1260	1	UJ	ug/l	1	1	U	ug/l	1	1	UJ	ug/l	1

U= NOT DETECTED J=ESTIMATED VALUE
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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- PESTICIDES/PCBs -- REPORT NO. 10501

Lab Sample Number:	RB980017			RC016005				RC016006				RC016008
Site	WHITING			WHITING				WHITING				WHITING
Locator	16G00203			16G00301				16G00302				16G00303
Collect Date:	15-AUG-96			20-AUG-96				20-AUG-96				21-AUG-96
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP PESTICIDES/PCBS 90-SOW

alpha-BHC	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05
beta-BHC	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05
delta-BHC	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05
gamma-BHC (Lindane)	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05
Heptachlor	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05
Aldrin	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05
Heptachlor epoxide	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05
Endosulfan I	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05
Dieldrin	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1
4,4-DDE	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1
Endrin	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1
Endosulfan II	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1
4,4-DDD	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1
Endosulfan sulfate	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1
4,4-DDT	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1
Methoxychlor	.5 UJ	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5
Endrin ketone	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1
Endrin aldehyde	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1
alpha-Chlordane	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05
gamma-Chlordane	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05
Toxaphene	5 UJ	ug/l	5	5 U	ug/l	5	5 U	ug/l	5	5 U	ug/l	5
Aroclor-1016	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1221	2 UJ	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 U	ug/l	2
Aroclor-1232	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1242	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1248	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1254	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1
Aroclor-1260	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 U	ug/l	1

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- PESTICIDES/PCBs -- REPORT NO. 10501

Lab Sample Number:	RC016007	RC016002	RC016003	RB980020								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	16G00304	16G00401	16G00402	16G00403								
Collect Date:	20-AUG-96	19-AUG-96	19-AUG-96	16-AUG-96								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP PESTICIDES/PCBS 90-SOW

alpha-BHC	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
beta-BHC	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
delta-BHC	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
gamma-BHC (Lindane)	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Heptachlor	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Aldrin	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Heptachlor epoxide	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Endosulfan I	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Dieldrin	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDE	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
Endrin	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
Endosulfan II	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDD	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
Endosulfan sulfate	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDT	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
Methoxychlor	.5 UJ	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 UJ	ug/l	.5
Endrin ketone	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
Endrin aldehyde	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
alpha-Chlordane	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
gamma-Chlordane	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Toxaphene	5 UJ	ug/l	5	5 U	ug/l	5	5 U	ug/l	5	5 UJ	ug/l	5
Aroclor-1016	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1221	2 UJ	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 UJ	ug/l	2
Aroclor-1232	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1242	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1248	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1254	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1260	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- PESTICIDES/PCBs -- REPORT NO. 10501

Lab Sample Number:	RB980020			RC016009			RC016013			RB980019		
Site	WHITING			WHITING			WHITING			WHITING		
Locator	16G00403D			16G00501			16G00501D			16G00601		
Collect Date:	16-AUG-96			21-AUG-96			21-AUG-96			16-AUG-96		
	VALUE	QUAL UNITS	DL									

CLP PESTICIDES/PCBS 90-SOW

alpha-BHC	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
beta-BHC	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
delta-BHC	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
gamma-BHC (Lindane)	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Heptachlor	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Aldrin	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Heptachlor epoxide	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Endosulfan I	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Dieldrin	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDE	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
Endrin	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
Endosulfan II	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDD	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
Endosulfan sulfate	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDT	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.15 J	ug/l	.1
Methoxychlor	.5 UJ	ug/l	.5	.5 U	ug/l	.5	.5 U	ug/l	.5	.5 UJ	ug/l	.5
Endrin ketone	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
Endrin aldehyde	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
alpha-Chlordane	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
gamma-Chlordane	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Toxaphene	5 UJ	ug/l	5	5 U	ug/l	5	5 U	ug/l	5	5 UJ	ug/l	5
Aroclor-1016	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1221	2 UJ	ug/l	2	2 U	ug/l	2	2 U	ug/l	2	2 UJ	ug/l	2
Aroclor-1232	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1242	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1248	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1254	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1260	1 UJ	ug/l	1	1 U	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1

U= NOT DETECTED J=ESTIMATED VALUE
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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- PESTICIDES/PCBs -- REPORT NO. 10501

Lab Sample Number:	RB980018	RB887015	RB887016	RB887017								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	16G00602	16G00701	16G00702	16G00703								
Collect Date:	15-AUG-96	25-JUL-96	25-JUL-96	25-JUL-96								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP PESTICIDES/PCBS 90-SOW

alpha-BHC	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
beta-BHC	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
delta-BHC	.05 UJ	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
gamma-BHC (Lindane)	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Heptachlor	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Aldrin	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Heptachlor epoxide	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Endosulfan I	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Dieldrin	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDE	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
Endrin	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
Endosulfan II	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDD	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
Endosulfan sulfate	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
4,4-DDT	.14 J	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1	.1 UJ	ug/l	.1
Methoxychlor	.5 U	ug/l	.5	.5 UJ	ug/l	.5	.5 U	ug/l	.5	.5 UJ	ug/l	.5
Endrin ketone	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
Endrin aldehyde	.1 U	ug/l	.1	.1 UJ	ug/l	.1	.1 U	ug/l	.1	.1 UJ	ug/l	.1
alpha-Chlordane	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
gamma-Chlordane	.05 U	ug/l	.05	.05 UJ	ug/l	.05	.05 U	ug/l	.05	.05 UJ	ug/l	.05
Toxaphene	5 U	ug/l	5	5 UJ	ug/l	5	5 U	ug/l	5	5 UJ	ug/l	5
Aroclor-1016	1 U	ug/l	1	1 UJ	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1221	2 U	ug/l	2	2 UJ	ug/l	2	2 U	ug/l	2	2 UJ	ug/l	2
Aroclor-1232	1 U	ug/l	1	1 UJ	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1242	1 U	ug/l	1	1 UJ	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1248	1 U	ug/l	1	1 UJ	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1254	1 U	ug/l	1	1 UJ	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1
Aroclor-1260	1 U	ug/l	1	1 UJ	ug/l	1	1 U	ug/l	1	1 UJ	ug/l	1

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- INORGANICS -- REPORT NO. 10502

Lab Sample Number:	90226004		90214002		90272002		90272001		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	WHF16-1		WHF16-2		WHF16-2B		WHF16-2C		
Collect Date:	16-NOV-93		24-NOV-93		06-DEC-93		06-DEC-93		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP METALS AND CYANIDE

Aluminum	27.2 J	ug/l	200	178 J	ug/l	200	12400	ug/l	200	25.1 J	ug/l	200
Antimony	20.7 U	ug/l	60									
Arsenic	1.7 J	ug/l	10	1.6 U	ug/l	10	1.6 U	ug/l	10	1.6 U	ug/l	10
Barium	31.5 J	ug/l	200	12.3 J	ug/l	200	77.8 J	ug/l	200	34.4 J	ug/l	200
Beryllium	.2 U	ug/l	5	.2 U	ug/l	5	.26 J	ug/l	5	.2 U	ug/l	5
Cadmium	3.2 U	ug/l	5	5	ug/l	5	3.2 U	ug/l	5	3.2 U	ug/l	5
Calcium	1090 J	ug/l	5000	859 J	ug/l	5000	785 J	ug/l	5000	2120 J	ug/l	5000
Chromium	3.3 U	ug/l	10	3.3 U	ug/l	10	35.5	ug/l	10	3.4 J	ug/l	10
Cobalt	4.1 U	ug/l	50	4.1 U	ug/l	50	5 J	ug/l	50	4.1 U	ug/l	50
Copper	8.2 J	ug/l	25	2.1 U	ug/l	25	14 J	ug/l	25	2.8 J	ug/l	25
Iron	34.5 J	ug/l	100	135	ug/l	100	12400	ug/l	100	545	ug/l	100
Lead	1.8 J	ug/l	3	1.3 J	ug/l	3	5.6	ug/l	3	1.6 J	ug/l	3
Magnesium	1020 J	ug/l	5000	534 J	ug/l	5000	1270 J	ug/l	5000	1400 J	ug/l	5000
Manganese	4.2 J	ug/l	15	20.5	ug/l	15	44.4	ug/l	15	115	ug/l	15
Mercury	.15 U	ug/l	.2	.15 U	ug/l	.2	.3 J	ug/l	.2	.16 J	ug/l	.2
Nickel	10.6 J	ug/l	40	9 U	ug/l	40	9 U	ug/l	40	9 U	ug/l	40
Potassium	852 J	ug/l	5000	614 U	ug/l	5000	1830 J	ug/l	5000	614 U	ug/l	5000
Selenium	2 U	ug/l	5									
Silver	2.7 U	ug/l	10	2.7 U	ug/l	10	2.7 U	ug/l	10	3.9 J	ug/l	10
Sodium	2300 J	ug/l	5000	6850	ug/l	5000	2930 J	ug/l	5000	3330 J	ug/l	5000
Thallium	.88 U	ug/l	10									
Vanadium	2.5 U	ug/l	50	2.5 U	ug/l	50	37.3 J	ug/l	50	2.5 U	ug/l	50
Zinc	29	ug/l	20	6.5 J	ug/l	20	97.7	ug/l	20	8 J	ug/l	20
Cyanide	1.7 U	ug/l	10	1.7 J	ug/l	10	1.7 U	ug/l	10	1.7 U	ug/l	10

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- INORGANICS -- REPORT NO. 10502

Lab Sample Number:	90225001	90221002	90220001	90220002								
Site	WHITING	WHITING	WHITING	WHITING								
Locator	WHF16-3B	WHF16-3C	WHF16-3D	WHF16-3DA								
Collect Date:	15-NOV-93	12-NOV-93	11-NOV-93	11-NOV-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP METALS AND CYANIDE

Aluminum	85000 U	ug/l	200	82600	ug/l	200	1370	ug/l	200	2590 J	ug/l	200
Antimony	104 U	ug/l	60	20.7 U	ug/l	60	20.7 U	ug/l	60	20.7 U	ug/l	60
Arsenic	4.5 J	ug/l	10	3.7 J	ug/l	10	1.9 J	ug/l	10	2 J	ug/l	10
Barium	105 J	ug/l	200	297	ug/l	200	19.1 J	ug/l	200	20.4 J	ug/l	200
Beryllium	4.7 J	ug/l	5	3.6 J	ug/l	5	.32 J	ug/l	5	.45 J	ug/l	5
Cadmium	16 U	ug/l	5	56.5	ug/l	5	3.2 U	ug/l	5	5.6	ug/l	5
Calcium	79400	ug/l	5000	23000	ug/l	5000	2410 J	ug/l	5000	2420 J	ug/l	5000
Chromium	219	ug/l	10	225	ug/l	10	4.3 J	ug/l	10	5.1 J	ug/l	10
Cobalt	21.3 J	ug/l	50	6.2 J	ug/l	50	4.1 U	ug/l	50	4.1 U	ug/l	50
Copper	43.6 J	ug/l	25	87.1	ug/l	25	2.6 J	ug/l	25	2.4 J	ug/l	25
Iron	313000	ug/l	100	83700	ug/l	100	923 J	ug/l	100	1230 J	ug/l	100
Lead	15.2	ug/l	3	69.1	ug/l	3	2.2 UJ	ug/l	3	2.4 UJ	ug/l	3
Magnesium	6780 J	ug/l	5000	8660	ug/l	5000	903 J	ug/l	5000	955 J	ug/l	5000
Manganese	1050	ug/l	15	498	ug/l	15	93.4	ug/l	15	94.1	ug/l	15
Mercury	.23	ug/l	.2	.48	ug/l	.2	.15 U	ug/l	.2	.15 U	ug/l	.2
Nickel	82.4 J	ug/l	40	38.5 J	ug/l	40	9 U	ug/l	40	9 U	ug/l	40
Potassium	7000 J	ug/l	5000	4780 J	ug/l	5000	1890 J	ug/l	5000	1770 J	ug/l	5000
Selenium	2 U	ug/l	5	2 U	ug/l	5	2 U	ug/l	2	2 U	ug/l	5
Silver	24.3 J	ug/l	10	2.7 U	ug/l	10	2.7 UJ	ug/l	10	2.7 UJ	ug/l	10
Sodium	6980 J	ug/l	5000	13500	ug/l	5000	23200	ug/l	5000	23000	ug/l	5000
Thallium	.88 U	ug/l	10	.88 U	ug/l	10	1 UJ	ug/l	10	.88 U	ug/l	10
Vanadium	987	ug/l	50	120	ug/l	50	4.4 J	ug/l	50	5 J	ug/l	50
Zinc	152	ug/l	20	451	ug/l	20	14.7 J	ug/l	20	17.8 J	ug/l	20
Cyanide	1.7 U	ug/l	10	1.9 J	ug/l	10	1.7 U	ug/l	10	1.7 U	ug/l	10

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- INORGANICS -- REPORT NO. 10502

Lab Sample Number:	90226001		90226002		90226003		90225002		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	WHF16-4B		WHF16-4BA		WHF16-4CD		WHF16-4D		
Collect Date:	16-NOV-93		16-NOV-93		16-NOV-93		15-NOV-93		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

P METALS AND CYANIDE

Aluminum	6280	ug/l	200	5170	ug/l	200	111 J	ug/l	200	779 U	ug/l	200
Antimony	20.7 U	ug/l	60									
Arsenic	3.1 J	ug/l	10	1.6 U	ug/l	10	1.6 U	ug/l	10	1.6 U	ug/l	10
Barium	25.9 J	ug/l	200	26.3 J	ug/l	200	15.7 J	ug/l	200	20.3 J	ug/l	200
Beryllium	.2 U	ug/l	5									
Cadmium	3.2 U	ug/l	5	3.2 U	ug/l	5	3.9 J	ug/l	5	3.2 U	ug/l	5
Calcium	91600	ug/l	5000	90300	ug/l	5000	1970 J	ug/l	5000	6350	ug/l	5000
Chromium	7 J	ug/l	10	7 J	ug/l	10	3.3 U	ug/l	10	3.8 J	ug/l	10
Cobalt	4.1 U	ug/l	50									
Copper	6.6 J	ug/l	25	6.5 J	ug/l	25	2.1 U	ug/l	25	2.1 U	ug/l	25
Iron	4640	ug/l	100	3370	ug/l	100	140	ug/l	100	223	ug/l	100
Lead	6.1	ug/l	3	4.7	ug/l	3	1 U	ug/l	3	1.2 J	ug/l	3
Magnesium	7840	ug/l	5000	7720	ug/l	5000	459 J	ug/l	5000	528 J	ug/l	5000
Manganese	81.1	ug/l	15	67.2	ug/l	15	18.2	ug/l	15	59.1	ug/l	15
Mercury	.15 U	ug/l	.2									
Nickel	9 U	ug/l	40									
Potassium	3360 J	ug/l	5000	3540 J	ug/l	5000	614 U	ug/l	5000	614 U	ug/l	5000
Selenium	2 U	ug/l	5									
Silver	2.7 U	ug/l	10									
Sodium	3270 J	ug/l	5000	3090 J	ug/l	5000	3690 J	ug/l	5000	3180 J	ug/l	5000
Thallium	.88 U	ug/l	10									
Vanadium	14.2 J	ug/l	50	11.5 J	ug/l	50	2.5 U	ug/l	50	3.5 J	ug/l	50
Zinc	92.5	ug/l	20	68	ug/l	20	25.7	ug/l	20	3.3 J	ug/l	20
Cyanide	1.7 U	ug/l	10									

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- INORGANICS -- REPORT NO. 10502

Lab Sample Number:	90236003	RC016004	WTME340009	WTME340010					
Site	WHITING	WHITING	WHITING	WHITING					
Locator	WHF16-5	16G00101	16G00101	16G00101D					
Collect Date:	17-NOV-93	19-AUG-96	24-JUL-97	24-JUL-97					
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP METALS AND CYANIDE

Aluminum	64.8 J	ug/l	200	18.2 U	ug/l	200	200 U	ug/l	200	200 U	ug/l	200
Antimony	20.7 U	ug/l	60	8.6 U	ug/l	60	60 U	ug/l	60	60 U	ug/l	60
Arsenic	1.6 U	ug/l	10	.5 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Barium	7.9 J	ug/l	200	24.1 J	ug/l	200	20.5 J	ug/l	200	20.7 J	ug/l	200
Beryllium	.2 U	ug/l	5	.3 U	ug/l	5	5 U	ug/l	5	5 U	ug/l	5
Cadmium	3.2 U	ug/l	5	1.2 U	ug/l	5	5 U	ug/l	5	5 U	ug/l	5
Calcium	157 J	ug/l	5000	623 J	ug/l	5000	5000 U	ug/l	5000	5000 U	ug/l	5000
Chromium	3.3 U	ug/l	10	2.1 J	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Cobalt	4.1 U	ug/l	50	2.3 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
Copper	2.1 U	ug/l	25	1.1 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Iron	35 J	ug/l	100	39.9 J	ug/l	100	100 U	ug/l	100	100 U	ug/l	100
Lead	1 U	ug/l	3	2.1 U	ug/l	3	3 U	ug/l	3	3 U	ug/l	3
Magnesium	270 J	ug/l	5000	685 J	ug/l	5000	617 J	ug/l	5000	623 J	ug/l	5000
Manganese	1.7 J	ug/l	15	3.8 J	ug/l	15	15 U	ug/l	15	15 U	ug/l	15
Mercury	.15 U	ug/l	.2	.1 U	ug/l	.2	.2 U	ug/l	.2	.2 U	ug/l	.2
Nickel	9 U	ug/l	40	7.3 U	ug/l	40	40 U	ug/l	40	40 U	ug/l	40
Potassium	614 U	ug/l	5000	375 J	ug/l	5000	5000 U	ug/l	5000	5000 U	ug/l	5000
Selenium	2 U	ug/l	5	.6 U	ug/l	5	5 UJ	ug/l	5	5 U	ug/l	5
Silver	2.7 U	ug/l	10	2.5 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Sodium	1630 J	ug/l	5000	1860 J	ug/l	5000	2130 J	ug/l	5000	2110 J	ug/l	5000
Thallium	.88 U	ug/l	10	.6 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vanadium	2.5 U	ug/l	50	1.5 U	ug/l	50	50 U	ug/l	50	50 U	ug/l	50
Zinc	2.2 J	ug/l	20	114	ug/l	20	20 U	ug/l	20	20 U	ug/l	20
Cyanide	1.7 U	ug/l	10	1.5 U	ug/l	-	-	ug/l	-	-	ug/l	-

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- INORGANICS -- REPORT NO. 10502

Lab Sample Number:	RB980014		RB980006		RB980016		WTME322004		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	16G00201F		16G00201		16G00202		16G00202		
Collect Date:	13-AUG-96		14-AUG-96		15-AUG-96		22-JUL-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP METALS AND CYANIDE

Aluminum	21 U	ug/l		66.7 U	ug/l		11.1 U	ug/l		200 U	ug/l	200
Antimony	8.6 U	ug/l		8.6 U	ug/l		8.6 U	ug/l		60 U	ug/l	60
Arsenic	.5 U	ug/l		.5 U	ug/l		.5 U	ug/l		10 U	ug/l	10
Barium	17.4 J	ug/l		17.4 J	ug/l		30.1 J	ug/l		45.2 J	ug/l	200
Beryllium	.3 U	ug/l		.3 U	ug/l		.3 U	ug/l		5 U	ug/l	5
Cadmium	1.2 U	ug/l		1.2 U	ug/l		1.2 U	ug/l		5 U	ug/l	5
Calcium	320 U	ug/l		308 U	ug/l		1990 J	ug/l		3660 J	ug/l	5000
Chromium	2 U	ug/l		2 U	ug/l		2 U	ug/l		10 U	ug/l	10
Cobalt	2.3 U	ug/l		3 J	ug/l		2.3 U	ug/l		50 U	ug/l	50
Copper	1.1 U	ug/l		1.1 U	ug/l		1.1 U	ug/l		25 U	ug/l	25
Iron	5 U	ug/l		41.2 U	ug/l		57.2 U	ug/l		100 U	ug/l	100
Lead	.5 U	ug/l		.5 U	ug/l		2.3 J	ug/l		3 U	ug/l	3
Magnesium	464 J	ug/l		484 J	ug/l		1450 J	ug/l		3020 J	ug/l	5000
Manganese	2.5 J	ug/l		2.1 J	ug/l		12 J	ug/l		21.8	ug/l	15
Mercury	.1 U	ug/l		.1 U	ug/l		.1 U	ug/l		.2 U	ug/l	.2
Nickel	7.3 U	ug/l		7.3 U	ug/l		7.3 U	ug/l		40 U	ug/l	40
Potassium	316 U	ug/l		476 J	ug/l		331 J	ug/l		5000 U	ug/l	5000
Selenium	.6 U	ug/l		.6 U	ug/l		.6 U	ug/l		5 U	ug/l	5
Silver	2.5 U	ug/l		2.5 U	ug/l		2.5 U	ug/l		10 U	ug/l	10
Sodium	2670 J	ug/l		2690 J	ug/l		5260	ug/l		4300 J	ug/l	5000
Thallium	.6 U	ug/l		.6 U	ug/l		.6 U	ug/l		10 UJ	ug/l	10
Vanadium	1.2 U	ug/l		1.2 U	ug/l		1.2 U	ug/l		50 U	ug/l	50
Zinc	2.5 U	ug/l		1.5 U	ug/l		168	ug/l		20 U	ug/l	20
Cyanide	-	ug/l		2.2 U	ug/l		1.6 U	ug/l		-		

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- INORGANICS -- REPORT NO. 10502

Lab Sample Number:	RB980017		WTME322005		RC016005		WTME340008		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	16G00203		16G00203		16G00301		16G00301		
Collect Date:	15-AUG-96		23-JUL-97		20-AUG-96		24-JUL-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP METALS AND CYANIDE

Aluminum	17.7 U	ug/l		121 J	ug/l	200	73.3 U	ug/l		749	ug/l	200
Antimony	8.6 U	ug/l		60 U	ug/l	60	8.6 U	ug/l		60 U	ug/l	60
Arsenic	.5 U	ug/l		10 U	ug/l	10	.5 U	ug/l		10 U	ug/l	10
Barium	21.5 J	ug/l		17.4 J	ug/l	200	40.7 J	ug/l		39.3 J	ug/l	200
Beryllium	.3 U	ug/l		5 U	ug/l	5	.3 U	ug/l		5 U	ug/l	5
Cadmium	1.2 U	ug/l		5 U	ug/l	5	1.2 U	ug/l		5 U	ug/l	5
Calcium	1000 J	ug/l		1080 J	ug/l	5000	24900	ug/l		35700	ug/l	5000
Chromium	2 U	ug/l		10 U	ug/l	10	2 U	ug/l		10 U	ug/l	10
Cobalt	2.3 U	ug/l		50 U	ug/l	50	2.3 U	ug/l		50 U	ug/l	50
Copper	1.1 U	ug/l		25 U	ug/l	25	1.1 U	ug/l		25 U	ug/l	25
Iron	30.2 U	ug/l		100 U	ug/l	100	176	ug/l		1040	ug/l	100
Lead	.5 U	ug/l		3 U	ug/l	3	.5 U	ug/l		3 U	ug/l	3
Magnesium	732 J	ug/l		659 J	ug/l	5000	2850 J	ug/l		3450 J	ug/l	5000
Manganese	36.9	ug/l		41.4	ug/l	15	3 J	ug/l		12.1 J	ug/l	15
Mercury	.1 U	ug/l		.2 U	ug/l	.2	.1 U	ug/l		.2 U	ug/l	.2
Nickel	7.3 U	ug/l		40 U	ug/l	40	7.3 U	ug/l		40 U	ug/l	40
Potassium	322 J	ug/l		5000 U	ug/l	5000	3730 J	ug/l		3510 J	ug/l	5000
Selenium	.6 U	ug/l		5 U	ug/l	5	.6 U	ug/l		5 U	ug/l	5
Silver	2.5 U	ug/l		10 U	ug/l	10	2.5 U	ug/l		10 U	ug/l	10
Sodium	2160 J	ug/l		2080 J	ug/l	5000	4750 J	ug/l		6660	ug/l	5000
Thallium	.6 U	ug/l		10 U	ug/l	10	.6 U	ug/l		10 UJ	ug/l	10
Vanadium	1.2 U	ug/l		50 U	ug/l	50	1.7 U	ug/l		50 U	ug/l	50
Zinc	4.9 U	ug/l		20 U	ug/l	20	2.2 U	ug/l		20 U	ug/l	20
Cyanide	1.6 U	ug/l		-			1.5 U	ug/l		-		

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- INORGANICS -- REPORT NO. 10502

Lab Sample Number:	RC016006		WTME322002		RC016008		WTME322003		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	16G00302		16G00302		16G00303		16G00303		
Collect Date:	20-AUG-96		22-JUL-97		21-AUG-96		22-JUL-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP METALS AND CYANIDE

Aluminum	82.5 U	ug/l		200 U	ug/l	200	395	ug/l		222	ug/l	200
Antimony	8.6 U	ug/l		60 U	ug/l	60	8.6 U	ug/l		17.4 J	ug/l	60
Arsenic	.5 U	ug/l		10 U	ug/l	10	1.1 U	ug/l		10 U	ug/l	10
Barium	23.5 J	ug/l		25.3 J	ug/l	200	27.2 J	ug/l		26.6 J	ug/l	200
Beryllium	.3 U	ug/l		5 U	ug/l	5	.3 U	ug/l		5 U	ug/l	5
Cadmium	1.2 U	ug/l		5 U	ug/l	5	1.2 U	ug/l		5 U	ug/l	5
Calcium	1060 J	ug/l		997 J	ug/l	5000	1070 J	ug/l		1380 J	ug/l	5000
Chromium	2.6 J	ug/l		10 U	ug/l	10	4.6 J	ug/l		10 U	ug/l	10
Cobalt	2.3 U	ug/l		50 U	ug/l	50	2.3 U	ug/l		50 U	ug/l	50
Copper	1.1 U	ug/l		25 U	ug/l	25	1.7 J	ug/l		25 U	ug/l	25
Iron	113	ug/l		100 U	ug/l	100	1410	ug/l		1370	ug/l	100
Lead	.9 U	ug/l		3 U	ug/l	3	2.6 U	ug/l		3 U	ug/l	3
Magnesium	720 J	ug/l		790 J	ug/l	5000	1030 J	ug/l		1220 J	ug/l	5000
Manganese	47.3	ug/l		18	ug/l	15	60.3	ug/l		89.6	ug/l	15
Mercury	.1 U	ug/l		.2 U	ug/l	.2	.11 U	ug/l		.2 U	ug/l	.2
Nickel	7.3 U	ug/l		40 U	ug/l	40	7.3 U	ug/l		40 U	ug/l	40
Potassium	401 J	ug/l		1180 J	ug/l	5000	316 U	ug/l		5000 U	ug/l	5000
Selenium	.6 U	ug/l		5 U	ug/l	5	.6 U	ug/l		5 U	ug/l	5
Silver	2.5 U	ug/l		10 U	ug/l	10	2.5 U	ug/l		10 U	ug/l	10
Sodium	2490 J	ug/l		3470 J	ug/l	5000	4570 J	ug/l		3940 J	ug/l	5000
Thallium	.6 U	ug/l		10 UJ	ug/l	10	.6 U	ug/l		10 UJ	ug/l	10
Vanadium	1.2 U	ug/l		50 U	ug/l	50	3.6 U	ug/l		50 U	ug/l	50
Zinc	6.2 U	ug/l		20 U	ug/l	20	3 U	ug/l		20 U	ug/l	20
Cyanide	1.5 U	ug/l		-	ug/l	-	1.5 U	ug/l		-	ug/l	-

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- INORGANICS -- REPORT NO. 10502

Lab Sample Number:	RC016010	RC016007	WTME340006	WSME340007					
Site	WHITING	WHITING	WHITING	WHITING					
Locator	16G00303F	16G00304	16G00304	16G00304F					
Collect Date:	21-AUG-96	20-AUG-96	24-JUL-97	24-JUL-97					
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP METALS AND CYANIDE

Aluminum	25.4 U	ug/l		90.7 J	ug/l		1900	ug/l	200	98.4 J	ug/l	200
Antimony	8.6 U	ug/l		10 U	ug/l		60 U	ug/l	60	60 U	ug/l	60
Arsenic	.5 U	ug/l		1.5 U	ug/l		10 U	ug/l	10	1.4 J	ug/l	10
Barium	18.9 J	ug/l		13 J	ug/l		16 J	ug/l	200	11 J	ug/l	200
Beryllium	.3 U	ug/l		.3 U	ug/l		5 U	ug/l	5	5 U	ug/l	5
Cadmium	1.2 U	ug/l		1.2 U	ug/l		5 U	ug/l	5	5 U	ug/l	5
Calcium	962 J	ug/l		2500 J	ug/l		2960 J	ug/l	5000	2540 J	ug/l	5000
Chromium	3.4 J	ug/l		2 U	ug/l		10 U	ug/l	10	10 U	ug/l	10
Cobalt	2.3 U	ug/l		2.3 U	ug/l		50 U	ug/l	50	50 U	ug/l	50
Copper	1.1 U	ug/l		1.1 U	ug/l		11.9 J	ug/l	25	25 U	ug/l	25
Iron	396	ug/l		111	ug/l		1040	ug/l	100	100 U	ug/l	100
Lead	.5 U	ug/l		.5 U	ug/l		3 U	ug/l	3	3 U	ug/l	3
Magnesium	893 J	ug/l		988 J	ug/l		1220 J	ug/l	5000	1030 J	ug/l	5000
Manganese	53.3	ug/l		73.7	ug/l		105	ug/l	15	80.4	ug/l	15
Mercury	.1 U	ug/l		.1 U	ug/l		.2 U	ug/l	.2	.2 U	ug/l	.2
Nickel	7.3 U	ug/l		7.7 J	ug/l		40 U	ug/l	40	40 U	ug/l	40
Potassium	316 U	ug/l		1640 J	ug/l		2010 J	ug/l	5000	1720 J	ug/l	5000
Selenium	.6 U	ug/l		.6 U	ug/l		5 U	ug/l	5	5 U	ug/l	5
Silver	2.5 U	ug/l		2.5 U	ug/l		10 U	ug/l	10	10 U	ug/l	10
Sodium	4590 J	ug/l		20600	ug/l		20400	ug/l	5000	20700	ug/l	5000
Thallium	.6 U	ug/l		.6 U	ug/l		10 U	ug/l	10	10 UJ	ug/l	10
Vanadium	1.2 U	ug/l		1.5 U	ug/l		50 U	ug/l	50	50 U	ug/l	50
Zinc	3.9 U	ug/l		53.1	ug/l		26.7	ug/l	20	20 U	ug/l	20
Cyanide	-	ug/l		1.5 U	ug/l		-	ug/l		-	ug/l	

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- INORGANICS -- REPORT NO. 10502

Lab Sample Number:	RC016002		RC016003		RB980020		RB980021	
Site	WHITING		WHITING		WHITING		WHITING	
Locator	16G00401		16G00402		16G00403		16G00403D	
Collect Date:	19-AUG-96		19-AUG-96		16-AUG-96		16-AUG-96	
	VALUE	DL	VALUE	DL	VALUE	DL	VALUE	DL
	QUAL UNITS		QUAL UNITS		QUAL UNITS		QUAL UNITS	

CLP METALS AND CYANIDE

Aluminum	52.8 U	ug/l	34.1 U	ug/l	278	ug/l	290	ug/l
Antimony	10.7 U	ug/l	8.6 U	ug/l	8.6 U	ug/l	8.6 U	ug/l
Arsenic	.6 J	ug/l	.5 U	ug/l	1 J	ug/l	.5 U	ug/l
Barium	59.4 J	ug/l	57.7 J	ug/l	28.6 J	ug/l	27.5 J	ug/l
Beryllium	.42 J	ug/l	.3 U	ug/l	.3 U	ug/l	.3 U	ug/l
Cadmium	12.5	ug/l	1.2 U	ug/l	1.2 U	ug/l	1.2 U	ug/l
Calcium	78800	ug/l	8460	ug/l	3110 J	ug/l	3300 J	ug/l
Chromium	2 U	ug/l	2 U	ug/l	2.3 J	ug/l	2.9 J	ug/l
Cobalt	2.3 U	ug/l						
Copper	1.7 J	ug/l	1.4 J	ug/l	1.1 U	ug/l	1.3 J	ug/l
Iron	167	ug/l	57.5 J	ug/l	1370	ug/l	879	ug/l
Lead	.5 U	ug/l	.8 U	ug/l	4	ug/l	2.7 J	ug/l
Magnesium	8690	ug/l	542 J	ug/l	1320 J	ug/l	987 J	ug/l
Manganese	65.4	ug/l	7 J	ug/l	41.3	ug/l	33.5	ug/l
Mercury	.1 U	ug/l						
Nickel	7.3 U	ug/l						
Potassium	4790 J	ug/l	316 U	ug/l	540 J	ug/l	713 J	ug/l
Selenium	.6 U	ug/l						
Silver	2.5 U	ug/l						
Sodium	3490 J	ug/l	3210 J	ug/l	2570 J	ug/l	2590 J	ug/l
Thallium	.6 U	ug/l						
Vanadium	3.4 U	ug/l	1.2 U	ug/l	2.2 J	ug/l	1.2 U	ug/l
Zinc	50.7	ug/l	381	ug/l	103	ug/l	945	ug/l
Cyanide	1.5 U	ug/l	1.5 U	ug/l	2.9 U	ug/l	1.6 U	ug/l

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- INORGANICS -- REPORT NO. 10502

Lab Sample Number:	RB980023		RC016009		RC016013		RC016011		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	16G00403F		16G00501		16G00501D		16G00501F		
Collect Date:	16-AUG-96		21-AUG-96		21-AUG-96		21-AUG-96		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP METALS AND CYANIDE

Aluminum	128 J	ug/l		12.6 U	ug/l		16.7 U	ug/l		41.9 U	ug/l
Antimony	8.6 U	ug/l		8.6 U	ug/l		8.6 U	ug/l		8.6 U	ug/l
Arsenic	.5 J	ug/l		.5 U	ug/l		.5 U	ug/l		.7 U	ug/l
Barium	27.5 J	ug/l		10 J	ug/l		10 J	ug/l		10 J	ug/l
Beryllium	.3 U	ug/l		.3 U	ug/l		.3 U	ug/l		.3 U	ug/l
Cadmium	1.2 U	ug/l		1.2 U	ug/l		1.2 U	ug/l		1.2 U	ug/l
Calcium	3680 J	ug/l		239 U	ug/l		234 U	ug/l		287 U	ug/l
Chromium	2 U	ug/l		2 U	ug/l		2 U	ug/l		2 U	ug/l
Cobalt	2.3 U	ug/l		3.2 J	ug/l		2.3 U	ug/l		2.3 U	ug/l
Copper	1.1 U	ug/l		1.1 U	ug/l		1.1 U	ug/l		1.1 U	ug/l
Iron	1050	ug/l		9.2 J	ug/l		5.3 J	ug/l		119	ug/l
Lead	3.3	ug/l		.5 U	ug/l		.5 U	ug/l		.5 U	ug/l
Magnesium	1230 J	ug/l		276 J	ug/l		261 J	ug/l		305 J	ug/l
Manganese	38.8	ug/l		1 U	ug/l		2.1 J	ug/l		3 J	ug/l
Mercury	.1 U	ug/l		.1 U	ug/l		.1 U	ug/l		.1 U	ug/l
Nickel	7.3 U	ug/l		7.3 U	ug/l		7.3 U	ug/l		7.3 U	ug/l
Potassium	513 J	ug/l		316 U	ug/l		316 U	ug/l		471 J	ug/l
Selenium	.6 U	ug/l		.6 U	ug/l		.6 U	ug/l		.6 U	ug/l
Silver	2.5 U	ug/l		2.5 U	ug/l		2.5 U	ug/l		2.5 U	ug/l
Sodium	2630 J	ug/l		1550 J	ug/l		1450 J	ug/l		1510 J	ug/l
Thallium	.6 U	ug/l		.6 U	ug/l		.6 U	ug/l		.6 U	ug/l
Vanadium	1.2 U	ug/l		1.2 U	ug/l		1.2 U	ug/l		1.2 U	ug/l
Zinc	332	ug/l		2.6 U	ug/l		1.6 U	ug/l		5 U	ug/l
Cyanide	-	ug/l		1.5 U	ug/l		1.5 U	ug/l		-	ug/l

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- INORGANICS -- REPORT NO. 10502

Lab Sample Number:	RB980019		WTME340002		RB980022		WSME340003		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	16G00601		16G00601		16G00601F		16G00601F		
Collect Date:	16-AUG-96		23-JUL-97		16-AUG-96		23-JUL-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP METALS AND CYANIDE

Aluminum	3040	ug/l		3930	ug/l	200	42.3 U	ug/l	200 U	ug/l	200
Antimony	8.6 U	ug/l		60 U	ug/l	60	8.6 U	ug/l	124	ug/l	60
Arsenic	.8 J	ug/l		10 U	ug/l	10	.5 U	ug/l	10 U	ug/l	10
Barium	300	ug/l		456	ug/l	200	251	ug/l	310	ug/l	200
Beryllium	.3 U	ug/l		5 U	ug/l	5	.32 J	ug/l	10.3	ug/l	5
Cadmium	2.2 J	ug/l		5 U	ug/l	5	1.2 U	ug/l	5 U	ug/l	5
Calcium	61900	ug/l		74300	ug/l	5000	61900	ug/l	72800	ug/l	5000
Chromium	2 U	ug/l		10 U	ug/l	10	2 U	ug/l	10 U	ug/l	10
Cobalt	2.3 U	ug/l		50 U	ug/l	50	2.3 U	ug/l	50 U	ug/l	50
Copper	6.1 J	ug/l		25 U	ug/l	25	1.1 U	ug/l	25 U	ug/l	25
Iron	45200	ug/l		68600	ug/l	100	1660	ug/l	656	ug/l	100
Lead	5.7	ug/l		3 U	ug/l	3	.5 U	ug/l	3 U	ug/l	3
Magnesium	3100 J	ug/l		3680 J	ug/l	5000	3110 J	ug/l	3680 J	ug/l	5000
Manganese	516	ug/l		1370	ug/l	15	425	ug/l	43.2	ug/l	15
Mercury	.1 U	ug/l		.2 U	ug/l	.2	.1 U	ug/l	.2 U	ug/l	.2
Nickel	7.3 U	ug/l		40 U	ug/l	40	7.3 U	ug/l	40 U	ug/l	40
Potassium	2010 J	ug/l		3030 J	ug/l	5000	2110 J	ug/l	3110 J	ug/l	5000
Selenium	.6 U	ug/l		5 UJ	ug/l	5	.6 U	ug/l	5 UJ	ug/l	5
Silver	2.5 U	ug/l		10 U	ug/l	10	2.5 U	ug/l	10 U	ug/l	10
Sodium	1600 J	ug/l		2730 J	ug/l	5000	1650 J	ug/l	2940 J	ug/l	5000
Thallium	.6 U	ug/l		10 U	ug/l	10	.6 U	ug/l	10 U	ug/l	10
Vanadium	17.8 J	ug/l		25.2 J	ug/l	50	2.2 J	ug/l	50 U	ug/l	50
Zinc	56.4	ug/l		49.1	ug/l	20	6.5 U	ug/l	20 U	ug/l	20
Cyanide	12	ug/l		-			-	ug/l	-		

U= NOT DETECTED J=ESTIMATED VALUE
UJ= REPORTED QUANTITATION LIMIT IS QUALIFIED AS ESTIMATED
R= RESULT IS REJECTED AND UNUSABLE

NAS WHITING FIELD -- SITE 16
GROUNDWATER -- INORGANICS -- REPORT NO. 10502

Lab Sample Number:	RB980018		WTME340004		R8887015		WTME348004		
Site	WHITING		WHITING		WHITING		WHITING		
Locator	16G00602		16G00602		16G00701		16G00701		
Collect Date:	15-AUG-96		23-JUL-97		25-JUL-96		25-JUL-97		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP METALS AND CYANIDE

Aluminum	244	ug/l		200 J	ug/l	200	137 J	ug/l		161 J	ug/l	200
Antimony	8.6 U	ug/l		60 U	ug/l	60	8.6 U	ug/l		60 U	ug/l	60
Arsenic	.5 U	ug/l		10 U	ug/l	10	.5 U	ug/l		10 U	ug/l	10
Barium	17.4 J	ug/l		30.9 J	ug/l	200	27.4 J	ug/l		32.9 J	ug/l	200
Beryllium	.3 U	ug/l		5 U	ug/l	5	.3 U	ug/l		5 U	ug/l	5
Cadmium	1.2 U	ug/l		5 U	ug/l	5	1.2 U	ug/l		5 U	ug/l	5
Calcium	1740 J	ug/l		1070 J	ug/l	5000	36000	ug/l		30500	ug/l	5000
Chromium	2 U	ug/l		10 U	ug/l	10	2 U	ug/l		10 U	ug/l	10
Cobalt	2.3 U	ug/l		50 U	ug/l	50	2.3 U	ug/l		50 U	ug/l	50
Copper	2.6 J	ug/l		25 U	ug/l	25	1.1 U	ug/l		25 U	ug/l	25
Iron	232	ug/l		100 U	ug/l	100	328	ug/l		1770	ug/l	100
Lead	.5 J	ug/l		3 U	ug/l	3	.5 U	ug/l		3 U	ug/l	3
Magnesium	590 J	ug/l		985 J	ug/l	5000	3050 J	ug/l		2850 J	ug/l	5000
Manganese	70.8	ug/l		10.9 J	ug/l	15	10.5 J	ug/l		1210	ug/l	15
Mercury	.1 U	ug/l		.2 U	ug/l	.2	.1 U	ug/l		.2 U	ug/l	.2
Nickel	7.3 U	ug/l		40 U	ug/l	40	8.7 J	ug/l		40 U	ug/l	40
Potassium	458 J	ug/l		5000 U	ug/l	5000	3470 J	ug/l		2850 J	ug/l	5000
Selenium	.6 U	ug/l		5 U	ug/l	5	.6 U	ug/l		5 UJ	ug/l	5
Silver	2.5 U	ug/l		10 U	ug/l	10	2.5 U	ug/l		10 U	ug/l	10
Sodium	3680 J	ug/l		2720 J	ug/l	5000	6210	ug/l		7490	ug/l	5000
Thallium	.6 U	ug/l		10 U	ug/l	10	.6 U	ug/l		10 UJ	ug/l	10
Vanadium	1.5 J	ug/l		50 U	ug/l	50	1.3 J	ug/l		50 U	ug/l	50
Zinc	210	ug/l		20 U	ug/l	20	1.2 U	ug/l		20 U	ug/l	20
Cyanide	3.5 U	ug/l		-			4.5 U	ug/l		-		

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NAS WHITING FIELD -- SITE 16
GROUNDWATER -- INORGANICS -- REPORT NO. 10502

Lab Sample Number:	RB887016	WTME348002	RB887017	WTME348003							
Site	WHITING	WHITING	WHITING	WHITING							
Locator	16G00702	16G00702	16G00703	16G00703							
Collect Date:	25-JUL-96	25-JUL-97	25-JUL-96	25-JUL-97							
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP METALS AND CYANIDE

Aluminum	72.3 J	ug/l	202	ug/l	200	196 J	ug/l	200	U	ug/l	200
Antimony	8.6 U	ug/l	60 U	ug/l	60	8.6 U	ug/l	60	U	ug/l	60
Arsenic	.5 U	ug/l	10 U	ug/l	10	2 J	ug/l	10	3.6 J	ug/l	10
Barium	15.6 J	ug/l	17.1 J	ug/l	200	10.8 J	ug/l	200	16.6 J	ug/l	200
Beryllium	.3 U	ug/l	5 U	ug/l	5	.3 U	ug/l	5	5 U	ug/l	5
Cadmium	1.2 U	ug/l	5 U	ug/l	5	1.2 U	ug/l	5	5 U	ug/l	5
Calcium	1960 J	ug/l	1210 J	ug/l	5000	2510 J	ug/l	5000	3080 J	ug/l	5000
Chromium	2 U	ug/l	10 U	ug/l	10	2 U	ug/l	10	10 U	ug/l	10
Cobalt	2.3 U	ug/l	50 U	ug/l	50	2.3 U	ug/l	50	50 U	ug/l	50
Copper	1.1 U	ug/l	25 U	ug/l	25	1.1 U	ug/l	25	25 U	ug/l	25
Iron	201	ug/l	526	ug/l	100	151	ug/l	100	1200	ug/l	100
Lead	.6 U	ug/l	3 U	ug/l	3	.8 U	ug/l	3	3 U	ug/l	3
Magnesium	612 J	ug/l	673 J	ug/l	5000	496 J	ug/l	5000	818 J	ug/l	5000
Manganese	85	ug/l	34.3	ug/l	15	102	ug/l	15	170	ug/l	15
Mercury	.1 U	ug/l	.2 U	ug/l	.2	.1 U	ug/l	.2	.2 U	ug/l	.2
Nickel	7.3 U	ug/l	40 U	ug/l	40	7.3 U	ug/l	40	8.2 J	ug/l	40
Potassium	316 U	ug/l	5000 U	ug/l	5000	930 J	ug/l	5000	5000 U	ug/l	5000
Selenium	.6 U	ug/l	5 U	ug/l	5	.6 U	ug/l	5	5 U	ug/l	5
Silver	2.5 U	ug/l	10 U	ug/l	10	2.5 U	ug/l	10	10 U	ug/l	10
Sodium	4100 J	ug/l	3880 J	ug/l	5000	18500	ug/l	5000	2680 J	ug/l	5000
Thallium	.6 U	ug/l	10 UJ	ug/l	10	.6 U	ug/l	10	10 U	ug/l	10
Vanadium	1.2 U	ug/l	50 U	ug/l	50	1.2 U	ug/l	50	50 U	ug/l	50
Zinc	2.8 U	ug/l	20 U	ug/l	20	2.8 U	ug/l	20	20 U	ug/l	20
Cyanide	5.2 U	ug/l	-			2.6 U	ug/l		-		

U= NOT DETECTED J=ESTIMATED VALUE
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APPENDIX G
HUMAN HEALTH RISK DATA

**Table G-1
Screening Concentrations for Surface Soil
for Selection of Chemicals of Potential Concern**

Remedial Investigation Report
Site 16, Open Disposal and Burning Area
Naval Air Station Whiting Field
Milton, Florida

Chemical	Risk Based Screening Concentration ¹	Florida Cleanup Target Level ²	Florida Cleanup Target Level Based on Leaching	Selected Screening Concentration ³
<u>Volatile Organic Compounds (µg/kg)</u>				
Toluene	1,600,000	380,000	500	380,000
Xylenes (total)	16,000,000	5,900,000	200	5,900,000
<u>Semivolatile Organic Compounds (µg/kg)</u>				
Anthracene	2,300,000	18,000,000	2,500,000	2,300,000
Benzo(a)anthracene	870	1,400	3,200	870
Benzo(a)pyrene	87	100	8,000	87
Benzo(b)fluoranthene	870	1,400	10,000	870
Benzo(g,h,i)perylene	⁴ 230,000	2,300	3,200,000	2,300
Benzo(k)fluoranthene	8,700	15,000	25,000	8,700
bis(2-Ethylhexyl)phthalate	46,000	76,000	3,600,000	46,000
Carbazole	32,000	53,000	600	32,000
Chrysene	87,000	140,000	77,000	87,000
Dibenz(a,h)anthracene	87	100	30,000	87
Fluoranthene	310,000	2,900,000	1,200,000	310,000
Indeno(1,2,3-c,d)pyrene	870	1,500	28,000	870
Phenanthrene	⁴ 230,000	2,000,000	250,000	230,000
Pyrene	230,000	2,200,000	880,000	230,000
<u>Pesticides and PCBs (µg/kg)</u>				
4,4'-DDD	2,700	4,600	4,000	2,700
4,4'-DDE	1,900	3,300	18,000	1,900
4,4'-DDT	1,900	3,300	11,000	1,900
Aroclor-1254	320	⁵ 500	⁵ 17,000	320
Aroclor-1260	⁵ 320	⁵ 500	⁵ 17,000	320
See notes at end of table				

Table G-1 (Continued)
Screening Concentrations for Surface Soil
for Selection of Chemicals of Potential Concern

Remedial Investigation Report
 Site 16, Open Disposal and Burning Area
 Naval Air Station Whiting Field
 Milton, Florida

Chemical	Risk Based Screening Concentration ¹	Florida Cleanup Target Level ²	Florida Cleanup Target Level Based on Leaching	Selected Screening Concentration ³
<u>Pesticides and PCBs (µg/kg) (Continued)</u>				
Dieldrin	40	70	4	40
alpha-Chlordane	⁶ 1,800	⁶ 3,100	⁶ 9,600	1,800
gamma-Chlordane	⁶ 1,800	⁶ 3,100	⁶ 9,600	1,800
<u>Inorganic Analytes (mg/kg)</u>				
Aluminum	7,800	72,000	NC	7,800
Antimony	3.1	26	5	3.1
Arsenic	⁷ 0.43	0.8	29	0.43
Barium	550	110	1,600	110
Beryllium	16	120	63	16
Cadmium	3.9	75	8	3.9
Calcium	⁸ 1,000,000	NSC	NC	1,000,000
Chromium	⁹ 23	⁹ 210	38	23
Cobalt	470	4,700	NC	470
Copper	310	110	NC	110
Cyanide	¹⁰ 160	30	NC	30
Iron	2,300	23,000	NC	2,300
Lead	¹¹ 400	400	NC	400
Magnesium	⁸ 460,468	NSC	NC	460,468
Manganese	160	1,600	NC	160
Mercury	2.3	3.4	2.1	2.3
Nickel	160	110	130	110
Potassium	⁸ 1,000,000	NSC	NC	1,000,000
Selenium	39	390	5	39
Silver	39	390	17	39
See notes at end of table				

Table G-1 (Continued)
Screening Concentrations for Surface Soil
for Selection of Chemicals of Potential Concern

Remedial Investigation Report
 Site 16, Open Disposal and Burning Area
 Naval Air Station Whiting Field
 Milton, Florida

Chemical	Risk Based Screening Concentration ¹	Florida Cleanup Target Level ²	Florida Cleanup Target Level based on Leaching	Selected Screening Concentration ³
Inorganic Analytes (mg/kg) (Continued)				
Sodium	⁸ 1,000,000	NSC	NC	1,000,000
Thallium	¹² 5.5	NSC	NC	5.5
Vanadium	55	15	980	15
Zinc	2,300	23,000	6,000	2,300

¹ For all chemicals except the essential nutrients, the U.S. Environmental Protection Agency Region III Risk Based concentration (RBC) Table for residential soil (October 1998) has been used, unless otherwise noted. Screening values are based on a cancer risk of 1×10^{-6} or a hazard quotient of 1.0. Noncarcinogenic RBCs have been adjusted to reflect a target hazard quotient of 0.1.

² Florida Department of Environmental Protection (FDEP) Cleanup Target Levels, Chapter 62-777, Florida Administrative Code (FDEP, 1999).

³ The selected screening concentration for the human health risk assessment is the lowest value of the RBC and the Florida Cleanup Target Level. For analytes that are selected as a human health chemical of potential concern in groundwater, then the Florida Soil Cleanup Target Level based on leaching is selected as the screening concentration.

⁴ RBC value for pyrene is used as a surrogate.

⁵ Value for PCBs is used as a surrogate.

⁶ General value for chlordane is used.

⁷ RBC value is based on arsenic as a carcinogen.

⁸ Essential nutrient screening value (see General Information Report).

⁹ RBC and Florida Cleanup Target Level values are based on Chromium VI.

¹⁰ RBC value is based on hydrogen cyanide.

¹¹ RBC is not available for lead; value is from Revised Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER Directive 9355.4-12).

¹² RBC value is based on thallium sulfate.

Notes: $\mu\text{g}/\text{kg}$ = micrograms per kilogram.

PCB = polychlorinated biphenyl.

DDD = dichlorodiphenyldichloroethane.

DDE = dichlorodiphenyldichloroethene.

DDT = dichlorodiphenyltrichloroethane.

NC = not calculated, per FDEP, 1996

mg/kg = milligrams per kilogram.

NSC = no screening criteria available.

Table G-2
Screening Concentrations for Subsurface Soil
for Selection of Chemicals of Potential Concern

Remedial Investigation Report
 Site 16, Open Disposal and Burning Area
 Naval Air Station Whiting Field
 Milton, Florida

Analyte	Risk Based Screening Concentration ¹	Florida Cleanup Target Level ²	Florida Cleanup Target Level based on Leaching ²	Selected Screening Concentration ³
<u>Volatile Organic Compounds (µg/kg)</u>				
Acetone	20,000,000	5,500,000	2,800	5,500,000
2-Butanone	120,000,000	21,000,000	17,000	21,000,000
Carbon Disulfide	20,000,000	1,400,000	5,600	1,400,000
Ethylbenzene	20,000,000	8,400,000	600	8,400,000
Methylene chloride	760,000	23,000	20	23,000
Toluene	41,000,000	2,600,000	500	2,600,000
Xylenes (total)	410,000,000	40,000,000	200	40,000,000
<u>Semivolatile Organic Compounds (µg/kg)</u>				
2-Methylnaphthalene	4,100,000	560,000	6,100	560,000
Acenaphthene	12,000,000	18,000,000	2,100	12,000,000
Benzo(a)pyrene	780	500	8,000	500
Benzo(b)fluoranthene	7,800	4,800	10,000	4,800
Benzo(k)fluoranthene	78,000	52,000	25,000	52,000
Fluoranthene	8,200,000	48,000,000	1,200,000	8,200,000
Fluorene	8,200,000	28,000,000	160,000	8,200,000
Naphthalene	4,100,000	270,000	1,700	270,000
Phenanthrene	⁴ 6,100,000	30,000,000	250,000	6,100,000
Pyrene	6,100,000	37,000,000	880,000	6,100,000
bis(2-Ethylhexyl)phthalate	410,000	280,000	3,600,000	280,000
<u>Pesticides (µg/kg)</u>				
4,4'-DDD	24,000	18,000	4,000	18,000
4,4'-DDE	17,000	13,000	18,000	13,000
4,4'-DDT	17,000	13,000	11,000	11,000
Dieldrin	360	300	4	300
<u>Inorganic Analytes (mg/kg)</u>				
Aluminum	200,000	NSC	NC	200,000
Antimony	82	240	5	82
Arsenic	⁵ 3.8	3.7	29	3.7
Barium	14,000	87,000	1,600	14,000
Beryllium	410	800	63	410

See notes at end of table.

Table G-2 (Continued)
Screening Concentrations for Subsurface Soil
for Selection of Chemicals of Potential Concern

Remedial Investigation Report
 Site 16, Open Disposal and Burning Area
 Naval Air Station Whiting Field
 Milton, Florida

Analyte	Risk Based Screening Concentration ¹	Florida Cleanup Target Level ²	Florida Cleanup Target Level Based on Leaching ²	Selected Screening Concentration ³
Inorganic Analytes (mg/kg) (Continued)				
Cadmium	100	1,300	8	100
Calcium	⁶ 1,000,000	NSC	NC	1,000,000
Chromium	⁷ 610	⁷ 400	38	400
Cobalt	12,000	110,000	NC	12,000
Copper	8,200	76,000	NC	8,200
Cyanide	4,100	28,000	NC	4,100
Iron	61,000	480,000	NC	61,000
Lead	⁸ 400	920	NC	400
Magnesium	⁶ 460,468	NSC	NC	460,468
Manganese	4,100	22,000	NC	4,100
Mercury	61	26	2.1	26
Nickel	4,100	28,000	130	4,100
Potassium	⁶ 1,000,000	NSC	NC	1,000,000
Silver	1,000	9,100	17	1,000
Sodium	⁶ 1,000,000	NSC	NC	1,000,000
Vanadium	1,400	7,400	980	1,400
Zinc	61,000	560,000	6,000	61,000

¹ For all chemicals except the essential nutrients, the U.S. Environmental Protection Agency Region III Risk Based Concentration (RBC) Table for industrial soil (October 1998) has been used, unless otherwise noted. Screening values are based on a cancer risk of 1×10^{-6} or a hazard quotient of 1.0. Noncarcinogenic RBCs have been adjusted to reflect a target hazard quotient of 0.1.

² Florida Department of Environmental Protection (FDEP) Cleanup Target Levels, Chapter 62-777, Florida Administrative Code (FDEP, 1999).

³ The selected screening concentration for the human health risk assessment is the lowest value of the RBC and the Florida Cleanup Target Level. Only when an analyte was selected as a HHCP in groundwater, then the Florida Soil Cleanup Target Level based on Leaching.

⁴ RBC value for pyrene is used as a surrogate.

⁵ RBC value is based on arsenic as a carcinogen.

⁶ Essential nutrient screening value (see General Information Report).

⁷ RBC and Florida Cleanup Target Level values are based on Chromium VI.

⁸ RBC is not available for lead; value is from Revised Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER Directive 9355.4-12).

Notes: $\mu\text{g}/\text{kg}$ = micrograms per kilogram.
 NSC = no screening criteria available.
 DDD = dichlorodiphenyldichloroethane.
 DDE = dichlorodiphenyldichloroethene.
 DDT = dichlorodiphenyltrichloroethane.
 mg/kg = milligrams per kilogram.
 NC = not calculated, per FDEP, 1996.

**Table G-3
Screening Concentrations for Groundwater
For Selection of Chemicals of Potential Concern**

Remedial Investigation Report
Site 16, Open Disposal and Burning Area
Naval Air Station Whiting Field
Milton, Florida

Chemical	Risk-Based Screening Concentration ¹	Federal MCL ²	Florida Groundwater Cleanup Target Level ³	Selected Screening Concentration ⁴
<u>Volatile Organic Compounds (µg/l)</u>				
1,2-Dichloroethane	0.12	5	3	0.21
1,2-Dichloroethene (total)	5.5	⁵ 70	⁵ 70	5.5
Benzene	0.36	5	1	0.36
Chloroform	0.15	⁶ 0.08	[5.7]	0.08
Ethylbenzene	130	700	30	130
Toluene	75	1,000	40	75
Trichloroethene	1.6	5	3	1.6
Xylenes (total)	1,200	10,000	20	1,200
<u>Semivolatile Organic Compounds (µg/l)</u>				
Naphthalene	150	NSC	[20]	20
Phenol	2,200	NSC	[10]	10
bis(2-Ethylhexyl)phthalate	4.8	6	6	4.8
<u>Pesticides and PCBs (µg/l)</u>				
4,4'-DDT	0.2	NSC	[0.1]	0.1
<u>Inorganic Analytes (µg/l)</u>				
Aluminum	3,700	(50-200)	(200)	50
Antimony	1.5	6	6	1.5
Arsenic	⁷ 0.045	50	50	0.045
Barium	260	2,000	2,000	260
Beryllium	0.016	4	4	0.016
Cadmium	1.8	5	5	1.8
Calcium	⁸ 1,055,398	NSC	NSC	1,055,398
Chromium	⁹ 18	100	100	18
Cobalt	220	NSC	420	220
Copper	13,000	¹⁰ 1,300 (1,000)	(1,000)	1,000
Cyanide	¹¹ 73	200	200	73
Iron	1,100	(300)	(300)	300
Lead	NSC	¹² 15	15	15
Magnesium	⁸ 118,807	NSC	NSC	118,807
Manganese	84	(50)	(50)	50
Nickel	73	100	100	73
Potassium	⁸ 297,016	NSC	NSC	297,016

See notes at end of table.

Table G-3 Continued)
Screening Concentrations for Groundwater
For Selection of Chemicals of Potential Concern

Remedial Investigation Report
 Site 16, Open Disposal and Burning Area
 Naval Air Station Whiting Field
 Milton, Florida

Chemical	Risk-Based Screening Concentration ¹	Federal MCL ²	Florida Groundwater Cleanup Target Level Concentration ³	Selected Screening Concentration ⁴
Inorganic Analytes (µg/l) (Continued)				
Sodium	⁸ 396,022	NSC	160,000	160,000
Vanadium	26	NSC	[49]	26
Zinc	1,100	(5,000)	(5,000)	1,100

¹ For all chemicals except the essential nutrients, the U.S. Environmental Protection Agency (USEPA) Region III RBC Table for tap water (October 1998) has been used. Screening values are based on a cancer risk of 1×10^{-6} and a hazard quotient of 1. Per USEPA Region IV Guidance (USEPA, 1995), the noncarcinogenic Risk Based Concentration (RBCs) have been adjusted to reflect a target hazard quotient of 0.1.

² Federal MCLs are taken from USEPA Drinking Water Regulations and Health Advisories from October 1996. Primary MCLs have no marks, Secondary MCLs are indicated by parentheses (), and Federal maximum contaminant level goals (MCLGs) are indicated by brackets []. The lowest of these nonzero values is presented.

³ Florida Department of Environmental Protection Cleanup Target Levels, Chapter 62-777, Florida Administrative Code (FDEP, 1999). Primary Standards have no marks, Secondary Standards are indicated by parentheses (), and other criteria (i.e., carcinogen, organoleptic, or a systemic toxicant) are indicated by brackets [].

⁴ The selected screening concentration for the human health risk assessment is the lowest value of the RBC, Federal MCL value, and Florida Cleanup Target Level values.

⁵ MCL and Florida Cleanup Target Level values are based on the cis-1,2-dichloroethene isomer.

⁶ 1994 Proposed rule for Disinfectants and Disinfection By-Products: Total for all THMs combined cannot exceed 0.08 level.

⁷ RBC value is based on arsenic as a carcinogen.

⁸ Essential nutrient screening value (see GIR Appendix C) (HLA, 1998).

⁹ RBC and Florida Cleanup Target Level based on Chromium VI.

¹⁰ Treatment technology action level for copper in drinking water distribution system (USEPA Drinking Water Standards and Health Advisories October 1996).

¹¹ RBC value is based on hydrogen cyanide.

¹² Treatment technology action level for lead in drinking water (USEPA Drinking Water Standards and Health Advisories, October 1996).

Notes: MCL = maximum contaminant level.
 µg/l = micrograms per liter.
 NSC = not presented in available guidance.

PCB = polychlorinated biphenyl.
 DDT = dichlorodiphenyltrichloroethane.

**Table G-4
Screening Concentrations for Surface Water
for Selection of Chemicals of Potential Concern**

Remedial Investigation Report
Site 16, Open Disposal and Burning Area
Naval Air Station Whiting Field
Milton, Florida

Chemical	Risk-Based Screening Concentration ¹	Region IV Water Quality Standards ²	Florida Surface Water Cleanup Target Levels ³	Selected Screening Concentration ⁴
Inorganic Analytes (µg/l)				
Aluminum	3,700	NSC	13	13
Barium	260	2,000	NSC	2,000
Beryllium	0.016	NSC	0.13	0.13
Calcium	⁵ 1,055,398	NSC	NSC	1,055,398
Iron	1,100	300	1,000	300
Lead	⁶ 15	NSC	NSC	15
Magnesium	⁵ 118,807	NSC	NSC	118,807
Manganese	84	50	NSC	50
Potassium	⁵ 297,016	NSC	NSC	297,016
Sodium	⁵ 396,022	NSC	NSC	396,022
Zinc	1,100	NSC	NSC	1,100

¹ For all chemicals except the essential nutrients, the U.S. Environmental Protection Agency (USEPA) Region III RBC Table for tap water (October 22, 1997) has been used. Screening values are based on a cancer risk of 1×10^{-6} and a hazard quotient of 1. Per USEPA Region IV Guidance (USEPA, 1995), the noncarcinogenic Risk Based Concentrations (RBCs) have been adjusted to reflect a target hazard quotient of 0.1.

² Region IV Water Quality Standards for human health criteria (water and organism consumption), January 26, 1996.

³ Florida Surface Water Cleanup Target Levels (fresh water), Florida Department of Environmental Protection, 1999.

⁴ The selected screening concentration for the human health risk assessment is the lesser of the Region IV Water Quality Standard or Florida Surface Water Cleanup Target Levels. If no surface water quality standards are available then the Region III RBC for tap water was used.

⁵ Essential nutrient screening value (see GIR HLA, 1998).

⁶ Treatment technology action level for lead in drinking water (USEPA Drinking Water Standards and Health Advisories, May 1996).

Notes: µg/l = micrograms per liter.

NSC = not screening concentration.

RBC = USEPA Region III Risk Based Concentration.

**Table G-5
Oral Dose-Response Data
for Carcinogenic Effects**

Remedial Investigation Report
Site 16, Open Disposal and Burning Area
Naval Air Station Whiting Field
Milton, Florida

Chemical	Weight of Evidence	Oral Slope Factor (mg/kg/day) (-1)	Source	Test Species	Exposure Route	Tumor Type	Study Source
<u>Volatile Organic Compounds</u>							
1,2-Dichloroethane	B2	9.1e-02	IRIS	Rat	Oral-gavage	Hemangiosarcomas	IRIS
1,2-Dichloroethene (total)	D	ND					
Benzene	A	2.9e-02	IRIS	Human	Occupational	Leukemia	IRIS
Chloroform	B2	6.1e-03	IRIS	Rat	Oral-drinking water	Kidney	IRIS
Trichloroethene	B2	1.1e-02	HEAST				HEAST
<u>Semivolatile Organic Compounds</u>							
Benzo(a)anthracene	B2	7.3	(1)				
Benzo(a)pyrene	B2	7.3	IRIS	Mouse	Oral-diet	Forestomach	IRIS
Benzo(b)fluoranthene	B2	7.3	(1)				
Benzo(k)fluoranthene	B2	7.3	(1)				
Carbazole	B2	2.0e-02	HEAST	Mouse	Oral-diet	Liver	IRIS
Chrysene	B2	7.3	(1)				
Dibenz(a,h)anthracene	B2	7.3	(1)				
Indeno(1,2,3-cd)pyrene	B2	7.3	(1)				
<u>Pesticides and PCBs</u>							
Dieldrin	B2	1.6e +01	IRIS	Mouse	Oral-diet	Liver	IRIS
See notes at end of table							

**Table G-5 (Continued)
Oral Dose-Response Data
for Carcinogenic Effects**

Remedial Investigation Report
Site 16, Open Disposal and Burning Area
Naval Air Station Whiting Field
Milton, Florida

Chemical	Weight of Evidence	Oral Slope Factor (mg/kg/day) (-1)	Source	Test Species	Exposure Route	Tumor Type	Study Source
Inorganic Analytes							
Aluminum	D	NE					
Antimony	D	NE					
Arsenic	A	1.5e +00	IRIS	Human	Oral-drinking water	Skin	IRIS
Barium	D	NE					
Beryllium							
Cadmium	D	NE					
Iron	D	NE					
Lead	D	NE					
Manganese	D	NE					
<p>(1) Relative potency factors (USEPA, 1993) have been applied to the ingestion slope factor for benzo(a)pyrene for all PAHs classified as A or B carcinogens. (2) The ingestion slope factor for PCBs.</p> <p>Notes: Integrated Risk Information System (IRIS) on-line database search, current as of February 1998. Health Effects Assessment Summary Tables (HEAST), current as of July 1997.</p> <p>Weight of Evidence (route-specific): A = Human carcinogen B = Probable human carcinogen (B1 = limited human evidence; B2 = sufficient human evidence) C = Possible human carcinogen D = Not classifiable as to human carcinogenicity</p> <p>mg/kg-day = milligrams per kilogram per day. IRIS = Integrated Risk Information System. HEAST = Health Effects Assessment Summary Tables. PCB = polychlorinated biphenyl. NE = not evaluated.</p>							

**Table G-6
Inhalation Dose-Response Data
for Carcinogenic Effects**

Remedial Investigation Report
Site 16, Open Disposal and Burning Area
Naval Air Station Whiting Field
Milton, Florida

Chemical	Weight of Evidence	Inhalation Slope Factor (mg/kg/day) ⁽⁻¹⁾	Source	Inhalation Unit Risk (µg/m ³) ⁽⁻¹⁾	Source	Test Species	Exposure Route	Tumor Type	Study Source
<u>Volatile Organic Compounds</u>									
1,2-Dichloroethane	B2	9.1e-02	IRIS	2.6e-05	IRIS	Rat	Oral-gavage	Hemangiosarcomas	
1,2-Dichloroethene (total)	D								
Benzene	A	2.9e-02	IRIS	8.3e-06	IRIS	Human	Inhalation	Leukemia	IRIS
Chloroform	B2	8.1e-02	IRIS	2.3E-05	IRIS	Mouse	Oral-gavage	Liver	IRIS
Trichloroethene	D	NE		NE					
<u>Semivolatile Organic Compounds</u>									
Benzo(a)anthracene	B2	3.1	Region 4, Guidance	0.88	Region 4, Guidance				
Benzo(a)pyrene	B2	3.1	Region 4, Guidance	0.88	Region 4, Guidance				
Benzo(b)fluoranthene	B2	3.1	Region 4, Guidance	0.88	Region 4, Guidance				
Benzo(k)fluoranthene	B2	3.1	Region 4, Guidance	0.88	Region 4, Guidance				
Carbazole	B	ND							IRIS
Chrysene	B2	3.1	Region 4, Guidance	0.88	Region 4, Guidance				
Dibenz(a,h)anthracene	B2	3.1	Region 4, Guidance	0.88	Region 4, Guidance				
Indeno(1,2,3-cd)pyrene	B2	3.1	Region 4, Guidance	0.88	Region 4, Guidance				

See notes at end of table

Table G-6 (Continued)
Inhalation Dose-Response Data
for Carcinogenic Effects

Remedial Investigation Report
Site 16, Open Disposal and Burning Area
Naval Air Station Whiting Field
Milton, Florida

Chemical	Weight of Evidence	Inhalation Slope Factor (mg/kg/day) ⁽⁻¹⁾	Source	Inhalation Unit Risk (μg/m ³) ⁽⁻¹⁾	Source	Test Species	Exposure Route	Tumor Type	Study Source
<u>Pesticides and PCBs</u>									
Dieldrin	B2	NE		NE					
<u>Inorganic Analytes</u>									
Aluminum	D	NE		NE					
Antimony	D	NE							
Arsenic	A	15.	IRIS	4.3e-03	IRIS	Human	Inhalation	Lung	IRIS
Barium	ND								
Beryllium	B2	8.4e+00	IRIS	2.4e-03	IRIS	Human	Inhalation	Lung	IRIS
Cadmium	A	4.1e+01	HEAST	1.2e-02	IRIS	Human	Inhalation	Lung	IRIS
Iron	D	NE		NE					
Lead	B2	ND	IRIS	ND	IRIS				
Manganese	D	NE		NE					

Notes: NE = Not Evaluated

Integrated Risk Information System (IRIS) on-line database search, current as of November 1997.
Health Effects Assessment Summary Tables (HEAST), current as of November 1995.

Weight of Evidence (route-specific):

- A = Human carcinogen
- B = Probable human carcinogen (B1 = limited human evidence; B2 = sufficient human evidence)
- C = Possible human carcinogen
- D = Not classifiable as to human carcinogenicity

mg/kg-day = milligrams per kilogram per day.

(μg/m³)⁻¹ = micrograms per cubic meter to the minus 1.

IRIS = Integrated Risk Information System.

NE = not evaluated.

PCB = polychlorinated biphenyl.

HEAST = Health Effects Assessment Summary Tables.

Table G-7
Dermal Dose-Response Data for Carcinogenic Effects

Remedial Investigation Report
Site 16, Open Disposal and Burning Area
Naval Air Station Whiting Field
Milton, Florida

Compound	Weight of Evidence	Oral Slope Factor (mg/kg-day) ⁻¹	Oral Absorption Efficiency	Source/Reference	Dermal Slope Factor (mg/kg-day) ⁻¹
<u>Volatile Organic Compounds</u>					
1,2-Dichloroethane	B2	9.1e-02	100%	Reitz et al., 1980	9.1e-02
1,2-dichloroethene	D	NE			
Benzene	A	2.9e-02	(1)		2.9e-02
Chloroform	B2	6.1e-03	100%	Brown et al., 1974	6.1e-03
Trichloroethene	B	1.1e-02	100%	Prout et al., 1985	1.1e-02
<u>Semivolatile Organic Compounds</u>					
Benzo(a)anthracene	B2	7.3e +00	91%	(1)/(2)	8.0e +00
Benzo(a)pyrene	B2	7.3e +00	91%	IRIS / Hecht et al., 1979	8.0e +00
Benzo(b)fluoranthene	B2	7.3e +00	91%	(1)/(2)	8.0e +00
Benzo(k)fluoranthene	B2	7.3e +00	91%	(1)/(2)	8.0e +00
Carbazole	B2	2.0e-02	50 %	USEPA, 1995	4.0e-02
Chrysene	B2	7.3e +00	91%	(1)/(2)	8.0e +00
Dibenz(a,h)anthracene	B2	7.3e +00	91%	(1)/(2)	8.0e +00
Indeno(1,2,3-cd)pyrene	B2	7.3e +00	91%	(1)/(2)	8.0e +00
<u>Pesticides and PCBs</u>					
Dieldrin	B2	1.6e +01	80%	3%	2.0e +01
<u>Inorganic Analytes</u>					
Aluminum	D	NE			NE
Antimony	D	NE			
See notes at end of table					

Table G-7 (Continued)
Dermal Dose-Response Data for Carcinogenic Effects

Remedial Investigation Report
Site 16, Open Disposal and Burning Area
Naval Air Station Whiting Field
Milton, Florida

Compound	Weight of Evidence	Oral Slope Factor (mg/kg-day) ⁻¹	Oral Absorption Efficiency	Source/Reference	Dermal Slope Factor (mg/kg-day) ⁻¹
Inorganic Analytes (Continued)					
Arsenic	A	1.5e + 00	98%	Vahter, 1983	1.5e + 00
Barium	D	NE			NE
Beryllium	B2	4.3e + 00	1%	Owen, 1990	4.3e + 02
Cadmium	D	NE			
Iron	D	NE			NE
Lead	D	NE			NE
Manganese	D	NE			NE
<p>(1) Toxicity value of benzo(a)pyrene used as a surrogate. (2) The oral absorption efficiency of all PAHs is assumed to be identical to that of benzo(a)pyrene, based on structural analogy. (3) The ingestion slope factor for PCBs.</p> <p>Notes: For documentation concerning oral slope factors, refer to Table 1.</p> <p>Weight of Evidence (route-specific): A = Human carcinogen B = Probable human carcinogen (B1 = limited human evidence; B2 = sufficient human evidence) C = Possible human carcinogen D = Not classifiable as to human carcinogenicity.</p> <p>mg/kg-day = milligrams per kilogram per day. mg/kg-day = milligrams per kilogram per day. % = percent. NE = not evaluated. IRIS = Integrated Risk Information System. PCB = polychlorinated biphenyl.</p>					

Table G-8
Oral Dose-Response Data
for Noncarcinogenic Effects

Remedial Investigation Report
Site 16, Open Disposal and Burning Area
Naval Air Station Whiting Field
Milton, Florida

Chemical	Chronic		Subchronic		Study Type	Confidence Level	Critical Effect	Test Animal	Uncertainty Factor	Study Source
	Oral RfD (mg/kg-day)	Source	Oral RfD (mg/kg-day)	Source						
<u>Volatile Organic Compounds</u>										
1,2-Dichloroethane	3.0e-01	NCEA	ND							
1,2-Dichloroethene (total)	9.0e-03	HEAST	9.0e-03	HEAST	Oral-drinking water	ND	Liver lesions	Rat	1,000	HEAST
Benzene	3.0e-04	IRIS	ND		Oral-gavage	Low	Increased liver and kidney weights	Rat	1,000 H,A,S	IRIS
Chloroform	1.0e-02	IRIS	1.0e-02		Oral-capsule	Medium	Fatty cyst formation in liver	Dog	1,000 H,A,S	IRIS
Trichloroethene	6.0e-03		ND							NCEA
<u>Semivolatile Organic Compounds</u>										
Benzo(a)anthracene	ND		ND							
Benzo(a)pyrene	ND		ND							
Benzo(b)fluoranthene	ND		ND							
Benzo(k)fluoranthene	ND		ND							
Carbazole	ND		ND							
Chrysene	ND		ND							
Dibenz(a,h)anthracene	ND		ND							
Indeno(1,2,3-cd)pyrene	ND		ND							
<u>Pesticides and PCBs</u>										
Dieldrin	2.0e-05	IRIS	5.0e-05	HEAST	Oral-capsule	Medium	Immunological and clinical effects	Monkey	300 H,A,S,L	IRIS
<u>Inorganic Analytes</u>										
Aluminum	1.0e + 00	(1)	ND							
Antimony	4.0e-04	IRIS	4.0e-04	HEAST	Oral-drinking water	Low	Reduced lifespan	Rat	1,000 H,A,L	IRIS
See notes at end of table										

**Table G-8 (Continued)
Oral Dose-Response Data
for Noncarcinogenic Effects**

Remedial Investigation Report
Site 16, Open Disposal and Burning Area
Naval Air Station Whiting Field
Milton, Florida

Chemical	Chronic		Subchronic		Study Type	Confidence Level	Critical Effect	Test Animal	Uncertainty Factor	Study Source
	Oral RfD (mg/kg-day)	Source	Oral RfD (mg/kg-day)	Source						
Inorganic Analytes (Continued)										
Arsenic	3.0e-04	IRIS	3.0e-04	HEAST	Oral-drinking water	Medium	Hyperpigmentation, keratosis	Human	3 D	IRIS
Barium	7.0e-02	IRIS	7.0e-02	IRIS	Oral-drinking water	Medium	Increased blood pressure	Human	3 H	IRIS
Beryllium	5.0e-03	IRIS	5.0e-03	IRIS	Oral-drinking water	Rat	No effects observed	Rat	100 H, A	IRIS
Cadmium	1.0e-03	IRIS	ND		Oral-diet	Human	Proteinuria	Human	10 H	IRIS
Iron	3.0e-01	(1)	ND							
Lead	ND		ND							
Manganese	4.7e-02	IRIS	ND		Oral-diet	Medium	No effects observed	Human	1,1 M	IRIS

¹ This value was provided by the Environmental Criteria and Assessment Office (ECAO) of the USEPA in response to a specific request.

² Value for pyrene was used as surrogate for total petroleum hydrocarbons.

Notes: IRIS on-line database search, current as of November 1997.
HEAST, current as of November 1995.
Environmental Criteria and Assessment Office (ECAO) of the USEPA in response to a specific request.

Uncertainty factors:

- H = Variation in human sensitivity
- A = Animal to human extrapolation
- S = Extrapolation from subchronic to chronic NOAEL
- L = Extrapolation from LOAEL to NOAEL
- D = Inadequate data
- M = Modifying factor

RfD = reference dose.

mg/kg-day = milligrams per kilogram per day.

NCEA = ?

ND = no data.

HEAST = Health Effects Assessment Summary Tables.

IRIS = Integrated Risk Information System.

PCB = polychlorinated biphenyl.

**Table G-9
Inhalation Dose-Response Data
for Noncarcinogenic Effects**

Remedial Investigation Report
Site 16, Open Disposal and Burning Area
Naval Air Station Whiting Field
Milton, Florida

Chemical	Chronic		Subchronic		Study Type	Confidence Level	Critical Effect	Test Animal	Uncertainty Factor	Study Source
	RfC ($\mu\text{g}/\text{m}^3$)	Source	RfC ($\mu\text{g}/\text{m}^3$)	Source						
<u>Volatile Organic Compounds</u>										
1,2-Dichloroethane	ND		ND							
1,2-Dichloroethene (total)	ND		ND							
Benzene	ND		ND							
Chloroform	ND		ND							
Trichloroethene	ND		ND							
<u>Semivolatile Organic Compounds</u>										
Benzo(a)anthracene	ND		ND							
Benzo(a)pyrene	ND		ND							
Benzo(b)fluoranthene	ND		ND							
Benzo(k)fluoranthene	ND		ND							
Carbazole	ND		ND							
Chrysene	ND		ND							
Dibenz(a,h)anthracene	ND		ND							
Indeno(1,2,3-cd)pyrene	ND		ND							
<u>Pesticides and PCBs</u>										
Dieldrin	ND		ND							
See notes at end of table										

Table G-9 (Continued)
Inhalation Dose-Response Data
for Noncarcinogenic Effects

Remedial Investigation Report
Site 16, Open Disposal and Burning Area
Naval Air Station Whiting Field
Milton, Florida

Chemical	Chronic		Subchronic		Study Type	Confidence Level	Critical Effect	Test Animal	Uncertainty Factor	Study Source
	RfC ($\mu\text{g}/\text{m}^3$)	Source	RfC ($\mu\text{g}/\text{m}^3$)	Source						
<u>Inorganic Analytes</u>										
Aluminum	ND		ND							
Antimony	ND		ND							
Arsenic	ND		ND							
Barium	ND		ND							
Beryllium	ND		ND							
Cadmium	ND		ND							
Iron	ND		ND							
Lead	ND		ND							
Manganese	ND		ND							

Notes: Integrated Risk Information System (IRIS) on-line database search, current as of November 1997.
Health Effects Assessment Summary Tables (HEAST), current as November 1995.

Uncertainty factors:

- A = Animal to human extrapolation
- H = Variation in human sensitivity
- S = Extrapolation from subchronic to chronic NOAEL
- L = Extrapolation from LOAEL to NOAEL
- D = Inadequate data
- M = Modifying factor

RfC = reference concentration.

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter.

ND = no data.

PCB = polychlorinated biphenyl.

Table G-10
Dermal Dose-Response Data for Noncarcinogenic Effects

Remedial Investigation Report
Site 16
NAS, Whiting Field, Milton, Florida

Compound	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Oral Absorption Efficiency	Reference	Dermal Chronic RfD (mg/kg-day)	Dermal Subchronic RfD (mg/kg-day)
<u>Volatile Organic Compounds</u>						
1,2-Dichloroethane	3.0e-01	ND	100%	Reitz et al., 1980	3.0e-01	ND
1,2-Dichloroethene	9.0e-03	9.0e-03	100%	Putchá et al., 1986	9.0e-03	9.0e-03
Benzene	3.0e-04	ND	100%	ATSDR, 1993	3.0e-04	ND
Chloroform	1.0e-02	1.0e-02	100%	Brown et al., 1974	1.0e-02	1.0e-02
Trichloroethene	6.0e-03	ND	100%	Prout et al., 1985	6.0e-03	ND
<u>Semivolatile Organic Compounds</u>						
Benzo(a)anthracene	ND	ND	91%	(1)	ND	ND
Benzo(a)pyrene	ND	ND	91%	Hecht et al., 1979	ND	ND
Benzo(b)fluoranthene	ND	ND	91%	(1)	ND	ND
Benzo(k)fluoranthene	ND	ND	91%	(1)	ND	ND
Carbazole	ND	ND			ND	ND
Chrysene	ND	ND	91%	(1)	ND	ND
Dibenz(a,h)anthracene	ND	ND	91%	(1)	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	91%	(1)	ND	ND
<u>Pesticides and PCBs</u>						
Dieldrin	5.0e-05	5.0e-05	50%		2.5e-05	2.5e-05
<u>Inorganic Analytes</u>						
Aluminum	1.0e+00	ND	20%	(2)	2.0e-01	ND
Antimony	4.0e-04	4.0e-04	10%	ATSDR, 1991a	4.0e-05	4.0e-05
Arsenic	3.0e-04	3.0e-04	98%	Vahter, 1983	2.9e-04	2.9e-04
See notes at end of table						

Table G-10 (Continued)
Dermal Dose-Response Data for Noncarcinogenic Effects

Remedial Investigation Report
Site 16
NAS, Whiting Field, Milton, Florida

Compound	Chronic Oral RfD (mg/kg-day)	Subchronic Oral RfD (mg/kg-day)	Oral Absorption Efficiency	Reference	Dermal Chronic RfD (mg/kg-day)	Dermal Subchronic RfD (mg/kg-day)
Inorganic Analytes (Continued)						
Barium	7.0e-02	7.0e-02	7%	ATSDR, 1991b	4.9e-03	4.9e-03
Beryllium	5.0e-03	5.0e-03	1%	Owen, 1990	5.0e-05	5.0e-05
Cadmium	5.0e-03	2.0e-02	11%	Ogawa, 1976	5.5e-04	2.2e-03
Iron	3.0e-01	ND	2%	Goyer, 1991	6.0e-03	ND
Lead	ND	ND				
Manganese	4.7e-02	ND	4%	ATSDR, 1991c	1.9e-03	ND

- (1) The oral absorption efficiency of all polynuclear aromatic hydrocarbons is assumed to be identical to that of benzo(a)pyrene, based on structural analogy.
(2) Inorganics lacking specific information on absorption efficiency are assigned a default value of 20% (U.S. Environmental Protection Agency Region IV, 1993).

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Notes: For documentation concerning chronic and subchronic oral RfDs, refer to Table 3.

RfD = reference dose.
 mg/kg-day = milligrams per kilogram per day.
 ND = no data.
 % = percent.
 PCB = polychlorinated biphenyl.

TABLE G-11

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
 ADULT TRESPASSER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE	
CONCENTRATION SOIL	CS	chemical-specific	chemical-specific		
INGESTION RATE	IR	100	mg/day	USEPA, 1991	
FRACTION INGESTED	FI	100%	unitless	USEPA, 1995	
ADHERENCE FACTOR	AF	1	mg/cm ² -event	USEPA, 1995	
ABSORPTION FRACTION	ABS _d	chemical specific	unitless	USEPA, 1995	
SURFACE AREA EXPOSED	SA	5,750	cm ²	USEPA, 1992	
DOSE ABSORBED PER EVENT	DA _{event}	chemical specific	mg/cm ² -event	USEPA, 1992	
CONVERSION FACTOR	CF	1.00E-06	kg/mg	inorganics	
	CF	1.00E-09	kg/ug	organics	
BODY WEIGHT	BW	70	kg	USEPA, 1991	
EXPOSURE FREQUENCY	EF	45	days/year [1]	Assumption	
EXPOSURE DURATION	ED	20	years	Assumption	
AVERAGING TIME	CANCER	AT	70	years	USEPA, 1991
	NONCANCER	AT	20	years	Assumption

[1] Units for exposure frequency are events/year in the calculation of the dermally absorbed dose.
 USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9285.6-03.
 USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; 1/92.
 USEPA, 1995. Supplemental Guidance to RAGS : Region IV, Human Health Risk Assessment Bulletin No. 3.

CANCER RISK = INTAKE (mg/kg-day) x CANCER SLOPE FACTOR (mg/kg-day)⁻¹

HAZARD QUOTIENT = INTAKE (mg/kg-day) / REFERENCE DOSE (mg/kg-day)

INTAKE_{INGESTION} = CS x IR x FI x CF x EF x ED
 BW x AT x 365 days/yr

INTAKE_{DERMAL} = DA_{event} x SA x EF x ED
 BW x AT x 365 days/yr

Where:
 DA_{event} = AF x ABS_d x CF

Note: For noncarcinogenic effects: AT = ED

TABLE G-11

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
 ADULT TRESPASSER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day) ⁻¹	CANCER RISK INGESTION	DERMAL ABS [2]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [3] (mg/kg-day) ⁻¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Benzo(a)anthracene [1]	O	35	ug/kg	1.8E-09	7.3E+00	1.3E-08	0.01	1.0E-09	8.0E+00	8.1E-09	2.1E-08
Benzo(a)pyrene	O	370	ug/kg	1.9E-08	7.3E+00	1.4E-07	0.01	1.1E-08	8.0E+00	8.6E-08	2.2E-07
Benzo(b)fluoranthene [1]	O	41	ug/kg	2.1E-09	7.3E+00	1.5E-08	0.01	1.2E-09	8.0E+00	9.5E-09	2.5E-08
Benzo(k)fluoranthene [1]	O	3.9	ug/kg	2.0E-10	7.3E+00	1.4E-09	0.01	1.1E-10	8.0E+00	9.0E-10	2.3E-09
Carbazole	O	97	ug/kg	4.9E-09	2.0E-02	9.8E-11	0.01	2.8E-09	4.0E-02	1.1E-10	2.1E-10
Chrysene [1]	O	0.39	ug/kg	2.0E-11	7.3E+00	1.4E-10	0.01	1.1E-11	8.0E+00	9.0E-11	2.3E-10
Dibenz(a,h)anthracene [1]	O	240	ug/kg	1.2E-08	7.3E+00	8.8E-08	0.01	6.9E-09	2.0E+01	1.4E-07	2.3E-07
Indeno(1,2,3-cd)pyrene [1]	O	32	ug/kg	1.6E-09	7.3E+00	1.2E-08	0.01	9.3E-10	8.0E+00	7.4E-09	1.9E-08
Dieldrin	O	32	ug/kg	1.6E-09	1.6E+01	2.6E-08	0.01	9.3E-10	3.2E+01	3.0E-08	5.5E-08
Arsenic	I	3.8	mg/kg	1.9E-07	1.5E+00	2.9E-07	0.001	1.1E-08	1.5E+00	1.6E-08	3.0E-07
Lead	I	473	mg/kg	2.4E-05	ND		0.001	1.4E-06	ND		
SUMMARY CANCER RISK						6E-07				3E-07	9E-07
[1] Carcinogenic PAH concentrations are adjusted by their respective toxicity equivalent factors (USEPA, 1995).											
[2] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995).											
[3] Calculated from oral CSFs.											

TABLE 6.12

INHALATION OF PARTICULATES - SURFACE SOIL
ADULT TRESPASSER
NAS WHITING FIELD
MILTON, FLORIDA
SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
SOIL CONCENTRATION	C	chemical-specific	chemical-specific	
PART. EMISSION FACTOR	PEF	1.24E+09	m ³ /kg	default [1]
CONCENTRATION AIR	CA	chemical-specific	mg/m ³	
INHALATION RATE	IR	0.833	m ³ /hour	USEPA, 1995
BODY WEIGHT	BW	70	kg	USEPA, 1991
EXPOSURE TIME	ET	4	hours/day	Assumption
EXPOSURE FREQUENCY	EF	45	days/year	Assumption
EXPOSURE DURATION	ED	20	years	Assumption
CONVERSION FACTOR	CF	0.001	mg/ug	Organics only
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	20	years	USEPA, 1991

CANCER RISK = INTAKE (mg/kg-day) x INHALATION CANCER SLOPE FACTOR (mg/kg-day)⁻¹

HAZARD QUOTIENT = INTAKE (mg/kg-day) / INHALATION REFERENCE DOSE (mg/kg-day)

INTAKE = $CA \times IR \times ET \times EF \times ED$
 $BW \times AT \times 365 \text{ days/yr}$

Where:

$CA = C \times CF \times (1/PEF)$

Note: For noncarcinogenic effects, AT = ED

[1] Florida Soil Clean-Up Goal Variable. FDEP, 1995.
USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9285.6-03.
USEPA, 1995. Supplemental Guidance to RAGS : Region IV, Human Health Risk Assessment Bulletin No. 3.

TABLE G-12

INHALATION OF PARTICULATES - SURFACE SOIL
 ADULT TRESPASSER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION [1]	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION CSF (mg/kg-day) ⁻¹	CANCER RISK
Benzo(a)anthracene	O	35	ug/kg	2.82E-11	4.7E-14	3.1E+00	1.5E-13
Benzo(a)pyrene	O	370	ug/kg	2.98E-10	5.0E-13	3.1E+00	1.6E-12
Benzo(b)fluoranthene	O	41	ug/kg	3.31E-11	5.5E-14	3.1E+00	1.7E-13
Benzo(k)fluoranthene	O	3.9	ug/kg	3.15E-12	5.3E-15	3.1E+00	1.6E-14
Chrysene	O	0.39	ug/kg	3.15E-13	5.3E-16	3.1E+00	1.6E-15
Dibenz(a,h)anthracene	O	240	ug/kg	1.94E-10	3.2E-13	3.1E+00	1.0E-12
Indeno(1,2,3-cd)pyrene	O	32	ug/kg	2.58E-11	4.3E-14	3.1E+00	1.3E-13
Dieldrin	I	32	mg/kg	2.58E-08	4.3E-11	1.6E+01	6.9E-10
Arsenic	I	3.8	mg/kg	3.06E-09	5.1E-12	1.5E+01	7.7E-11
Lead	I	473	mg/kg	3.81E-07	6.4E-10	ND	
SUMMARY CANCER RISK							8E-10
[1] Toxicity equivalent factors are applied to carcinogenic PAHs per USEPA Region IV Guidance (USEPA, 1995).							

TABLE G-12

INHALATION OF PARTICULATES - SURFACE SOIL
 ADULT TRESPASSER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION RFD (mg/kg-day)	HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	2.82E-10	1.7E-12	ND	
Benzo(a)pyrene	O	370	ug/kg	2.98E-10	1.8E-12	ND	
Benzo(b)fluoranthene	O	410	ug/kg	3.31E-10	1.9E-12	ND	
Benzo(k)fluoranthene	O	390	ug/kg	3.15E-10	1.8E-12	ND	
Carbazole	O	97	ug/kg	7.82E-11	4.6E-13	ND	
Chrysene	O	390	ug/kg	3.15E-10	1.8E-12	ND	
Dibenz(a,h)anthracene	O	390	ug/kg	3.15E-10	1.8E-12	ND	
Indeno(1,2,3-cd)pyrene	O	240	ug/kg	1.94E-10	1.1E-12	ND	
Dieldrin	I	320	mg/kg	2.58E-07	1.5E-09	ND	
Aluminum	I	11300	mg/kg	9.11E-06	5.3E-08	ND	
Arsenic	I	3.8	mg/kg	3.06E-09	1.8E-11	ND	
Cadmium	I	2.1	mg/kg	1.69E-09	9.9E-12	ND	
Iron	I	13900	mg/kg	1.12E-05	6.6E-08	ND	
Lead	I	473	mg/kg	3.81E-07	2.2E-09	ND	
Manganese	I	296	mg/kg	2.39E-07	1.4E-09	1.4E-05	1.0E-04
SUMMARY HAZARD INDEX							0.0001

TABLE 6-13

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
 ADOLESCENT TRESPASSER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

EXPOSURE PARAMETERS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION SOIL	CS	chemical-specific	chemical-specific	
INGESTION RATE	IR	100	mg/day	USEPA, 1991
FRACTION INGESTED	FI	100%	unitless	Assumption
ADHERENCE FACTOR	AF	1	mg/cm ² -event	USEPA, 1995
AGE-SPECIFIC SURFACE AREA	SA _i	age-specific	cm ²	USEPA, 1989
ABSORPTION FRACTION	ABS _d	chemical-specific	unitless	USEPA, 1995
CONVERSION FACTOR	CF	1.00E-06	kg/mg	Inorganics
	CF	1.00E-09	kg/mg	Organics
BODY WEIGHT	BW	45	kg	USEPA, 1995
AGE-SPECIFIC BODY WEIGHT	BW _i	age-specific	kg	USEPA, 1989
EXPOSURE FREQUENCY	EF	45	days/year [1]	Assumption
EXPOSURE DURATION	ED	10	years	USEPA, 1995
AGE-SPECIFIC EXPOSURE DURATION	ED _i	age-specific	years	Assumption
AGE-WEIGHTED SURFACE AREA [2]	SA _{adj}	1013	cm ² -year/kg	Per USEPA, 1992
DOSE ABSORBED PER EVENT	DA _{event}	chemical-specific	mg/cm ² -event	Per USEPA, 1992
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	10	years	USEPA, 1995

EQUATIONS

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE}_{\text{INGESTION}} = \frac{\text{CS} \times \text{IR} \times \text{FI} \times \text{CF} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

$$\text{INTAKE}_{\text{DERMAL}} = \text{AT} \times 365 \text{ days/year} \times \text{SA}_{\text{adj}}$$

Where:

$$\text{SA}_{\text{adj}} = \text{SUM} (\text{SA}_i \times \text{ED}_i / \text{BW}_i)$$

$$\text{DA}_{\text{event}} = \text{CS} \times \text{AF} \times \text{ABS}_d \times \text{CF}$$

Note: For noncarcinogenic effects: AT = ED.

[1] Units for exposure frequency are in events/year in the calculation of the dermally absorbed dose.

[2] In estimating the dermally absorbed dose for children age 7 through 16, the time-weighted, bodyweight normalized surface area (as posed) is calculated from surface area, exposure duration, and body weight for each of 10 age periods, age 7 through 16, per USEPA, 1992.

USEPA, 1989. Exposure Factors Handbook; EPA/600/8-89/043; May 1989.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9285.6-01.

USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; January 1992.

USEPA, 1995. Supplemental Guidance to RAGS: Region 4 Bulletin, Bulletin No. 3, November 1995.

TABLE G-13

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
 ADOLESCENT TRESPASSER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day) ⁻¹	CANCER RISK INGESTION	DERMAL ABS [2]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [3] (mg/kg-day) ⁻¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Benzo(a)anthracene [1]	O	35	ug/kg	1.4E-09	7.3E+00	1.0E-08	0.01	6.2E-10	8.0E+00	5.0E-09	1.5E-08
Benzo(a)pyrene	O	370	ug/kg	1.4E-08	7.3E+00	1.1E-07	0.01	6.6E-09	8.0E+00	5.3E-08	1.6E-07
Benzo(b)fluoranthene [1]	O	41	ug/kg	1.6E-09	7.3E+00	1.2E-08	0.01	7.3E-10	8.0E+00	5.9E-09	1.8E-08
Benzo(k)fluoranthene [1]	O	3.9	ug/kg	1.5E-10	7.3E+00	1.1E-09	0.01	7.0E-11	8.0E+00	5.6E-10	1.7E-09
Carbazole	O	97	ug/kg	3.8E-09	2.0E+02	7.6E-11	0.01	1.7E-09	4.0E+02	6.9E-11	1.5E-10
Chrysene [1]	O	0.39	ug/kg	1.5E-11	7.3E+00	1.1E-10	0.01	7.0E-12	8.0E+00	5.6E-11	1.7E-10
Dibenz(a,h)anthracene [1]	O	240	ug/kg	9.4E-09	7.3E+00	6.9E-08	0.01	4.3E-09	8.0E+00	3.4E-08	1.0E-07
Indeno(1,2,3-cd)pyrene [1]	O	32	ug/kg	1.3E-09	7.3E+00	9.1E-09	0.01	5.7E-10	8.0E+00	4.6E-09	1.4E-08
Dieldrin	O	32	ug/kg	1.3E-09	1.6E+01	2.0E-08	0.01	5.7E-10	3.2E+01	1.8E-08	3.8E-08
Arsenic	I	3.8	mg/kg	1.5E-07	1.5E+00	2.2E-07	0.001	6.8E-09	1.5E+00	1.0E-08	2.3E-07
Lead	I	473	mg/kg	1.9E-05	ND		0.001	8.4E-07	ND		
SUMMARY CANCER RISK						4E-07				1E-07	6E-07
[1] Carcinogenic PAH concentrations are adjusted by their respective toxicity equivalent factors (USEPA, 1995). [2] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995). [3] Calculated from oral CSFs.											

TABLE 6-13

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
 ADOLESCENT TRESPASSER
 NAS WHITTING FIELD
 MILTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	9.6E-08	ND		0.01	4.4E-08	ND		
Benzo(a)pyrene	O	370	ug/kg	1.0E-07	ND		0.01	4.6E-08	ND		
Benzo(b)fluoranthene	O	410	ug/kg	1.1E-07	ND		0.01	5.1E-08	ND		
Benzo(k)fluoranthene	O	390	ug/kg	1.1E-07	ND		0.01	4.9E-08	ND		
Carbazole	O	200	ug/kg	5.5E-08	ND		0.01	2.5E-08	ND		
Chrysene	O	390	ug/kg	1.1E-07	ND		0.01	4.9E-08	ND		
Dibenz(a,h)anthracene	O	240	ug/kg	6.6E-08	ND		0.01	3.0E-08	ND		
Indeno(1,2,3-cd)pyrene	O	320	ug/kg	8.8E-08	ND		0.01	4.0E-08	ND		
Dieldrin	O	32	ug/kg	8.8E-09	5.0E-05	1.8E-04	0.01	4.0E-09	2.5E-05	1.6E-04	3.4E-04
Aluminum	I	11300	mg/kg	3.1E-03	1.0E+00	3.1E-03	0.001	1.4E-04	2.0E-01	7.1E-04	3.8E-03
Arsenic	I	3.8	mg/kg	1.0E-06	3.0E-04	3.5E-03	0.001	4.7E-08	2.9E-04	1.6E-04	3.6E-03
Cadmium	I	2.1	mg/kg	5.8E-07	1.0E-03	5.8E-04	0.001	2.6E-08	1.0E-05	2.6E-03	3.2E-03
Iron	I	13900	mg/kg	3.8E-03	3.0E-01	1.3E-02	0.001	1.7E-04	6.0E-03	2.9E-02	4.2E-02
Lead	I	473	mg/kg	1.3E-04	ND		0.001	5.9E-06	ND		
Manganese	I	296	mg/kg	8.1E-05	4.7E-02	1.7E-03	0.001	3.7E-06	1.9E-03	1.9E-03	3.7E-03
SUMMARY HAZARD INDEX							0.02			0.03	0.06
[1] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995).											
[2] Calculated from oral RfDs.											

TABLE 6-14

INHALATION OF PARTICULATES - SURFACE SOIL
 ADOLESCENT TRESPASSER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
SOIL CONCENTRATION	C	chemical-specific	chemical-specific	
PART. EMISSION FACTOR	PEF	1.24E+09	m ³ /kg	default [1]
CONCENTRATION AIR	CA	chemical-specific	mg/m ³	
INHALATION RATE	IR	0.625	m ³ /hour	USEPA, 1995
BODY WEIGHT	BW	45	kg	USEPA, 1995
EXPOSURE TIME	ET	4	hours/day	Assumption
EXPOSURE FREQUENCY	EF	45	days/year	Assumption
EXPOSURE DURATION	ED	10	years	USEPA, 1995
CONVERSION FACTOR	CF	0.001	mg/ug	Organics only
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	10	years	USEPA, 1995

[1] Florida Soil Clean-Up Goal Variable. FDEP, 1995.
 USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9285.6-03.
 USEPA 1995. Supplemental Guidance to RAGS, Region 4 Bulletins, Bulletin No. 3, November 1995.

CANCER RISK = INTAKE (mg/kg-day) x INHALATION CANCER SLOPE FACTOR (mg/kg-day)⁻¹

HAZARD QUOTIENT = INTAKE (mg/kg-day) / INHALATION REFERENCE DOSE (mg/kg-day)

INTAKE = $CA \times IR \times ET \times EF \times ED$
 $BW \times AT \times 365 \text{ days/yr}$

Where:

CA = $C \times CF \times (1/PEF)$

Note: For noncarcinogenic effects: AT = ED

TABLE 6-14

INHALATION OF PARTICULATES - SURFACE SOIL
 ADOLESCENT TRESPASSER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION [1]	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION CSF (mg/kg-day) ⁻¹	CANCER RISK
Benzo(a)anthracene	O	35	ug/kg	2.82E-11	2.8E-14	3.1E+00	8.6E-14
Benzo(a)pyrene	O	370	ug/kg	2.98E-10	2.9E-13	3.1E+00	9.1E-13
Benzo(b)fluoranthene	O	41	ug/kg	3.31E-11	3.2E-14	3.1E+00	1.0E-13
Benzo(k)fluoranthene	O	3.9	ug/kg	3.15E-12	3.1E-15	3.1E+00	9.5E-15
Chrysene	O	0.39	ug/kg	3.15E-13	3.1E-16	3.1E+00	9.5E-16
Dibenz(a,h)anthracene	O	240	ug/kg	1.94E-10	1.9E-13	3.1E+00	5.9E-13
Indeno(1,2,3-cd)pyrene	O	32	ug/kg	2.58E-11	2.5E-14	3.1E+00	7.8E-14
Dieldrin	I	32	mg/kg	2.58E-08	2.5E-11	1.6E+01	4.0E-10
Arsenic	I	3.8	mg/kg	3.06E-09	3.0E-12	1.5E+01	4.5E-11
Lead	I	473	mg/kg	3.81E-07	3.7E-10	ND	
SUMMARY CANCER RISK							5E-10
[1] Toxicity equivalent factors are applied to carcinogenic PAHs per USEPA Region IV Guidance (USEPA, 1995).							

TABLE G-14

INHALATION OF PARTICULATES - SURFACE SOIL
 ADOLESCENT TRESPASSER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION RfD (mg/kg-day)	HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	2.82E-10	1.9E-12	ND	
Benzo(a)pyrene	O	370	ug/kg	2.98E-10	2.0E-12	ND	
Benzo(b)fluoranthene	O	410	ug/kg	3.31E-10	2.3E-12	ND	
Benzo(k)fluoranthene	O	390	ug/kg	3.15E-10	2.2E-12	ND	
Carbazole	O	97	ug/kg	7.82E-11	5.4E-13	ND	
Chrysene	O	390	ug/kg	3.15E-10	2.2E-12	ND	
Dibenz(a,h)anthracene	O	390	ug/kg	3.15E-10	2.2E-12	ND	
Indeno(1,2,3-cd)pyrene	O	240	ug/kg	1.94E-10	1.3E-12	ND	
Dieldrin	I	320	mg/kg	2.58E-07	1.8E-09	ND	
Aluminum	I	11300	mg/kg	9.11E-06	6.2E-08	ND	
Arsenic	I	3.8	mg/kg	3.06E-09	2.1E-11	ND	
Cadmium	I	2.1	mg/kg	1.69E-09	1.2E-11	ND	
Iron	I	13900	mg/kg	1.12E-05	7.7E-08	ND	
Lead	I	473	mg/kg	3.81E-07	2.6E-09	ND	
Manganese	I	296	mg/kg	2.39E-07	1.6E-09	1.4E-05	1.2E-04
SUMMARY HAZARD INDEX							0.0001

TABLE G-15

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
ADULT RESIDENT
NAS WHITING FIELD
MILTON, FLORIDA
SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION SOIL	CS	chemical-specific	chemical-specific	
INGESTION RATE	IR	100	mg/day	USEPA, 1995
FRACTION INGESTED	FI	100%	unitless	USEPA, 1995
ADHERENCE FACTOR	AF	1	mg/cm ² -event	USEPA, 1995
ABSORPTION FRACTION	ABS _d	chemical-specific	unitless	USEPA, 1995
SURFACE AREA EXPOSED	SA	5,750	cm ²	USEPA, 1992
DOSE ABSORBED PER EVENT	DA _{event}	chemical-specific	mg/cm ² -event	USEPA, 1992
CONVERSION FACTOR	CF	1.00E-09	kg/ug	Organic conversion
CONVERSION FACTOR	CF	1.00E-06	kg/mg	Inorganic conversion
BODY WEIGHT	BW	70	kg	USEPA, 1991
EXPOSURE FREQUENCY	EF	350	days/year [1]	Assumption
EXPOSURE DURATION	ED	24	years	USEPA, 1995
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	24	years	USEPA, 1995

[1] Units for exposure frequency are events/year in the calculation of the dermally absorbed dose.
USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9285.6-03.
USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; January 1992.
USEPA, 1995. Supplemental Guidance to RAGS : Region IV, Human Health Risk Assessment Bulletin No. 3.

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE}_{\text{INGESTION}} = \frac{\text{CS} \times \text{IR} \times \text{FI} \times \text{CF} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

$$\text{INTAKE}_{\text{DERMAL}} = \frac{\text{DA}_{\text{event}} \times \text{SA} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

Where:

$$\text{DA}_{\text{event}} = \text{CS} \times \text{AF} \times \text{ABS}_d \times \text{CF}$$

Note: For noncarcinogenic effects, AT = ED.

TABLE 6-15

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
ADULT RESIDENT
NAS WHITING FIELD
MILTON, FLORIDA
SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day) ⁻¹	CANCER RISK INGESTION	DERMAL ABS [2]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [3] (mg/kg-day) ⁻¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Benzo(a)anthracene [1]	O	35	ug/kg	1.6E-08	7.3E+00	1.2E-07	0.01	9.5E-09	8.0E+00	7.6E-08	2.0E-07
Benzo(a)pyrene	O	370	ug/kg	1.7E-07	7.3E+00	1.3E-06	0.01	1.0E-07	8.0E+00	8.0E-07	2.1E-06
Benzo(b)fluoranthene [1]	O	41	ug/kg	1.9E-08	7.3E+00	1.4E-07	0.01	1.1E-08	8.0E+00	8.9E-08	2.3E-07
Benzo(k)fluoranthene [1]	O	3.9	ug/kg	1.8E-09	7.3E+00	1.3E-08	0.01	1.1E-09	8.0E+00	8.4E-09	2.2E-08
Carbazole	O	97	ug/kg	4.6E-08	2.0E-02	9.1E-10	0.01	2.6E-08	4.0E-02	1.0E-09	2.0E-09
Chrysene [1]	O	0.39	ug/kg	1.8E-10	7.3E+00	1.3E-09	0.01	1.1E-10	8.0E+00	8.4E-10	2.2E-09
Dibenz(a,h)anthracene [1]	O	240	ug/kg	1.1E-07	7.3E+00	8.2E-07	0.01	6.5E-08	8.0E+00	5.2E-07	1.3E-06
Indeno(1,2,3-cd)pyrene [1]	O	32	ug/kg	1.5E-08	7.3E+00	1.1E-07	0.01	8.6E-09	8.0E+00	6.9E-08	1.8E-07
Dieldrin	O	32	ug/kg	1.5E-08	1.6E+01	2.4E-07	0.01	8.6E-09	3.2E+01	2.8E-07	5.2E-07
Arsenic	I	3.8	mg/kg	1.8E-06	1.5E+00	2.7E-06	0.001	1.0E-07	1.5E+00	1.5E-07	2.8E-06
Lead	I	473	mg/kg	2.2E-04	ND		0.001	1.3E-05	ND		
SUMMARY CANCER RISK						5E-06				2E-06	7E-06

[1] Carcinogenic PAH concentrations are adjusted by their respective toxicity equivalent factors (USEPA, 1995).
[2] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995).
[3] Calculated from oral CSFs.

TABLE G-15

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
ADULT RESIDENT
NAS WHITING FIELD
MILTON, FLORIDA
SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	4.8E-07	ND		0.01	2.8E-07	ND		
Benzo(a)pyrene	O	370	ug/kg	5.1E-07	ND		0.01	2.9E-07	ND		
Benzo(b)fluoranthene	O	410	ug/kg	5.6E-07	ND		0.01	3.2E-07	ND		
Benzo(k)fluoranthene	O	390	ug/kg	5.3E-07	ND		0.01	3.1E-07	ND		
Carbazole	O	200	ug/kg	2.7E-07	ND		0.01	1.6E-07	ND		
Chrysene	O	390	ug/kg	5.3E-07	ND		0.01	3.1E-07	ND		
Dibenz(a,h)anthracene	O	240	ug/kg	3.3E-07	ND		0.01	1.9E-07	ND		
Indeno(1,2,3-cd)pyrene	O	320	ug/kg	4.4E-07	ND		0.01	2.5E-07	ND		
Dieldrin	O	32	ug/kg	4.4E-08	5.0E-05	8.8E-04	0.01	2.5E-08	2.5E-05	1.0E-03	1.9E-03
Aluminum	I	11300	mg/kg	1.5E-02	1.0E+00	1.5E-02	0.001	8.9E-04	2.0E-01	4.5E-03	2.0E-02
Arsenic	I	3.8	mg/kg	5.2E-06	3.0E-04	1.7E-02	0.001	3.0E-07	2.9E-04	1.0E-03	1.8E-02
Cadmium	I	2.1	mg/kg	2.9E-06	1.0E-03	2.9E-03	0.001	1.7E-07	1.0E-05	1.7E-02	1.9E-02
Iron	I	13900	mg/kg	1.9E-02	3.0E-01	6.3E-02	0.001	1.1E-03	6.0E-03	1.8E-01	2.5E-01
Lead	I	473	mg/kg	6.5E-04	ND		0.001	3.7E-05	ND		
Manganese	I	296	mg/kg	4.1E-04	4.7E-02	8.6E-03	0.001	2.3E-05	1.9E-03	1.2E-02	2.1E-02
SUMMARY HAZARD INDEX						0.001				0.001	0.002
[1] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November, 1995).											
[2] Calculated from oral RfDs.											

TABLE 6-16

INHALATION OF PARTICULATES - SURFACE SOIL
 ADULT RESIDENT
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
SOIL CONCENTRATION	C	chemical-specific	chemical-specific	
PART. EMISSION FACTOR	PEF	1.24E+09	m ³ /kg	default [1]
CONCENTRATION AIR	CA	chemical-specific	mg/m ³	
INHALATION RATE	IR	0.833	m ³ /hour	USEPA, 1995
BODY WEIGHT	BW	70	kg	USEPA, 1991
EXPOSURE TIME	ET	16	hours/day	Assumption
EXPOSURE FREQUENCY	EF	350	days/year	USEPA, 1995
EXPOSURE DURATION	ED	24	years	USEPA, 1995
CONVERSION FACTOR	CF	0.001	mg/ug	Organics only
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	24	years	USEPA, 1995

[1] Florida Soil Clean-Up Goal Variable: FDEP, 1995.
 USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9285.6-03
 USEPA, 1995. Supplemental Guidance to RAGS: Region IV, Human Health Risk Assessment Bulletin No. 3.

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{INHALATION CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{INHALATION REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE} = \frac{\text{CA} \times \text{IR} \times \text{ET} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

Where:

$$\text{CA} = \text{C} \times \text{CF} \times (1/\text{PEF})$$

Note:

For noncarcinogenic effects: AT = ED

TABLE G-46

INHALATION OF PARTICULATES - SURFACE SOIL
 ADULT RESIDENT
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION [1]	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION CSF (mg/kg-day) ⁻¹	CANCER RISK
Benzo(a)anthracene	O	35	ug/kg	2.82E-11	1.8E-12	3.1E+00	5.5E-12
Benzo(a)pyrene	O	370	ug/kg	2.98E-10	1.9E-11	3.1E+00	5.8E-11
Benzo(b)fluoranthene	O	41	ug/kg	3.31E-11	2.1E-12	3.1E+00	6.4E-12
Benzo(k)fluoranthene	O	3.9	ug/kg	3.15E-12	2.0E-13	3.1E+00	6.1E-13
Chrysene	O	0.39	ug/kg	3.15E-13	2.0E-14	3.1E+00	6.1E-14
Dibenz(a,h)anthracene	O	240	ug/kg	1.94E-10	1.2E-11	3.1E+00	3.8E-11
Indeno(1,2,3-cd)pyrene	O	32	ug/kg	2.58E-11	1.6E-12	3.1E+00	5.0E-12
Dieldrin	O	32	ug/kg	2.58E-11	1.6E-12	1.6E+01	2.6E-11
Arsenic	I	3.8	mg/kg	3.06E-09	1.9E-10	1.5E+01	2.9E-09
Lead	I	473	mg/kg	3.81E-07	2.4E-08	ND	
SUMMARY CANCER RISK							3E-09
[1] Toxicity equivalent factors are applied to carcinogenic PAHs per USEPA Region IV Guidance (USEPA, 1995).							

TABLE G-16

INHALATION OF PARTICULATES - SURFACE SOIL
 ADULT RESIDENT
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	AIR CONCENTRATION (mg/m^3)	INTAKE ($\text{mg}/\text{kg}\text{-day}$)	INHALATION RFD ($\text{mg}/\text{kg}\text{-day}$)	HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	2.82E-10	5.2E-11	ND	
Benzo(a)pyrene	O	370	ug/kg	2.98E-10	5.4E-11	ND	
Benzo(b)fluoranthene	O	410	ug/kg	3.31E-10	6.0E-11	ND	
Benzo(k)fluoranthene	O	390	ug/kg	3.15E-10	5.7E-11	ND	
Carbazole	O	200	ug/kg	1.61E-10	2.9E-11	ND	
Chrysene	O	390	ug/kg	3.15E-10	5.7E-11	ND	
Dibenz(a,h)anthracene	O	240	ug/kg	1.94E-10	3.5E-11	ND	
Indeno(1,2,3-cd)pyrene	O	320	ug/kg	2.58E-10	4.7E-11	ND	
Dieldrin	O	32	ug/kg	2.58E-11	4.7E-12	ND	
Aluminum	I	11300	mg/kg	9.11E-06	1.7E-06	ND	
Arsenic	I	3.8	mg/kg	3.06E-09	5.6E-10	ND	
Cadmium	I	2.1	mg/kg	1.69E-09	3.1E-10	ND	
Iron	I	13900	mg/kg	1.12E-05	2.0E-06	ND	
Lead	I	473	mg/kg	3.81E-07	7.0E-08	ND	
Manganese	I	296	mg/kg	2.39E-07	4.4E-08	1.4E-05	3.1E-03
SUMMARY HAZARD INDEX							0.003

TABLE G-17

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
CHILD RESIDENT
NAS WHITING FIELD
MILTON, FLORIDA
SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION SOIL	CS	chemical-specific	chemical-specific	
INGESTION RATE	IR	200	mg/day	USEPA, 1995
FRACTION INGESTED	FI	100%	unitless	USEPA, 1995
ADHERENCE FACTOR	AF	1	mg/cm ² -event	USEPA, 1995
AGE-SPECIFIC SURFACE AREA	SA	age-specific	cm ²	USEPA, 1989
ABSORPTION FRACTION	ABS	chemical-specific	unitless	USEPA, 1995
CONVERSION FACTOR	CF	1.00E-06	kg/mg	Inorganic conversion
CONVERSION FACTOR	CF	1.00E-09	kg/ug	Organic conversion
BODY WEIGHT	BW	15	kg	USEPA, 1991
AGE-SPECIFIC BODY WEIGHT	BW	age-specific	kg	USEPA, 1989
EXPOSURE FREQUENCY	EF	350	days/year [1]	USEPA, 1995
EXPOSURE DURATION	ED	6	years	USEPA, 1995
AGE-SPECIFIC EXPOSURE DURATION	ED	age-specific	years	Assumption
AGE-WEIGHTED SURFACE AREA (2)	SA _{adj}	700	cm ² -year/kg	USEPA, 1992
DOSE ABSORBED PER EVENT	DA _{event}	chemical-specific	mg/cm ² -event	USEPA, 1992
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	6	years	USEPA, 1995

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE}_{\text{INGESTION}} = \text{CS} \times \text{IR} \times \text{FI} \times \text{CF} \times \text{EF} \times \text{ED} \\ \text{BW} \times \text{AT} \times 365 \text{ days/yr}$$

$$\text{INTAKE}_{\text{DERMAL}} = (\text{DA}_{\text{event}} \times \text{EF} / \text{AT} \times 365 \text{ days/year}) \times \text{SA}_{\text{adj}}$$

Where:

$$\text{SA}_{\text{adj}} = \text{SUM (SA} \times \text{ED} / \text{BW)}$$

$$\text{DA}_{\text{event}} = \text{CS} \times \text{AF} \times \text{ABS} \times \text{CF}$$

Note: For noncarcinogenic effects, AT = ED.

[1] Units for exposure frequency are in events/year in the calculation of the dermally absorbed dose.

[2] In estimating the dermally absorbed dose for children age 1 through 6, the time-weighted, body-weight normalized surface area exposed is calculated from surface area, exposure duration, and body weight for each of 6 age periods, age 1 through 6, per USEPA, 1992.

USEPA, 1989. Exposure Factors Handbook; EPA/600/8-89/043; May 1989.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9285.6-01.

USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; January 1992.

USEPA, 1995. Supplemental Guidance to RAGS - Region IV, Human Health Risk Assessment Bulletin No. 3.

TABLE G17

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
CHILD RESIDENT
NAS WHITING FIELD
MILTON, FLORIDA
SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day) ¹	CANCER RISK INGESTION	DERMAL ABS [2]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [3] (mg/kg-day) ¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Benzo(a)anthracene [1]	O	35	ug/kg	3.8E-08	7.3E+00	2.8E-07	0.01	3.7E-09	8.0E+00	2.9E-08	3.1E-07
Benzo(a)pyrene	O	370	ug/kg	4.1E-07	7.3E+00	3.0E-06	0.01	3.9E-08	8.0E+00	3.1E-07	3.3E-06
Benzo(b)fluoranthene [1]	O	41	ug/kg	4.5E-08	7.3E+00	3.3E-07	0.01	4.3E-09	8.0E+00	3.4E-08	3.6E-07
Benzo(k)fluoranthene [1]	O	3.9	ug/kg	4.3E-09	7.3E+00	3.1E-08	0.01	4.1E-10	8.0E+00	3.3E-09	3.4E-08
Carbazole	O	97	ug/kg	1.1E-07	2.0E-02	2.1E-09	0.01	1.0E-08	4.0E-02	4.1E-10	2.5E-09
Chrysene [1]	O	0.39	ug/kg	4.3E-10	7.3E+00	3.1E-09	0.01	4.1E-11	8.0E+00	3.3E-10	3.4E-09
Dibenz(a,h)anthracene [1]	O	240	ug/kg	2.6E-07	7.3E+00	1.9E-06	0.01	2.5E-08	8.0E+00	2.0E-07	2.1E-06
Indeno(1,2,3-cd)pyrene [1]	O	32	ug/kg	3.5E-08	7.3E+00	2.6E-07	0.01	3.4E-09	8.0E+00	2.7E-08	2.8E-07
Dieldrin	O	32	ug/kg	3.5E-08	1.6E+01	5.6E-07	0.01	3.4E-09	3.2E+01	1.1E-07	6.7E-07
Arsenic	I	3.8	mg/kg	4.2E-06	1.5E+00	6.2E-06	0.001	4.0E-08	1.5E+00	6.0E-08	6.3E-06
Lead	I	473	mg/kg	5.2E-04	ND		0.001	5.0E-06	ND		
SUMMARY CANCER RISK						1E-05				8E-07	1E-05
<p>[1] Carcinogenic PAH concentrations are adjusted by their respective toxicity equivalent factors (USEPA, 1995). [2] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995). [3] Calculated from oral CSFs.</p>											

TABLE S17

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
CHILD RESIDENT
NAS WHITING FIELD
MILTON, FLORIDA
SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	4.5E-06	ND		0.01	4.3E-07	ND		
Benzo(a)pyrene	O	370	ug/kg	4.7E-06	ND		0.01	4.5E-07	ND		
Benzo(b)fluoranthene	O	410	ug/kg	5.2E-06	ND		0.01	5.0E-07	ND		
Benzo(k)fluoranthene	O	390	ug/kg	5.0E-06	ND		0.01	4.8E-07	ND		
Carbazole	O	200	ug/kg	2.6E-06	ND		0.01	2.4E-07	ND		
Chrysene	O	390	ug/kg	5.0E-06	ND		0.01	4.8E-07	ND		
Dibenz(a,h)anthracene	O	240	ug/kg	3.1E-06	ND		0.01	2.9E-07	ND		
Indeno(1,2,3-cd)pyrene	O	320	ug/kg	4.1E-06	ND		0.01	3.9E-07	ND		
Dieldrin	O	32	ug/kg	4.1E-07	5.0E-05	8.2E-03	0.01	3.9E-08	2.5E-05	1.6E-03	9.7E-03
Aluminum	I	11300	mg/kg	1.4E-01	1.0E+00	1.4E-01	0.001	1.4E-03	2.0E-01	6.9E-03	1.5E-01
Arsenic	I	3.8	mg/kg	4.9E-05	3.0E-04	1.6E-01	0.001	4.7E-07	2.9E-04	1.6E-03	1.6E-01
Cadmium	I	2.1	mg/kg	2.7E-05	1.0E-03	2.7E-02	0.001	2.6E-07	1.0E-05	2.6E-02	5.3E-02
Iron	I	13900	mg/kg	1.8E-01	3.0E-01	5.9E-01	0.001	1.7E-03	6.0E-03	2.8E-01	8.8E-01
Lead	I	473	mg/kg	6.0E-03	ND		0.001	5.8E-05	ND		
Manganese	I	296	mg/kg	3.8E-03	4.7E-02	8.1E-02	0.001	3.6E-05	1.9E-03	1.9E-02	1.0E-01
SUMMARY HAZARD INDEX						1				0.3	1
[1] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995).											
[2] Calculated from oral RfDs.											

TABLE G-18

INHALATION OF PARTICULATES - SURFACE SOIL
 CHILD RESIDENT
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
SOIL CONCENTRATION	C	chemical-specific	chemical-specific	
PART. EMISSION FACTOR	PEF	1.24E+09	m ³ /kg	default [1]
CONCENTRATION IN AIR	CA	chemical-specific	mg/m ³	
INHALATION RATE	IR	0.625	m ³ /hour	USEPA, 1995
BODY WEIGHT	BW	15	kg	USEPA, 1991
EXPOSURE TIME	ET	24	hours/day	Assumption
EXPOSURE FREQUENCY	EF	350	days/year	USEPA, 1991
EXPOSURE DURATION	ED	6	years	USEPA, 1991
CONVERSION FACTOR	CF	0.001	mg/ug	Organics only
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	6	years	USEPA, 1991

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{INHALATION CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{INHALATION REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE} = \frac{\text{CA} \times \text{IR} \times \text{ET} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

Where:

$$\text{CA} = \text{C} \times \text{CF} \times (1/\text{PEF})$$

Note:

For noncarcinogenic effects: AT = ED

[1] Florida Soil Clean-Up Goal Variable. FDEP, 1995.
 USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9285.6-03.
 USEPA, 1995. Supplemental Guidance to RAG5. Region 4 Bulletin, Bulletin No. 3, November 1995.

TABLE 6.18

INHALATION OF PARTICULATES - SURFACE SOIL
 CHILD RESIDENT
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION [1]	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION CSF (mg/kg-day) ⁻¹	CANCER RISK
Benzo(a)anthracene	O	35	ug/kg	2.82E-11	2.3E-12	3.1E+00	7.2E-12
Benzo(a)pyrene	O	370	ug/kg	2.98E-10	2.5E-11	3.1E+00	7.6E-11
Benzo(b)fluoranthene	O	41	ug/kg	3.31E-11	2.7E-12	3.1E+00	8.4E-12
Benzo(k)fluoranthene	O	3.9	ug/kg	3.15E-12	2.6E-13	3.1E+00	8.0E-13
Chrysene	O	0.39	ug/kg	3.15E-13	2.6E-14	3.1E+00	8.0E-14
Dibenz(a,h)anthracene	O	240	ug/kg	1.94E-10	1.6E-11	3.1E+00	4.9E-11
Indeno(1,2,3-cd)pyrene	O	32	ug/kg	2.58E-11	2.1E-12	3.1E+00	6.6E-12
Dieldrin	I	32	mg/kg	2.58E-08	2.1E-09	1.6E+01	3.4E-08
Arsenic	I	3.8	mg/kg	3.06E-09	2.5E-10	1.5E+01	3.8E-09
Lead	I	473	mg/kg	3.81E-07	3.1E-08	ND	
SUMMARY CANCER RISK							4E-08
[1] Toxicity equivalent factors are applied to carcinogenic PAHs per USEPA Region IV Guidance (USEPA, 1995).							

TABLE G-18

INHALATION OF PARTICULATES - SURFACE SOIL
 CHILD RESIDENT
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION RfD (mg/kg-day)	HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	2.82E-10	2.7E-10	ND	
Benzo(a)pyrene	O	370	ug/kg	2.98E-10	2.9E-10	ND	
Benzo(b)fluoranthene	O	410	ug/kg	3.31E-10	3.2E-10	ND	
Benzo(k)fluoranthene	O	390	ug/kg	3.15E-10	3.0E-10	ND	
Carbazole	O	97	ug/kg	7.82E-11	7.5E-11	ND	
Chrysene	O	390	ug/kg	3.15E-10	3.0E-10	ND	
Dibenz(a,h)anthracene	O	390	ug/kg	3.15E-10	3.0E-10	ND	
Indeno(1,2,3-cd)pyrene	O	240	ug/kg	1.94E-10	1.9E-10	ND	
Dieldrin	I	320	mg/kg	2.58E-07	2.5E-07	ND	
Aluminum	I	11300	mg/kg	9.11E-06	8.7E-06	ND	
Arsenic	I	3.8	mg/kg	3.06E-09	2.9E-09	ND	
Cadmium	I	2.1	mg/kg	1.69E-09	1.6E-09	ND	
Iron	I	13900	mg/kg	1.12E-05	1.1E-05	ND	
Lead	I	473	mg/kg	3.81E-07	3.7E-07	ND	
Manganese	I	296	mg/kg	2.39E-07	2.3E-07	1.4E-05	1.6E-02
SUMMARY HAZARD INDEX							0.02

TABLE 5-13

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL,
SITE MAINTENANCE WORKER
NAS WHITING FIELD
MILTON, FLORIDA
SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION SOIL	CS	chemical-specific	chemical-specific	
INGESTION RATE	IR	30	mg/day	USEPA, 1995
FRACTION INGESTED	FI	100%	unitless	Assumption
ADHERENCE FACTOR	AF	1	mg/cm ² -event	USEPA, 1995
ABSORPTION FRACTION	ABS	chemical-specific	unitless	Assumption
SURFACE AREA EXPOSED	SA	5,790	cm ²	USEPA, 1992
DOSE ABSORBED PER EVENT	DA _{event}	chemical-specific	mg/cm ² -event	USEPA, 1992
CONVERSION FACTOR	CF	1.00E-09	kg/ug	Organic conversion
CONVERSION FACTOR	CF	1.00E-06	kg/mg	Inorganic conversion
BODY WEIGHT	BW	70	kg	USEPA, 1991
EXPOSURE FREQUENCY	EF	30	days/year [1]	Assumption
EXPOSURE DURATION	ED	25	years	USEPA, 1995
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	25	years	USEPA, 1995

[1] Units for exposure frequency are events/year in the calculation of the dermally absorbed dose.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors";

OSWER Directive 9285.6-03.

USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; 1/92.

USEPA, 1995. Supplemental Guidance to RAGS: Region IV, Human Health Risk Assessment Bulletin No. 3.

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE}_{\text{INGESTION}} = \text{CS} \times \text{IR} \times \text{FI} \times \text{CF} \times \text{EF} \times \text{ED} \\ \text{BW} \times \text{AT} \times 365 \text{ days/yr}$$

$$\text{INTAKE}_{\text{DERMAL}} = \text{DA}_{\text{event}} \times \text{SA} \times \text{EF} \times \text{ED} \\ \text{BW} \times \text{AT} \times 365 \text{ days/yr}$$

Where:

$$\text{DA}_{\text{event}} = \text{CS} \times \text{AF} \times \text{ABS} \times \text{CF}$$

Note: For noncarcinogenic effects, AT = ED

TABLE 5-17

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
 SITE MAINTENANCE WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day) ⁻¹	CANCER RISK INGESTION	DERMAL ABS [2]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [3] (mg/kg-day) ⁻¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Benzo(a)anthracene [1]	0	35	ug/kg	7.3E-10	7.3E+00	5.4E-09	0.01	8.4E-10	8.0E+00	6.8E-09	1.2E-08
Benzo(a)pyrene	0	370	ug/kg	7.8E-09	7.3E+00	5.7E-08	0.01	8.9E-09	8.0E+00	7.1E-08	1.3E-07
Benzo(b)fluoranthene [1]	0	41	ug/kg	8.6E-10	7.3E+00	6.3E-09	0.01	9.9E-10	8.0E+00	7.9E-09	1.4E-08
Benzo(k)fluoranthene [1]	0	3.9	ug/kg	8.2E-11	7.3E+00	6.0E-10	0.01	9.4E-11	8.0E+00	7.5E-10	1.3E-09
Carbazole	0	97	ug/kg	2.0E-09	2.0E-02	4.1E-11	0.01	2.3E-09	4.0E-02	9.4E-11	1.3E-10
Chrysene [1]	0	0.39	ug/kg	8.2E-12	7.3E+00	6.0E-11	0.01	9.4E-12	8.0E+00	7.5E-11	1.3E-10
Dibenz(a,h)anthracene [1]	0	240	ug/kg	5.0E-09	7.3E+00	3.7E-08	0.01	5.8E-09	8.0E+00	4.6E-08	8.3E-08
Indeno(1,2,3-cd)pyrene [1]	0	32	ug/kg	6.7E-10	7.3E+00	4.9E-09	0.01	7.7E-10	8.0E+00	6.2E-09	1.1E-08
Dieldrin	0	32	ug/kg	6.7E-10	1.6E+01	1.1E-08	0.01	7.7E-10	3.2E+01	2.5E-08	3.5E-08
Arsenic	1	3.8	mg/kg	8.0E-08	1.5E+00	1.2E-07	0.001	9.2E-09	1.5E+00	1.4E-08	1.3E-07
Lead	1	473	mg/kg	9.9E-06	ND		0.001	1.1E-06	ND		
SUMMARY CANCER RISK						2E-07				2E-07	4E-07
[1] Carcinogenic PAH concentrations are adjusted by their respective toxicity equivalent factors (USEPA, 1995).											
[2] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995).											
[3] Calculated from oral CSFs.											

TABLE 6A

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
 SITE MAINTENANCE WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	2.1E-08	ND		0.01	2.4E-08	ND		
Benzo(a)pyrene	O	370	ug/kg	2.2E-08	ND		0.01	2.5E-08	ND		
Benzo(b)fluoranthene	O	410	ug/kg	2.4E-08	ND		0.01	2.8E-08	ND		
Benzo(k)fluoranthene	O	390	ug/kg	2.3E-08	ND		0.01	2.6E-08	ND		
Carbazole	O	97	ug/kg	5.7E-09	ND		0.01	6.5E-09	ND		
Chrysene	O	390	ug/kg	2.3E-08	ND		0.01	2.6E-08	ND		
Dibenz(a,h)anthracene	O	240	ug/kg	1.4E-08	ND		0.01	1.6E-08	ND		
Indeno(1,2,3-cd)pyrene	O	320	ug/kg	1.9E-08	ND		0.01	2.2E-08	ND		
Dieldrin	O	32	ug/kg	1.9E-09	5.0E-05	3.8E-05	0.01	2.2E-09	2.5E-05	8.6E-05	1.2E-04
Aluminum	I	11300	mg/kg	6.6E-04	1.0E+00	6.6E-04	0.001	7.6E-05	2.0E-01	3.8E-04	1.0E-03
Arsenic	I	3.8	mg/kg	2.2E-07	3.0E-04	7.4E-04	0.001	2.6E-08	2.9E-04	8.8E-05	8.3E-04
Cadmium	I	2.1	mg/kg	1.2E-07	1.0E-03	1.2E-04	0.001	1.4E-08	1.0E-05	1.4E-03	1.5E-03
Iron	I	13900	mg/kg	8.2E-04	3.0E-01	2.7E-03	0.001	9.4E-05	6.0E-03	1.6E-02	1.8E-02
Lead	I	473	mg/kg	2.8E-05	ND		0.001	3.2E-06	ND		
Manganese	I	296	mg/kg	1.7E-05	4.7E-02	3.7E-04	0.001	2.0E-06	1.9E-03	1.1E-03	1.4E-03
SUMMARY HAZARD INDEX						0.005				0.02	0.02

[1] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995).

[2] Calculated from oral RfDs.

TABLE G-20

INHALATION OF PARTICULATES - SURFACE SOIL.
 SITE MAINTENANCE WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
SOIL CONCENTRATION	C	chemical-specific	chemical-specific	
PART. EMISSION FACTOR	PEF	1.24E+09	m ³ /kg	default [1]
CONCENTRATION AIR	CA	chemical-specific	mg/m ³	
INHALATION RATE	IR	2.5	m ³ /hour	USEPA, 1995
BODY WEIGHT	BW	70	kg	USEPA, 1991
EXPOSURE TIME	ET	8	hours/day	Assumption
EXPOSURE FREQUENCY	EF	30	days/year	Assumption
EXPOSURE DURATION	ED	25	years	USEPA, 1995
CONVERSION FACTOR	CF	0.001	mg/ug	Organics only
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	25	years	USEPA, 1995

CANCER RISK = INTAKE (mg/kg-day) x INHALATION CANCER SLOPE FACTOR (mg/kg-day)⁻¹

HAZARD QUOTIENT = INTAKE (mg/kg-day) / INHALATION REFERENCE DOSE (mg/kg-day)

INTAKE = $CA \times IR \times ET \times EF \times ED$
 $BW \times AT \times 365 \text{ days/yr}$

Where:

$CA = C \times CF \times (1/PEF)$

Note: For noncarcinogenic effects, AT = ED

[1] Florida Soil Clean-Up Goal Variable. FDEP, 1995.
 USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance:
 "Standard Default Exposure Factors"; OSWER Directive 9203.6-03.
 USEPA, 1995. Supplemental Guidance to RAIS: Region 4 Bulletin, Bulletin No. 3, November 1995.

TABLE G-20

INHALATION OF PARTICULATES - SURFACE SOIL
 SITE MAINTENANCE WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION [1]	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION CSF (mg/kg-day) ⁻¹	CANCER RISK
Benzo(a)anthracene	O	35	ug/kg	2.82E-11	2.4E-13	3.1E+00	7.3E-13
Benzo(a)pyrene	O	370	ug/kg	2.98E-10	2.5E-12	3.1E+00	7.8E-12
Benzo(b)fluoranthene	O	41	ug/kg	3.31E-11	2.8E-13	3.1E+00	8.6E-13
Benzo(k)fluoranthene	O	3.9	ug/kg	3.15E-12	2.6E-14	3.1E+00	8.2E-14
Chrysene	O	0.39	ug/kg	3.15E-13	2.6E-15	3.1E+00	8.2E-15
Dibenz(a,b)anthracene	O	240	ug/kg	1.94E-10	1.6E-12	3.1E+00	5.0E-12
Indeno(1,2,3-cd)pyrene	O	32	ug/kg	2.58E-11	2.2E-13	3.1E+00	6.7E-13
Dieldrin	I	32	mg/kg	2.58E-08	2.2E-10	1.6E+01	3.5E-09
Arsenic	I	3.8	mg/kg	3.06E-09	2.6E-11	1.5E+01	3.9E-10
Lead	I	473	mg/kg	3.81E-07	3.2E-09	ND	
SUMMARY CANCER RISK							4E-09
[1] Toxicity equivalent factors are applied to carcinogenic PAHs per USEPA Region IV Guidance (USEPA, 1995).							

TABLE 6-20

INHALATION OF PARTICULATES - SURFACE SOIL
 SITE MAINTENANCE WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION RfD (mg/kg-day)	HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	2.82E-10	6.6E-12	ND	
Benzo(a)pyrene	O	370	ug/kg	2.98E-10	7.0E-12	ND	
Benzo(b)fluoranthene	O	410	ug/kg	3.31E-10	7.8E-12	ND	
Benzo(k)fluoranthene	O	390	ug/kg	3.15E-10	7.4E-12	ND	
Carbazole	O	97	ug/kg	7.82E-11	1.8E-12	ND	
Chrysene	O	390	ug/kg	3.15E-10	7.4E-12	ND	
Dibenz(a,h)anthracene	O	390	ug/kg	3.15E-10	7.4E-12	ND	
Indeno(1,2,3-cd)pyrene	O	240	ug/kg	1.94E-10	4.5E-12	ND	
Dieldrin	I	320	mg/kg	2.58E-07	6.1E-09	ND	
Aluminum	I	11300	mg/kg	9.11E-06	2.1E-07	ND	
Arsenic	I	3.8	mg/kg	3.06E-09	7.2E-11	ND	
Cadmium	I	2.1	mg/kg	1.69E-09	4.0E-11	ND	
Iron	I	13900	mg/kg	1.12E-05	2.6E-07	ND	
Lead	I	473	mg/kg	3.81E-07	9.0E-09	ND	
Manganese	I	296	mg/kg	2.39E-07	5.6E-09	1.4E-05	4.0E-04
SUMMARY HAZARD INDEX							0.0004

TABLE 6.1

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
 OCCUPATIONAL WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION SOIL	CS	chemical-specific	chemical-specific	
INGESTION RATE	IR	50	mg/day	USEPA, 1995
FRACTION INGESTED	FI	100%	unitless	Assumption
ADHERENCE FACTOR	AF	1	mg/cm ² -event	USEPA, 1992
ABSORPTION FRACTION	ABS	chemical-specific	unitless	Assumption
SURFACE AREA EXPOSED	SA	2,300	cm ²	USEPA, 1992
DOSE ABSORBED PER EVENT	DA _{event}	chemical-specific	mg/cm ² -event	USEPA, 1995
CONVERSION FACTOR	CF	1.00E-09	kg/ug	Organic conversion
CONVERSION FACTOR	CF	1.00E-06	kg/mg	Inorganic conversion
BODY WEIGHT	BW	70	kg	USEPA, 1991
EXPOSURE FREQUENCY	EF	250	days/year [1]	USEPA, 1995
EXPOSURE DURATION	ED	25	years	USEPA, 1995
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	25	years	USEPA, 1995

[1] Units for exposure frequency are events/year in the calculation of the dermally absorbed dose.
 USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors";
 OSWER Directive 9285.6-03.
 USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/R-91/011B, 1992.
 USEPA, 1995. Supplemental Guidance to RAGS: Region IV, Human Health Risk Assessment Bulletin No. 3.

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE}_{\text{INGESTION}} = \text{CS} \times \text{IR} \times \text{FI} \times \text{CF} \times \text{EF} \times \text{ED} \\ \text{BW} \times \text{AT} \times 365 \text{ days/yr}$$

$$\text{INTAKE}_{\text{DERMAL}} = \text{DA}_{\text{event}} \times \text{SA} \times \text{EF} \times \text{ED} \\ \text{BW} \times \text{AT} \times 365 \text{ days/yr}$$

Where:

$$\text{DA}_{\text{event}} = \text{CS} \times \text{AF} \times \text{ABS} \times \text{CF}$$

Note: For noncarcinogenic effects, AT = ED

TABLE 6a1

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL.
 OCCUPATIONAL WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day) ⁻¹	CANCER RISK INGESTION	DERMAL ABS [2]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [3] (mg/kg-day) ⁻¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Benzo(a)anthracene [1]	O	35	ug/kg	6.1E-09	7.3E+00	4.5E-08	0.01	2.8E-09	8.0E+00	2.3E-08	6.7E-08
Benzo(a)pyrene	O	370	ug/kg	6.5E-08	7.3E+00	4.7E-07	0.01	3.0E-08	8.0E+00	2.4E-07	7.1E-07
Benzo(b)fluoranthene [1]	O	41	ug/kg	7.2E-09	7.3E+00	5.2E-08	0.01	3.3E-09	8.0E+00	2.6E-08	7.9E-08
Benzo(k)fluoranthene [1]	O	3.9	ug/kg	6.8E-10	7.3E+00	5.0E-09	0.01	3.1E-10	8.0E+00	2.5E-09	7.5E-09
Carbazole	O	97	ug/kg	1.7E-08	2.0E-02	3.4E-10	0.01	7.8E-09	4.0E-02	3.1E-10	6.5E-10
Chrysene [1]	O	0.39	ug/kg	6.8E-11	7.3E+00	5.0E-10	0.01	3.1E-11	8.0E+00	2.5E-10	7.5E-10
Dibenz(a,h)anthracene [1]	O	240	ug/kg	4.2E-08	7.3E+00	3.1E-07	0.01	1.9E-08	8.0E+00	1.5E-07	4.6E-07
Indeno(1,2,3-cd)pyrene [1]	O	32	ug/kg	5.6E-09	7.3E+00	4.1E-08	0.01	2.6E-09	8.0E+00	2.1E-08	6.1E-08
Dieldrin	O	32	ug/kg	5.6E-09	1.6E+01	8.9E-08	0.01	2.6E-09	3.2E+01	8.2E-08	1.7E-07
Arsenic	I	3.8	mg/kg	6.6E-07	1.5E+00	1.0E-06	0.001	3.1E-08	1.5E+00	4.6E-08	1.0E-06
Lead	I	473	mg/kg	8.3E-05	ND		0.001	3.8E-06	ND		
SUMMARY CANCER RISK						2E-06				6E-07	3E-06
[1] Carcinogenic PAH concentrations are adjusted by their respective toxicity equivalent factors (USEPA, 1995).											
[2] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995).											
[3] Calculated from oral CSFs.											

TABLE 6.1

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
 OCCUPATIONAL WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	1.7E-07	ND		0.01	7.9E-08	ND		
Benzo(a)pyrene	O	370	ug/kg	1.8E-07	ND		0.01	8.3E-08	ND		
Benzo(b)fluoranthene	O	410	ug/kg	2.0E-07	ND		0.01	9.2E-08	ND		
Benzo(k)fluoranthene	O	390	ug/kg	1.9E-07	ND		0.01	8.8E-08	ND		
Carbazole	O	97	ug/kg	4.7E-08	ND		0.01	2.2E-08	ND		
Chrysene	O	390	ug/kg	1.9E-07	ND		0.01	8.8E-08	ND		
Dibenz(a,h)anthracene	O	240	ug/kg	1.2E-07	ND		0.01	5.4E-08	ND		
Indeno(1,2,3-cd)pyrene	O	320	ug/kg	1.6E-07	ND		0.01	7.2E-08	ND		
Dieldrin	O	32	ug/kg	1.6E-08	5.0E-05	3.1E-04	0.01	7.2E-09	2.5E-05	2.9E-04	6.0E-04
Aluminum	I	11300	mg/kg	5.5E-03	1.0E+00	5.5E-03	0.001	2.5E-04	2.0E-01	1.3E-03	6.8E-03
Arsenic	I	3.8	mg/kg	1.9E-06	3.0E-04	6.2E-03	0.001	8.6E-08	2.9E-04	2.9E-04	6.5E-03
Cadmium	I	2.1	mg/kg	1.0E-06	1.0E-03	1.0E-03	0.001	4.7E-08	1.0E-05	4.7E-03	5.8E-03
Iron	I	13900	mg/kg	6.8E-03	3.0E-01	2.3E-02	0.001	3.1E-04	6.0E-03	5.2E-02	7.5E-02
Lead	I	473	mg/kg	2.3E-04	ND		0.001	1.1E-05	ND		
Manganese	I	296	mg/kg	1.4E-04	4.7E-02	3.1E-03	0.001	6.7E-06	1.9E-03	3.5E-03	6.6E-03
SUMMARY HAZARD INDEX						0.04				0.06	0.1
[1] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995).											
[2] Calculated from oral RfDs.											

TABLE 6A2

INHALATION OF PARTICULATES - SURFACE SOIL
 OCCUPATIONAL WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE	
SOIL CONCENTRATION	C	chemical-specific	chemical-specific		
PART. EMISSION FACTOR	PEF	1.24E+09	m ³ /kg	default [1]	
CONCENTRATION AIR	CA	chemical-specific	mg/m ³		
INHALATION RATE	IR	0.833	m ³ /hour	USEPA, 1995	
BODY WEIGHT	BW	70	kg	USEPA, 1991	
EXPOSURE TIME	ET	8	hours/day	Assumption	
EXPOSURE FREQUENCY	EF	250	days/year	Assumption	
EXPOSURE DURATION	ED	25	years	USEPA, 1995	
CONVERSION FACTOR	CF	0.001	mg/ug	Organics only	
AVERAGING TIME					
CANCER	AT	70	years	USEPA, 1991	
NONCANCER	AT	25	years	USEPA, 1995	
[1] Florida Soil Clean-Up Goal Variable: FDEP, 1995. USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9283.4-01. USEPA, 1995. Supplemental Guidance to RAGIS: Region 4 Bulletin, Bulletin No. 3, November 1995.					$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{INHALATION CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$ $\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{INHALATION REFERENCE DOSE (mg/kg-day)}$ $\text{INTAKE} = \frac{\text{CA} \times \text{IR} \times \text{ET} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$ <p>Where:</p> $\text{CA} = \text{C} \times \text{CF} \times (1/\text{PEF})$ <p>Note: For noncarcinogenic effects, AT = ED.</p>

TABLE G-12

INHALATION OF PARTICULATES - SURFACE SOIL
 OCCUPATIONAL WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION [1]	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION CSF (mg/kg-day) ⁻¹	CANCER RISK
Benzo(a)anthracene	O	35	ug/kg	2.82E-11	6.6E-13	3.1E+00	2.0E-12
Benzo(a)pyrene	O	370	ug/kg	2.98E-10	6.9E-12	3.1E+00	2.2E-11
Benzo(b)fluoranthene	O	41	ug/kg	3.31E-11	7.7E-13	3.1E+00	2.4E-12
Benzo(k)fluoranthene	O	3.9	ug/kg	3.15E-12	7.3E-14	3.1E+00	2.3E-13
Chrysene	O	0.39	ug/kg	3.15E-13	7.3E-15	3.1E+00	2.3E-14
Dibenz(a,h)anthracene	O	240	ug/kg	1.94E-10	4.5E-12	3.1E+00	1.4E-11
Indeno(1,2,3-cd)pyrene	O	32	ug/kg	2.58E-11	6.0E-13	3.1E+00	1.9E-12
Dieldrin	I	32	mg/kg	2.58E-08	6.0E-10	1.6E+01	9.6E-09
Arsenic	I	3.8	mg/kg	3.06E-09	7.1E-11	1.5E+01	1.1E-09
Lead	I	473	mg/kg	3.81E-07	8.9E-09	ND	
SUMMARY CANCER RISK							1E-08
[1] Toxicity equivalent factors are applied to carcinogenic PAHs per USEPA Region IV Guidance (USEPA, 1995).							

TABLE 6-22

INHALATION OF PARTICULATES - SURFACE SOIL
 OCCUPATIONAL WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION RfD (mg/kg-day)	HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	2.82E-10	1.8E-11	ND	
Benzo(a)pyrene	O	370	ug/kg	2.98E-10	1.9E-11	ND	
Benzo(b)fluoranthene	O	410	ug/kg	3.31E-10	2.2E-11	ND	
Benzo(k)fluoranthene	O	390	ug/kg	3.15E-10	2.1E-11	ND	
Carbazole	O	97	ug/kg	7.82E-11	5.1E-12	ND	
Chrysene	O	390	ug/kg	3.15E-10	2.1E-11	ND	
Dibenz(a,h)anthracene	O	390	ug/kg	3.15E-10	2.1E-11	ND	
Indeno(1,2,3-cd)pyrene	O	240	ug/kg	1.94E-10	1.3E-11	ND	
Dieldrin	I	320	mg/kg	2.58E-07	1.7E-08	ND	
Aluminum	I	11300	mg/kg	9.11E-06	5.9E-07	ND	
Arsenic	I	3.8	mg/kg	3.06E-09	2.0E-10	ND	
Cadmium	I	2.1	mg/kg	1.69E-09	1.1E-10	ND	
Iron	I	13900	mg/kg	1.12E-05	7.3E-07	ND	
Lead	I	473	mg/kg	3.81E-07	2.5E-08	ND	
Manganese	I	296	mg/kg	2.39E-07	1.6E-08	1.4E-05	1.1E-03
SUMMARY HAZARD INDEX							0.001

TABLE 6.3

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
EXCAVATION WORKER
NAS WHITTING FIELD
MILTON, FLORIDA
SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION SOIL	CS	chemical-specific	chemical-specific	
INGESTION RATE	IR	480	mg/day	USEPA, 1995
FRACTION INGESTED	FI	100%	unitless	Assumption
ADHERENCE FACTOR	AF	1	mg/cm ² -event	USEPA, 1995
ABSORPTION FRACTION	ABS	chemical-specific	unitless	USEPA, 1995
SURFACE AREA EXPOSED	SA	5,750	cm ²	USEPA, 1992
DOSE ABSORBED PER EVENT	DA _{event}	chemical-specific	mg/cm ² -event	USEPA, 1992
CONVERSION FACTOR	CF	1.00E-09	kg/ug	Organic conversion
CONVERSION FACTOR	CF	1.00E-06	kg/mg	Inorganic conversion
BODY WEIGHT	BW	70	kg	USEPA, 1991
EXPOSURE FREQUENCY	EF	30	days/year [1]	Assumption
EXPOSURE DURATION	ED	1	years	USEPA, 1991
AVERAGING TIME				
CANCER	AT	30	years	USEPA, 1991
NONCANCER	AT	1	years	USEPA, 1991

[1] Units for exposure frequency are events/year in the calculation of the dermally absorbed dose.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors";

OSWER Directive 9285.6-03.

USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA 641/9-91/011B; 1/92.

USEPA, 1995. Supplemental Guidance to RAGS - Region IV, Human Health Risk Assessment Bulletin No. 3.

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE}_{\text{INGESTION}} = \frac{\text{CS} \times \text{IR} \times \text{FI} \times \text{CF} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

$$\text{INTAKE}_{\text{DERMAL}} = \frac{\text{DA}_{\text{event}} \times \text{SA} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

Where:

$$\text{DA}_{\text{event}} = \text{CS} \times \text{AF} \times \text{ABS} \times \text{CF}$$

Note: For noncarcinogenic effects, AT = ED

TABLE 623

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL
EXCAVATION WORKER
NAS WHITING FIELD
MILTON, FLORIDA
SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day) ⁻¹	CANCER RISK INGESTION	DERMAL ABS [2]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [3] (mg/kg-day) ⁻¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Benzo(a)anthracene [1]	O	35	ug/kg	2.8E-10	7.3E+00	2.1E-09	0.01	3.4E-11	8.0E+00	2.7E-10	2.3E-09
Benzo(a)pyrene	O	370	ug/kg	3.0E-09	7.3E+00	2.2E-08	0.01	3.6E-10	8.0E+00	2.9E-09	2.5E-08
Benzo(b)fluoranthene [1]	O	41	ug/kg	3.3E-10	7.3E+00	2.4E-09	0.01	4.0E-11	8.0E+00	3.2E-10	2.7E-09
Benzo(k)fluoranthene [1]	O	3.9	ug/kg	3.1E-11	7.3E+00	2.3E-10	0.01	3.8E-12	8.0E+00	3.0E-11	2.6E-10
Carbazole	O	97	ug/kg	7.8E-10	2.0E-02	1.6E-11	0.01	9.4E-11	4.0E-02	3.7E-12	1.9E-11
Chrysene [1]	O	0.39	ug/kg	3.1E-12	7.3E+00	2.3E-11	0.01	3.8E-13	8.0E+00	3.0E-12	2.6E-11
Dibenz(a,h)anthracene [1]	O	240	ug/kg	1.9E-09	7.3E+00	1.4E-08	0.01	2.3E-10	8.0E+00	1.9E-09	1.6E-08
Indeno(1,2,3-cd)pyrene [1]	O	32	ug/kg	2.6E-10	7.3E+00	1.9E-09	0.01	3.1E-11	8.0E+00	2.5E-10	2.1E-09
Dieldrin	O	32	ug/kg	2.6E-10	1.6E+01	4.1E-09	0.01	3.1E-11	3.2E+01	9.9E-10	5.1E-09
Arsenic	I	3.8	mg/kg	3.1E-08	1.5E+00	4.6E-08	0.001	3.7E-10	1.5E+00	5.5E-10	4.6E-08
Lead	I	473	mg/kg	3.8E-06	ND		0.001	4.6E-08	ND		
SUMMARY CANCER RISK						9E-08				7E-09	1E-07
[1] Carcinogenic PAH concentrations are adjusted by their respective toxicity equivalent factors (USEPA, 1995).											
[2] USEPA Region IV guidance specifies absorption factors of 1.0 for organics and 0.10 for inorganics (November 1995).											
[3] Calculated from oral CSFs.											

TABLE G-23

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL,
EXCAVATION WORKER
NAS WHITING FIELD
MILTON, FLORIDA
SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD [1] (mg/kg-day)	HAZARD QUOTIENT INGESTION	DERMAL ABS [2]	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [3] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	2.0E-07	ND		0.01	2.4E-08	ND		
Benzo(a)pyrene	O	370	ug/kg	2.1E-07	ND		0.01	2.5E-08	ND		
Benzo(b)fluoranthene	O	410	ug/kg	2.3E-07	ND		0.01	2.8E-08	ND		
Benzo(k)fluoranthene	O	390	ug/kg	2.2E-07	ND		0.01	2.6E-08	ND		
Carbazole	O	200	ug/kg	1.1E-07	ND		0.01	1.4E-08	ND		
Chrysene	O	390	ug/kg	2.2E-07	ND		0.01	2.6E-08	ND		
Dibenz(a,h)anthracene	O	240	ug/kg	1.4E-07	ND		0.01	1.6E-08	ND		
Indeno(1,2,3-cd)pyrene	O	320	ug/kg	1.8E-07	ND		0.01	2.2E-08	ND		
Dieldrin	O	32	ug/kg	1.8E-08	5.0E-05	3.6E-04	0.01	2.2E-09	2.5E-05	8.6E-05	4.5E-04
Aluminum	I	11300	mg/kg	6.4E-03	1.0E+00	6.4E-03	0.001	7.6E-05	2.0E-01	3.8E-04	6.8E-03
Arsenic	I	3.8	mg/kg	2.1E-06	3.0E-04	7.1E-03	0.001	2.6E-08	2.9E-04	8.8E-05	7.2E-03
Cadmium	I	2.1	mg/kg	1.2E-06	1.0E-03	1.2E-03	0.001	1.4E-08	1.0E-05	1.4E-03	2.6E-03
Iron	I	13900	mg/kg	7.8E-03	3.0E-01	2.6E-02	0.001	9.4E-05	6.0E-03	1.6E-02	4.2E-02
Lead	I	473	mg/kg	2.7E-04	ND		0.001	3.2E-06	ND		
Manganese	I	296	mg/kg	1.7E-04	4.7E-02	3.5E-03	0.001	2.0E-06	1.9E-03	1.1E-03	4.6E-03
SUMMARY HAZARD INDEX						0.04				0.02	0.06

[1] Subchronic RfD values were used for the excavation worker due to short exposure duration.

[2] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (USEPA, 1995).

[3] Calculated from oral RfDs.

TABLE G24

INHALATION OF PARTICULATES - SURFACE SOIL,
EXCAVATION WORKER
NAS WHITING FIELD
MILTON, FLORIDA
SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
SOIL CONCENTRATION	C	chemical-specific	chemical-specific	
PART. EMISSION FACTOR	PEF	1.24E+09	m ³ /kg	default [1]
CONCENTRATION AIR	CA	chemical-specific	mg/m ³	
INHALATION RATE	IR	2.5	m ³ /hour	USEPA, 1995
BODY WEIGHT	BW	70	kg	USEPA, 1991
EXPOSURE TIME	ET	8	hours/day	Assumption
EXPOSURE FREQUENCY	EF	30	days/year	Assumption
EXPOSURE DURATION	ED	1	years	Assumption
CONVERSION FACTOR	CF	0.001	mg/ug	Organics only
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	1	years	USEPA, 1991

CANCER RISK = INTAKE (mg/kg-day) x INHALATION CANCER SLOPE FACTOR (mg/kg-day)⁻¹

HAZARD QUOTIENT = INTAKE (mg/kg-day) / INHALATION REFERENCE DOSE (mg/kg-day)

$$INTAKE = \frac{CA \times IR \times ET \times EF \times ED}{BW \times AT \times 365 \text{ days/yr}}$$

Where:

$$CA = C \times PEF \times (1/PEF)$$

Note: For noncarcinogens, AT = ED.

[1] Florida Soil Clean-Up Goal Variables - FDEP, 1995.
USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance.
Standard Default Exposure Factors, OROWER Directive 9283.6.03.
USEPA, 1995. Supplemental Guidance to RAGS - Region IV, Human Health Risk Assessment Bulletin No. 3.

TABLE 6.24

INHALATION OF PARTICULATES - SURFACE SOIL
 EXCAVATION WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION [1]	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION CSF (mg/kg-day) ⁻¹	CANCER RISK
Benzo(a)anthracene	O	35	ug/kg	2.82E-11	9.5E-15	3.1E+00	2.9E-14
Benzo(a)pyrene	O	370	ug/kg	2.98E-10	1.0E-13	3.1E+00	3.1E-13
Benzo(b)fluoranthene	O	41	ug/kg	3.31E-11	1.1E-14	3.1E+00	3.4E-14
Benzo(k)fluoranthene	O	3.9	ug/kg	3.15E-12	1.1E-15	3.1E+00	3.3E-15
Chrysene	O	0.39	ug/kg	3.15E-13	1.1E-16	3.1E+00	3.3E-16
Dibenz(a,h)anthracene	O	240	ug/kg	1.94E-10	6.5E-14	3.1E+00	2.0E-13
Indeno(1,2,3-cd)pyrene	O	32	ug/kg	2.58E-11	8.7E-15	3.1E+00	2.7E-14
Dieldrin	I	32	mg/kg	2.58E-08	8.7E-12	1.6E+01	1.4E-10
Arsenic	I	3.8	mg/kg	3.06E-09	1.0E-12	1.5E+01	1.5E-11
Lead	I	473	mg/kg	3.81E-07	1.3E-10	ND	
SUMMARY CANCER RISK							2E-10
[1] Toxicity equivalent factors are applied to carcinogenic PAHs per USEPA Region IV Guidance (USEPA, 1995).							

TABLE G-24

INHALATION OF PARTICULATES - SURFACE SOIL
EXCAVATION WORKER
NAS WHITING FIELD
MILTON, FLORIDA
SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION RfD (mg/kg-day)	HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	2.82E-10	6.6E-12	ND	
Benzo(a)pyrene	O	370	ug/kg	2.98E-10	7.0E-12	ND	
Benzo(b)fluoranthene	O	410	ug/kg	3.31E-10	7.8E-12	ND	
Benzo(k)fluoranthene	O	390	ug/kg	3.15E-10	7.4E-12	ND	
Carbazole	O	97	ug/kg	7.82E-11	1.8E-12	ND	
Chrysene	O	390	ug/kg	3.15E-10	7.4E-12	ND	
Dibenz(a,h)anthracene	O	390	ug/kg	3.15E-10	7.4E-12	ND	
Indeno(1,2,3-cd)pyrene	O	240	ug/kg	1.94E-10	4.5E-12	ND	
Dieldrin	I	320	mg/kg	2.58E-07	6.1E-09	ND	
Aluminum	I	11300	mg/kg	9.11E-06	2.1E-07	ND	
Arsenic	I	3.8	mg/kg	3.06E-09	7.2E-11	ND	
Cadmium	I	2.1	mg/kg	1.69E-09	4.0E-11	ND	
Iron	I	13900	mg/kg	1.12E-05	2.6E-07	ND	
Lead	I	473	mg/kg	3.81E-07	9.0E-09	ND	
Manganese	I	296	mg/kg	2.39E-07	5.6E-09	1.4E-05	4.0E-04
SUMMARY HAZARD INDEX							0.0004

TABLE G-25

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SUBSURFACE SOIL,
EXCAVATION WORKER
NAS WHITING FIELD
MELTON, FLORIDA
SITE 16

EXPOSURE PARAMETERS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION SOIL	CS	chemical specific	chemical specific	
INGESTION RATE	IR	400	mg/day	USEPA, 1995
FRACTION INGESTED	FI	100%	unitless	Assumption
ADHERENCE FACTOR	AF	1	mg/cm ² -event	USEPA, 1995
ABSORPTION FRACTION	ABS	chemical specific	unitless	USEPA, 1995
SURFACE AREA EXPOSED	SA	5,750	cm ²	USEPA, 1992
DOSE ABSORBED PER EVENT	DA _{event}	chemical specific	mg/cm ² -event	USEPA, 1992
CONVERSION FACTOR	CF	1.00E-09	kg/ug	Organic conversion
CONVERSION FACTOR	CF	1.00E-06	kg/mg	Inorganic conversion
BODY WEIGHT	BW	70	kg	USEPA, 1991
EXPOSURE FREQUENCY	EF	30	days/year [1]	Assumption
EXPOSURE DURATION	ED	1	years	USEPA, 1991
AVERAGING TIME				
CANCER	AT	30	years	USEPA, 1991
NONCANCER	AT	1	years	USEPA, 1991

[1] Units for exposure frequency are events/year in the calculation of the dermally absorbed dose.
USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors";
OSWER Directive 9285.6-03.
USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B; January 1992.
USEPA, 1995. Supplemental Guidance to RAGS: Region IV, Human Health Risk Assessment Bulletin No. 3.

EQUATIONS

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE}_{\text{INGESTION}} = \frac{\text{CS} \times \text{IR} \times \text{FI} \times \text{CF} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

$$\text{INTAKE}_{\text{DERMAL}} = \frac{\text{DA}_{\text{event}} \times \text{SA} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

Where:

$$\text{DA}_{\text{event}} = \text{CS} \times \text{AF} \times \text{ABS} \times \text{CF}$$

Note: For noncarcinogenic effects, AT = ED

TABLE 25

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SUBSURFACE SOIL
 EXCAVATION WORKER
 NAS WHITING FIELD
 MELTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day) ⁻¹	CANCER RISK INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [2] (mg/kg-day) ⁻¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Arsenic	I	15.1	mg/kg	1.2E-07	1.5E+00	1.8E-07	0.001	1.5E-09	1.5E+00	2.2E-09	1.8E-07
SUMMARY CANCER RISK						2E-07				2E-09	2E-07
[1] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995). [2] Calculated from oral CSFs. NE = not evaluated.											

TABLE G25

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SUBSURFACE SOIL
 EXCAVATION WORKER
 NAS WHITING FIELD
 MELTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Arsenic	I	15.1	mg/kg	8.5E-06	3.0E-04	2.8E-02	0.001	1.0E-07	2.9E-04	3.5E-04	2.9E-02
Iron	I	74900	mg/kg	4.2E-02	3.0E-01	1.4E-01	0.001	5.1E-04	6.0E-03	8.4E-02	2.2E-01
Lead	I	766	mg/kg	4.3E-04	ND		0.001	5.2E-06	ND		
SUMMARY HAZARD INDEX						0.2				0.08	0.3
<p>[1] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995). [2] Calculated from oral RfDs. ND = no data available.</p>											

TABLE G26

INHALATION OF PARTICULATES - SUBSURFACE SOIL
 EXCAVATION WORKER
 NAS WHITING FIELD
 MELTON, FLORIDA
 SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
SOIL CONCENTRATION	C	chemical-specific	chemical-specific	
PART. EMISSION FACTOR	PEF	12000000	m ³ /kg	#REF!
CONCENTRATION AIR	CA	chemical-specific	mg/m ³	
INHALATION RATE	IR	2.5	m ³ /hour	USEPA, 1995
BODY WEIGHT	BW	70	kg	USEPA, 1991
EXPOSURE TIME	ET	8	hours/day	Assumption
EXPOSURE FREQUENCY	EF	30	days/year	Assumption
EXPOSURE DURATION	ED	1	years	Assumption
CONVERSION FACTOR	CF	0.001	mg/ug	Organics only
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	1	years	USEPA, 1991

[1] PEF has been derived in the PEF Appendix to this report.
 USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance:
 Standard Default Exposure Factors, OSWER Directive 9295.6-03.
 USEPA, 1995. Supplemental Guidance to RAGS - Region IV, Human Health Risk Assessment Bulletin No. 3.

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{INHALATION CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{INHALATION REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE} = \text{CA} \times \text{IR} \times \text{ET} \times \text{EF} \times \text{ED} \\ \text{BW} \times \text{AT} \times 365 \text{ days/yr}$$

Where:

$$\text{CA} = \text{C} \times \text{CF} \times (1/\text{PEF})$$

Note:

For noncarcinogens, AT = ED.

TABLE 626

INHALATION OF PARTICULATES - SUBSURFACE SOIL
 EXCAVATION WORKER
 NAS WHITING FIELD
 MELTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION CSF (mg/kg-day) ⁻¹	CANCER RISK
Arsenic	I	15.1	mg/kg	1.26E-06	4.2E-10	1.5E+01	6.3E-09
SUMMARY CANCER RISK							6E-09
NE = not evaluated.							

TABLE G26

INHALATION OF PARTICULATES - SUBSURFACE SOIL
 EXCAVATION WORKER
 NAS WHITING FIELD
 MELTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	AIR CONCENTRATION (mg/m ³)	INTAKE (mg/kg-day)	INHALATION RfD (mg/kg-day)	HAZARD QUOTIENT
Arsenic	I	15.1	mg/kg	1.26E-06	3.0E-08	ND	
Iron	I	74800	mg/kg	6.23E-03	1.5E-04	ND	
Lead	I	766	mg/kg	6.38E-05	1.5E-06	ND	
SUMMARY HAZARD INDEX							0E+00
ND = no data available.							

TABLE G-27

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES)
 ADULT RESIDENT
 SITE 11
 MILTON, FLORIDA

EXPOSURE PARAMETERS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical-specific	ug/liter	
INGESTION RATE	IR	2	liters/day	USEPA, 1995
BODY WEIGHT	BW	70	kg	USEPA, 1991
CONVERSION FACTOR	CF	0.001	mg/ug	
EXPOSURE FREQUENCY	EF	350	days/year	USEPA, 1995
EXPOSURE DURATION	ED	24	years	USEPA, 1995
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	24	years	USEPA, 1991

$CANCER\ RISK = INTAKE\ (mg/kg\text{-}day) \times CANCER\ SLOPE\ FACTOR\ (mg/kg\text{-}day)^{-1}$
 $HAZARD\ QUOTIENT = INTAKE\ (mg/kg\text{-}day) / REFERENCE\ DOSE\ (mg/kg\text{-}day)$
 $INTAKE = \frac{CW \times IR \times EF \times ED \times CF}{BW \times AT \times 365\ days/year}$

Note: For noncarcinogenic effects, AT = ED.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance
 Standard Default Exposure Factors; OSWER Directive 9285.6-01.
 USEPA, 1995. Region IV Supplemental Guidance to RAGS, Bulletin No. 3, November.

TABLE G-27

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES)
 ADULT RESIDENT
 SITE 11
 MILTON, FLORIDA

CARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	CANCER SLOPE FACTOR (mg/kg-day) ⁻¹	CANCER RISK INGESTION
1,2-Dichloroethane	9.9	UG/LITER	9.3E-05	9.1E-02	8.5E-06
Benzene	180	UG/LITER	1.7E-03	2.9E-02	4.9E-05
Chloroform	1	UG/LITER	9.4E-06	6.1E-03	5.7E-08
Trichloroethene	5.5	UG/LITER	5.2E-05	1.1E-02	5.7E-07
4,4-DDT	0.06	UG/LITER	5.6E-07	3.4E-01	1.9E-07
bis(2-Ethylhexyl)phthalate	6.9	UG/LITER	6.5E-05	1.4E-02	9.1E-07
Arsenic	3.3	UG/LITER	3.1E-05	1.5E+00	4.6E-05
TOTAL CANCER RISK					1E-04

TABLE G27

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES)
 ADULT RESIDENT
 SITE 11
 MILTON, FLORIDA

NONCARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	REFERENCE DOSE (mg/kg-day)	HAZARD QUOTIENT INGESTION
1,2-Dichloroethane	9.9	UG/LITER	2.7E-04	3.0E-01	9.0E-04
1,2-Dichloroethene	9.1	UG/LITER	2.5E-04	9.0E-03	2.8E-02
Benzene	180	UG/LITER	4.9E-03	3.0E-04	1.6E+01
Chloroform	1	UG/LITER	2.7E-05	1.0E-02	2.7E-03
Trichloroethene	5.5	UG/LITER	1.5E-04	6.0E-03	2.5E-02
bis(2-Ethylhexyl)phthalate	6.9	UG/LITER	1.9E-04	2.0E-02	9.5E-03
4,4-DDT	0.06	UG/LITER	1.6E-06	5.0E-04	3.3E-03
Aluminum	491	UG/LITER	1.3E-02	1.0E+00	1.3E-02
Arsenic	3.3	UG/LITER	9.0E-05	3.0E-04	3.0E-01
Barium	53.9	UG/LITER	1.5E-03	7.0E-02	2.1E-02
Cadmium	2.6	UG/LITER	7.1E-05	5.0E-04	1.4E-01
Iron	4570	UG/LITER	1.3E-01	3.0E-01	4.2E-01
Manganese	188	UG/LITER	5.2E-03	4.7E-02	1.1E-01
TOTAL HAZARD INDEX					18
ND = no data available.					

TABLE 628

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES)
 CHILD RESIDENT
 SITE 16
 MILTON, FLORIDA

EXPOSURE PARAMETERS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical-specific	ug/liter	
INGESTION RATE	IR	1	liters/day	USEPA, 1995
BODY WEIGHT	BW	15	kg	USEPA, 1991
CONVERSION FACTOR	CF	0.001	mg/ug	
EXPOSURE FREQUENCY	EF	350	days/year	USEPA, 1995
EXPOSURE DURATION	ED	6	years	USEPA, 1995
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	6	years	USEPA, 1991

$CANCER\ RISK = INTAKE\ (mg/kg\text{-}day) \times CANCER\ SLOPE\ FACTOR\ (mg/kg\text{-}day)^{-1}$
 $HAZARD\ QUOTIENT = INTAKE\ (mg/kg\text{-}day) / REFERENCE\ DOSE\ (mg/kg\text{-}day)$

 $INTAKE = \frac{CW \times IR \times EF \times ED \times CF}{BW \times AT \times 365\ days/year}$

Note: For noncarcinogenic effects, AT = ED.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9285.6-01.
 USEPA, 1995. Region IV Supplemental Guidance to RAGS, Bulletin No. 3, November.

TABLE 6.25

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES)
 CHILD RESIDENT
 SITE 16
 MILTON, FLORDIA

NONCARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	REFERENCE DOSE (mg/kg-day)	HAZARD QUOTIENT INGESTION
1,2-Dichloroethane	9.9	UG/LITER	6.3E-04	3.0E-01	2.1E-03
1,2-Dichloroethene	9.1	UG/LITER	5.8E-04	9.0E-03	6.5E-02
Benzene	180	UG/LITER	1.2E-02	3.0E-04	3.8E+01
Chloroform	1	UG/LITER	6.4E-05	1.0E-02	6.4E-03
Trichloroethene	5.5	UG/LITER	3.5E-04	6.0E-03	5.9E-02
bis(2-Ethylhexyl)phthalate	6.9	UG/LITER	4.4E-04	2.0E-02	2.2E-02
4,4-DDT	0.06	UG/LITER	3.8E-06	5.0E-04	7.7E-03
Aluminum	491	UG/LITER	3.1E-02	1.0E+00	3.1E-02
Arsenic	3.3	UG/LITER	2.1E-04	3.0E-04	7.0E-01
Barium	53.9	UG/LITER	3.4E-03	7.0E-02	4.9E-02
Cadmium	2.6	UG/LITER	1.7E-04	5.0E-04	3.3E-01
Iron	4570	UG/LITER	2.9E-01	3.0E-01	9.7E-01
Manganese	188	UG/LITER	1.2E-02	4.7E-02	2.6E-01
TOTAL HAZARD INDEX					41

TABLE G29

INHALATION EXPOSURE TO VOCs WHILE SHOWERING
 ADULT RESIDENT
 SITE 16
 MILTON, FLORIDA

EXPOSURE PARAMETERS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION SHOWER AIR	CA [1]	0.000001	ug/m ³	Model
CONVERSION FACTOR 1	CF ₁	1.4	hours/day	USEPA, 1991
EXPOSURE TIME SHOWER	ET	30	hours/day	USEPA, 1991
EXPOSURE FREQUENCY	EF	0.001	days/year	
EXPOSURE DURATION	ED	350	years	USEPA, 1992
CONVERSION FACTOR 2	CF ₂	1	days/year	USEPA, 1992
AVERAGING TIME CANCER	AT	30	years	
AVERAGING TIME NONCANCER	AT	30	years	USEPA, 1991
[1] Calculated via model by Foster and Chromowski, Air Pollution Control, Inc.				
USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9283.6-03.				
USEPA, 1992. Region 6 Memorandum: Central Tendency and RME Exposure Parameters.				

EQUATIONS

$$\text{CANCER RISK} = \text{AVG. CONC. (ug/m}^3\text{)} \cdot \text{CANCER UNIT RISK (ug/m}^3\text{)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{AVG. CONC. (ug/m}^3\text{)} / \text{REF. CONC. (ug/m}^3\text{)}$$

$$\text{AVG. CONC.} = \frac{\text{CA}_{\text{sh}} \cdot \text{EF} \cdot \text{ET} \cdot \text{ED}}{\text{AT} \cdot \text{CF}_1 \cdot \text{CF}_2}$$

TABLE G.29

INHALATION EXPOSURE TO VOCs WHILE SHOWERING
 ADULT RESIDENT
 SITE 16
 MILTON, FLORIDA

CARCINOGENIC EFFECTS

COMPOUND	VOLATILE OR NON-VOLATILE? V/NV	SHOWER AIR CONCENTRATION ($\mu\text{g}/\text{m}^3$)	AVERAGE AIR CONCENTRATION LIFETIME ($\mu\text{g}/\text{m}^3$)	INHALATION CANCER UNIT RISK ($\mu\text{g}/\text{m}^3$) ⁻¹	CANCER RISK
1,2-Dichloroethane	V	4.1E+01	1.1E-01	2.6E-05	2.9E-06
Benzene	V	9.6E+02	2.6E+00	8.3E-06	2.2E-05
Chloroform	V	4.4E+00	1.2E-02	2.3E-05	2.8E-07
Trichloroethene	V	2.4E+01	6.6E-02	2.0E-06	1.3E-07
4,4-DDT	NV	NA	NA	9.7E-05	NA
Arsenic	NV	NA	NA	4.3E-03	NA
Cadmium	NV	NA	NA	1.8E-03	NA
SUMMARY CANCER RISK					3E-05
NA = not applicable. This analyte is not volatile and has therefore not been evaluated via this volatilization model.					

TABLE 627

INHALATION EXPOSURE TO VOCs WHILE SHOWERING
 ADULT RESIDENT
 SITE 16
 MILTON, FLORIDA

NONCARCINOGENIC EFFECTS

COMPOUND	VOLATILE OR NON-VOLATILE? V/NV	SHOWER AIR CONCENTRATION (ug/m ³)	AVERAGE AIR CONCENTRATION FOR TIME PERIOD (ug/m ³)	CHRONIC INHALATION RfC [1] (ug/m ³)	HAZARD QUOTIENT
1,2-Dichloroethane	V	4.1E+01	3.3E-01	ND	
1,2-Dichloroethene (total)	V	4.5E+01	3.6E-01	ND	
Benzene	V	9.6E+02	7.7E+00	ND	
Chloroform	V	4.4E+00	3.5E-02	ND	
Trichloroethene	V	2.4E+01	1.9E-01	ND	
bis(2-Ethylhexyl)phthalate	NV	ND	NA	ND	
4,4-DDT	NV	ND	NA	ND	
Aluminum	NV	ND	NA	ND	
Arsenic	NV	ND	NA	ND	
Barium	NV	ND	NA	5.0E-04	
Cadmium	NV	ND	NA	ND	
Iron	NV	ND	NA	ND	
Manganese	NV	ND	NA	5.0E-05	
SUMMARY HAZARD INDEX					0.00
[1] RfC is the Reference Concentration published by USEPA.					
ND = no data available.					
NA = not applicable. The analyte is not volatile and has therefore not been evaluated via this volatilization model.					

TABLE G-30

CONCENTRATION OF VOCs WHILE SHOWERING
 ADULT RESIDENT
 SITE 16
 MILTON, FLORIDA

EMPIRICAL CONSTANTS

CONSTANT	SYMBOL	VALUE	UNIT	SOURCE
Liquid-film mass transfer for CO ₂	K _l (CO ₂)	20	cm/hr	Calculated
Gas-film mass transfer for water	K _g (H ₂ O)	3000	cm/hr	Calculated
Molar gas constant x Temperature	RT	0.024	atm-m ³ /mole	
Reference temperature	T ₁	293	K	
Temperature of shower water	T _s	318	K	Assumption
Viscosity of water at shower temperature	μ _s	0.6178	cp	Calculated
Viscosity of water at reference temperature	μ ₁	0.65	cp	Calculated
Shower droplet free-fall time	t _s	1.5	sec	Assumption
Droplet diameter	d	1	mm	Foster & Chrostowski, 1987
Flow rate in shower	FR	20	l/min	Assumption
Volume of shower area	SV	12	m ³	Assumption
Air exchange rate	R	0.03	min ⁻¹	Calculated
Time in shower	D _s	12	min	USEPA, 1989
Time at which concentration is being calculated	t	12	min	Assumption

Foster, S.A. and Chrostowski, P.C., 1987. Inhalation Exposures to Volatile Organic Contaminants in the Shower.
 USEPA, 1989, Exposure Factors Handbook; EPA/600/8-89/043, May 1989.
 All equations and definitions of terms are presented in the Appendix to this report, Calculation of Air Concentration Using the Shower Model.

TABLE G-36

CONCENTRATION OF VOCs WHILE SHOWERING
 ADULT RESIDENT
 SITE 16
 MILTON, FLORIDIA
 INTERIM CORRECTIVE MEASURE

SHOWER CONCENTRATIONS

COMPOUND	C _w (ug/l)	MW (g/mol)	H (atm-m ³ /mol)	k _l (cm/hr)	k _g (cm/hr)	K _L (cm/hr)	K _{al} (cm/hr)	C _{wd} (ug/l)	S (ug/m ³ -min)	C _(voc) (ug/m ³)
1,2-Dichloroethane	9.9	99.0	0.00098	1.3E+01	1.3E+03	1.1E+01	1.1E+01	2.4E+00	4.1E+00	4.1E+01
1,2-Dichloroethene (total)	9.1	97.0	0.00758	1.3E+01	1.3E+03	1.3E+01	1.4E+01	2.7E+00	4.5E+00	4.5E+01
Benzene	180	78.0	0.0056	1.5E+01	1.4E+03	1.4E+01	1.5E+01	5.7E+01	9.6E+01	9.6E+02
Chloroform	1	120.0	0.0037	1.2E+01	1.2E+03	1.1E+01	1.2E+01	2.6E-01	4.4E-01	4.4E+00
Trichloroethene	5.5	130.0	0.01	1.2E+01	1.1E+03	1.1E+01	1.2E+01	1.4E+00	2.4E+00	2.4E+01

C_w = Concentration in groundwater K_L = Mass transfer coefficient
 MW = Molecular weight K_{al} = Temperature correction of mass transfer coefficient
 H = Henry's Law constant C_{wd} = Analyte concentration in water droplet
 k_l = Chemical-specific mass-transfer coefficient S = Release rate of analyte to air
 k_g = Chemical-specific gas mass-transfer coefficient C_(voc) = Analyte concentration in bathroom air at time t.

$$C_{(voc)} = (S/R) \times (e^{(RDs)} - 1) \times e^{(-Rt)}$$

TABLE C-31

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER
ADULT TRESPASSER - WADING
SITE 16
MILTON, FLORIDA

EXPOSURE PARAMETERS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical-specific	ug/liter	
INGESTION RATE [1]	IR	0.026	liters/day	USEPA, 1995
SURFACE AREA [2]	SA	5,750	cm ²	USEPA, 1992
EVENT FREQUENCY	EV	1	events/day	Assumption
BODY WEIGHT	BW	30	kg	USEPA, 1991
DOSE ABSORBED PER EVENT	DA _{event}	chemical-specific	mg/cm ² -event	Calculated
EXPOSURE TIME	ET	2.6	hours/day	Assumption
EXPOSURE FREQUENCY	EF	45	days/year	Assumption
EXPOSURE DURATION	ED	20	years	Assumption
DIFFUSION DEPTH PER EVENT	PC _{event}	chemical-specific	cm/event	[3]
AVERAGING TIME				
CANCER	AT	30	years	USEPA, 1991
NONCANCER	AT	20	years	Assumption
CONVERSION FACTOR	CF1	0.001	mg/ug	
CONVERSION FACTOR	CF2	0.001	liter/cm ³	

[1] Ingestion Rate = 0.026 l/day = 10 ml/hour x 2.6 hours/day x 0.001 l/ml

[2] Surface area assumes lower legs, hands, and feet are exposed.

[3] PC_{event} is calculated in the Dermal Guidance See Table C-35.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters".

USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B.

USEPA, 1995. Supplemental Guidance to RAGS: Region 4 Bulletin, Bulletin No. 3, November 1995.

EQUATIONS

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE-INGESTION} = \frac{\text{CW} \times \text{IR} \times \text{EF} \times \text{ED} \times \text{CF1}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

$$\text{INTAKE-DERMAL} = \frac{\text{DA}_{\text{event}} \times \text{EV} \times \text{EF} \times \text{ED} \times \text{SA}}{\text{AT} \times \text{BW} \times 365 \text{ days/yr}}$$

Where:

$$\text{DA}_{\text{event}} = \text{PC}_{\text{event}} \times \text{CW} \times \text{CF1} \times \text{CF2}$$

Note: For noncarcinogenic effects, AT = ED.

TABLE G31

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER
 ADULT TRESPASSER - WADING
 SITE 16
 MILTON, FLORIDA

CARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF	CANCER RISK INGESTION	PCEVENT [1]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [2]	CANCER RISK DERMAL	TOTAL CANCER RISK
Beryllium	0.21	ug/L	2.7E-09	4.3E+00	1.2E-08	0.0026	1.6E-09	4.3E+02	6.8E-07	6.9E-07
SUMMARY CANCER RISK					1E-08				7E-07	7E-07
[1] This chemical-specific value has been calculated in Table C-45. [2] This chemical-specific value is calculated in Table C-35. NE = not evaluated.										

TABLE G-31

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER
 ADULT TRESPASSER - WADING
 SITE 16
 MILTON, FLORIDA

NONCARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	PCEVENT[1] (cm/event)	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Beryllium	0.21	ug/L	9.6E-09	5.0E-03	1.9E-06	0.0026	5.5E-09	5.0E-05	1.1E-04	1.1E-04
SUMMARY HAZARD INDEX					2E-06				1E-04	1E-04
[1] This chemical-specific value has been calculated in Table C-35. [2] Calculated from oral RfDs. ND = no data available.										

TABLE C-32

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER
 ADOLESCENT TRESPASSER - WADING
 SITE 16
 MILTON, FLORIDA

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical-specific	ug/liter	
INGESTION RATE [1]	IR	0.026	liters/day	USEPA, 1995
AGE-SPECIFIC SURFACE AREA [2]	SA	age-specific	cm ²	USEPA, 1989
EVENT FREQUENCY	EV	1	events/day	Assumption
BODY WEIGHT	BW	45	kg	USEPA, 1995
DOSE ABSORBED PER EVENT	DA _{event}	chemical-specific	mg/cm ² -event	Calculated
EXPOSURE FREQUENCY	EF	45	days/year	Assumption
EXPOSURE DURATION	ED	10	years	USEPA, 1995
AGE-WEIGHTED SURFACE AREA [3]	SA _{aw/adj}	1013	cm ² -yr/kg	Calculated per USEPA, 1992
DIFFUSION DEPTH PER EVENT [4]	PC _{event}	chemical-specific	cm/event	Calculated per USEPA, 1992
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	10	years	USEPA, 1995
CONVERSION FACTOR	CF1	0.001	mg/ug	
CONVERSION FACTOR	CF2	0.001	liter/cm ³	

[1] Ingestion Rate = 0.026 l/day = 10 ml/hour x 2.6 hours/day + 0.001 l/m

[2] Surface area assumes limbs, hands, and feet are exposed.

[3] PC_{event} is calculated in the Dermal Guidance See Table C-35.

USEPA, 1989. Exposure Factors Handbook; EPA/600/8-89/043; May 1989.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters";

USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/R-91/011B

CANCER RISK = INTAKE (mg/kg-day) x CANCER SLOPE FACTOR (mg/kg-day)⁻¹

HAZARD QUOTIENT = INTAKE (mg/kg-day) / REFERENCE DOSE (mg/kg-day)

INTAKE-INGESTION = $\frac{CW \times IR \times EF \times ED \times CF1}{BW \times AT \times 365 \text{ days/yr}}$

INTAKE-DERMAL = $\frac{DA_{event} \times EV \times EF \times SA_{aw/adj}}{AT \times 365 \text{ days/yr}}$

Where:

$SA_{aw/adj} = \text{Sum}(SA \times ED / BW)$

$DA_{event} = PC_{event} \times CW \times CF1 \times CF2$

Note: For noncarcinogenic effects, AT = ED.

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF	CANCER RISK INGESTION	PCEVENT [1]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [2]	CANCER RISK DERMAL	TOTAL CANCER RISK
Beryllium	0.21	ug/L	2.1E-09	4.3E+00	9.2E-09	0.0026	9.7E-10	4.3E+02	4.2E-07	4.3E-07
SUMMARY CANCER RISK					9E-09				4E-07	4E-07

[1] This chemical-specific value has been calculated in Table C-45.

[2] This chemical-specific value is calculated in Table C-35.

ND = no data available.

TABLE 6.32

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER
 ADOLESCENT TRESPASSER - WADING
 SITE 16
 MILTON, FLORIDA

NONCARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	PCEVENT [1] (cm/event)	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Beryllium	0.21	ug/L	1.5E-08	5.0E-03	3.0E-06	0.0026	6.8E-09	5.0E-05	1.4E-04	1.4E-04
SUMMARY HAZARD INDEX					3E-06				1E-04	1E-04
[1] This chemical-specific value has been calculated in Table C-35. [2] Calculated from oral RfDs. ND = no data available.										

TABLE C-33

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER
 ADULT RESIDENT - WADING
 SITE 16
 MILTON, FLORIDA

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical-specific	ug/liter	
INGESTION RATE [1]	IR	0.026	liters/day	USEPA, 1995
SURFACE AREA [2]	SA	5,750	cm ²	USEPA, 1989
EVENT FREQUENCY	EV	1	events/day	Assumption
BODY WEIGHT	BW	70	kg	USEPA, 1991
DOSE ABSORBED PER EVENT	DAevent	chemical-specific	mg/cm ² -event	Calculated
EXPOSURE TIME	ET	2.6	hours/day	Assumption
EXPOSURE FREQUENCY	EF	100	days/year	Assumption
EXPOSURE DURATION	ED	24	years	Assumption
DIFFUSION DEPTH PER EVENT	PCevent	chemical-specific	cm/event	Calculated per USEPA, 1992 [3]
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	24	years	USEPA, 1995
CONVERSION FACTOR	CF1	0.001	mg/ug	
CONVERSION FACTOR	CF2	0.001	liter/cm ³	

$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$
$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$
$\text{INTAKE-INGESTION} = \frac{\text{CW} \times \text{IR} \times \text{EF} \times \text{ED} \times \text{CF1}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$
$\text{INTAKE-DERMAL} = \frac{\text{DAevent} \times \text{EV} \times \text{EF} \times \text{ED} \times \text{SA}}{\text{AT} \times \text{BW} \times 365 \text{ days/yr}}$
<p>Where:</p> $\text{DAevent} = \text{PCevent} \times \text{CW} \times \text{CF1} \times \text{CF2}$
<p>Note: For noncarcinogenic effects, AT = ED.</p>

[1] Ingestion Rate = 0.026 l/day = 10 ml/hour x 2.6 hours/day x 0.001 l/ml

[2] Surface area assumes lower legs, hands, and feet are exposed.

[3] PCevent is calculated in the Dermal Guidance Appendix to this report

USEPA, 1989. Exposure Factors Handbook; EPA/600/8-89/043, May 1989.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance "Standard Default Exposure Parameters"

USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/8-91/011B

USEPA, 1995. Supplemental Guidance to RAQS: Region 4 Bulletin, Bulletin No. 3, November 1995.

TABLE G-33

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER
 ADULT RESIDENT - WADING
 SITE 16
 MILTON, FLORIDA

CARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF [1] (mg/kg-day) ⁻¹	CANCER RISK INGESTION	PCEVENT[2] (cm/event)	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [1, 3] (mg/kg-day) ⁻¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Beryllium	0.21	ug/L	3.3E-09	4.3E+00	1.4E-08	0.0026	1.9E-09	4.3E+02	8.2E-07	8.3E-07
SUMMARY CANCER RISK					1E-08				8E-07	8E-07
[1] This chemical-specific value has been calculated in Table C-45. [2] This chemical-specific value is calculated in Table C-35. [3] Calculated from oral CSFs. ND = no data available.										

TABLE G-33

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER
 ADULT RESIDENT - WADING
 SITE 16
 MILTON, FLORIDA

NONCARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	PCEVENT[1] (cm/event)	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day) ⁻¹	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Beryllium	0.21	ug/L	9.6E-09	5.0E-03	1.9E-06	0.0026	5.5E-09	5.0E-05	1.1E-04	1.1E-04
SUMMARY HAZARD INDEX					2E-06				1E-04	1E-04
[1] This chemical-specific value has been calculated in Table C-35. [2] Calculated from oral RfDs. ND = no data available.										

TABLE G-34

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER
CHILD RESIDENT - WADING
SITE 16
MILTON, FLORIDA

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical-specific	ug/liter	
INGESTION RATE [1]	IR	0.13	liters/day	USEPA, 1995
AGE-SPECIFIC SURFACE AREA [2]	SA	age-specific	cm ²	USEPA, 1989
EVENT FREQUENCY	EV	1	events/day	Assumption
BODY WEIGHT	BW	15	kg	USEPA, 1991
DOSE ABSORBED PER EVENT	DA _{event}	chemical-specific	mg/cm ² -event	Calculated
EXPOSURE FREQUENCY	EF	100	days/year	Assumption
EXPOSURE DURATION	ED	6	years	Assumption
AGE-WEIGHTED SURFACE AREA [3]	SA _{aw/adj}	766	cm ² -yr/kg	Calculated per USEPA, 1992
DIFFUSION DEPTH PER EVENT [4]	PC _{event}	chemical-specific	cm/event	Calculated per USEPA, 1992
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	6	years	Assumption
CONVERSION FACTOR	CF1	0.001	mg/ug	
CONVERSION FACTOR	CF2	0.001	liter/cm ³	

[1] Ingestion Rate = 0.13 l/day = 50 ml/hour x 2.6 hours/day x 0.001 l/ml

[2] Surface area assumes lower legs, hands, and feet are exposed.

[3] PC_{event} is calculated in the Dermal Guidance See Table C-35.

USEPA, 1989. Exposure Factors Handbook; EPA/600/8-89/043; May 1989.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters";

USEPA, 1992. Dermal Exposure Assessment: Principles and Applications; EPA/600/R-91/011B

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE-INGESTION} = \frac{\text{CW} \times \text{IR} \times \text{EF} \times \text{ED} \times \text{CF1}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

$$\text{INTAKE-DERMAI} = \frac{\text{DA}_{\text{event}} \times \text{EV} \times \text{EF} \times \text{SA}_{\text{aw/adj}}}{\text{AT} \times 365 \text{ days/yr}}$$

Where:

$$\text{SA}_{\text{aw/adj}} = \text{Sum (SA} \times \text{ED} / \text{BW)}$$

$$\text{DA}_{\text{event}} = \text{PC}_{\text{event}} \times \text{CW} \times \text{CF1} \times \text{CF2}$$

Note: For noncarcinogenic effects, AT = ED.

TABLE G-34

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER
 CHILD RESIDENT - WADING
 SITE 16
 MILTON, FLORIDA

CARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF	CANCER RISK INGESTION	PCEVENT [1]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [2]	CANCER RISK DERMAL	TOTAL CANCER RISK
Beryllium	0.21	ug/L	4.3E-08	4.3E+00	1.8E-07	0.0026	1.6E-09	4.3E+02	7.0E-07	8.9E-07
SUMMARY CANCER RISK					2E-07				7E-07	9E-07
[1] This chemical-specific value has been calculated in Table C-35. [2] Calculated from oral CSFs. ND = no data available.										

TABLE 634

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER
 CHILD RESIDENT - WADING
 SITE 16
 MILTON, FLORIDA

NONCARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	PCEVENT [1] (cm/event)	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Beryllium	0.21	ug/L	5.0E-07	5.0E-03	1.0E-04	0.0026	1.9E-08	5.0E-05	3.8E-04	4.8E-04
SUMMARY HAZARD INDEX					1E-04				4E-04	5E-04
[1] This chemical-specific value has been calculated in Table C-35. [2] Calculated from oral RfDs. ND = no data available.										

TABLE G25

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL (CENTRAL TENDENCY)
 ADULT TRESPASSER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION SOIL	CS	chemical specific	chemical-specific	
INGESTION RATE	IR	50	mg/day	USEPA, 1996
FRACTION INGESTED	FI	100%	unitless	USEPA, 1995
ADHERENCE FACTOR	AF	0.2	mg/cm ² -event	USEPA, 1992
ABSORPTION FRACTION	ABS _d	chemical specific	unitless	USEPA, 1995
SURFACE AREA EXPOSED	SA	5,000	cm ²	USEPA, 1992
DOSE ABSORBED PER EVENT	DA _{event}	chemical specific	mg/cm ² -event	USEPA, 1992
CONVERSION FACTOR	CF	1.00E-06	kg/mg	Inorganic conversion
	CF	1.00E-09	kg/ug	Organic conversion
BODY WEIGHT	BW	70	kg	USEPA, 1991
EXPOSURE FREQUENCY	EF	45	days/year [1]	USEPA, 1992
EXPOSURE DURATION	ED	7	years	USEPA, 1992
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	7	years	USEPA, 1992

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors". OSWER Directive 9285.6-03.

USEPA, 1992. Region 6 Memorandum: Central Tendency and RME Exposure Parameters.

USEPA, 1995. Supplemental Guidance to RAGS: Region IV. Human Health Risk Assessment Bulletin No. 3.

USEPA, 1996. Exposure Factors Handbook, 1996.

CANCER RISK = **INTAKE (mg/kg-day) x CANCER SLOPE FACTOR (mg/kg-day)⁻¹**

HAZARD QUOTIENT = **INTAKE (mg/kg-day) / REFERENCE DOSE (mg/kg-day)**

$$\text{INTAKE}_{\text{INGESTION}} = \frac{\text{CS} \times \text{IR} \times \text{FI} \times \text{CF} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

$$\text{INTAKE}_{\text{DERMAL}} = \frac{\text{DA}_{\text{event}} \times \text{SA} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

Where:

$$\text{DA}_{\text{event}} = \text{AF} \times \text{ABS}_d \times \text{CF}$$

Note: For noncarcinogenic effects: AT = ED

TABLE G35

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL (CENTRAL TENDENCY)

ADULT TRESPASSER

NAS WHITING FIELD

MILTON, FLORIDA

SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day) ⁻¹	CANCER RISK INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [2] (mg/kg-day) ⁻¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Benzo(a)anthracene [1]	O	35	ug/kg	3.1E-10	7.3E+00	2.3E-09	0.01	6.2E-11	8.0E+00	4.9E-10	2.7E-09
Benzo(a)pyrene	O	370	ug/kg	3.3E-09	7.3E+00	2.4E-08	0.01	6.5E-10	8.0E+00	5.2E-09	2.9E-08
Benzo(b)fluoranthene [1]	O	41	ug/kg	3.6E-10	7.3E+00	2.6E-09	0.01	7.2E-11	8.0E+00	5.8E-10	3.2E-09
Benzo(k)fluoranthene [1]	O	3.9	ug/kg	3.4E-11	7.3E+00	2.5E-10	0.01	6.9E-12	8.0E+00	5.5E-11	3.1E-10
Carbazole	O	97	ug/kg	8.5E-10	2.0E-02	1.7E-11	0.01	1.7E-10	4.0E-02	6.8E-12	2.4E-11
Chrysene [1]	O	0.39	ug/kg	3.4E-12	7.3E+00	2.5E-11	0.01	6.9E-13	8.0E+00	5.5E-12	3.1E-11
Dibenz(a,h)anthracene [1]	O	240	ug/kg	2.1E-09	7.3E+00	1.5E-08	0.01	4.2E-10	2.0E+01	8.5E-09	2.4E-08
Indeno(1,2,3-cd)pyrene [1]	O	32	ug/kg	2.8E-10	7.3E+00	2.1E-09	0.01	5.6E-11	8.0E+00	4.5E-10	2.5E-09
Dieldrin	O	32	ug/kg	2.8E-10	1.6E+01	4.5E-09	0.01	5.6E-11	3.2E+01	1.8E-09	6.3E-09
Arsenic	I	3.8	mg/kg	3.3E-08	1.5E+00	5.0E-08	0.001	6.7E-10	1.5E+00	1.0E-09	5.1E-08
Lead	I	473	mg/kg	4.2E-06	ND		0.001	8.3E-08	ND		
SUMMARY CANCER RISK						1E-07				2E-08	1E-07

[1] Carcinogenic PAH concentrations are adjusted by their respective toxicity equivalent factors (USEPA, 1995).

[2] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995).

[3] Calculated from oral CSFs.

TABLE 635

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL (CENTRAL TENDENCY)

ADULT TRESPASSER
NAS WHITING FIELD
MILTON, FLORIDA
SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	3.1E-08	ND		0.01	6.2E-09	ND		
Benzo(a)pyrene	O	370	ug/kg	3.3E-08	ND		0.01	6.5E-09	ND		
Benzo(b)fluoranthene	O	410	ug/kg	3.6E-08	ND		0.01	7.2E-09	ND		
Benzo(k)fluoranthene	O	390	ug/kg	3.4E-08	ND		0.01	6.9E-09	ND		
Carbazole	O	97	ug/kg	8.5E-09	ND		0.01	1.7E-09	ND		
Chrysene	O	390	ug/kg	3.4E-08	ND		0.01	6.9E-09	ND		
Dibenz(a,h)anthracene	O	240	ug/kg	2.1E-08	ND		0.01	4.2E-09	ND		
Indeno(1,2,3-cd)pyrene	O	320	ug/kg	2.8E-08	ND		0.01	5.6E-09	ND		
Dieldrin	O	32	ug/kg	2.8E-09	5.0E-05	5.6E-05	0.01	5.6E-10	2.5E-05	2.3E-05	7.9E-05
Aluminum	I	11300	mg/kg	1.0E-03	1.0E+00	1.0E-03	0.001	2.0E-05	2.0E-01	1.0E-04	1.1E-03
Arsenic	I	3.8	mg/kg	3.3E-07	3.0E-04	1.1E-03	0.001	6.7E-09	2.9E-04	2.3E-05	1.1E-03
Cadmium	I	2.1	mg/kg	1.8E-07	1.0E-03	1.8E-04	0.001	3.7E-09	1.0E-05	3.7E-04	5.5E-04
Iron	I	13900	mg/kg	1.2E-03	3.0E-01	4.1E-03	0.001	2.4E-05	6.0E-03	4.1E-03	8.2E-03
Lead	I	473	mg/kg	4.2E-05	ND		0.001	8.3E-07	ND		
Manganese	I	296	mg/kg	2.6E-05	4.7E-02	5.5E-04	0.001	5.2E-07	1.9E-03	2.7E-04	8.3E-04
SUMMARY HAZARD INDEX							0.01			0.005	0.01
[1] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995).											
[2] Calculated from oral RfDs.											

TABLE G36

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL (CENTRAL TENDENCY)
 ADOLESCENT TRESPASSER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

EXPOSURE PARAMETERS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION SOIL	CS	chemical-specific	chemical-specific	
INGESTION RATE	IR	50	mg/day	USEPA, 1996
FRACTION INGESTED	FI	100%	unitless	USEPA, 1995
ADHERENCE FACTOR	AF	0.2	mg/cm ² -event	USEPA, 1992
AGE-SPECIFIC SURFACE AREA	SA _i	age-specific	cm ²	USEPA, 1989
ABSORPTION FRACTION	ABS _i	chemical-specific	unitless	USEPA, 1995
CONVERSION FACTOR	CF	1.00E-06	kg/mg	Inorganic conversion
	CF	1.00E-09	kg/mg	Organic conversion
BODY WEIGHT	BW	45	kg	USEPA, 1991
AGE-SPECIFIC BODY WEIGHT	BW _i	age-specific	kg	USEPA, 1989
EXPOSURE FREQUENCY	EF	45	days/year [1]	USEPA, 1996
EXPOSURE DURATION	ED	2	years	USEPA, 1992
AGE-SPECIFIC EXPOSURE DURATION	ED _i	age-specific	years	Assumption
AGE-WEIGHTED SURFACE AREA [2]	SA _{wtavg}	821	cm ² -year/kg	CHR Table C-5.3; USEPA, 1992
DOSE ABSORBED PER EVENT	DA _{event}	chemical-specific	mg/cm ² -event	USEPA, 1992
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	2	years	USEPA, 1992

[1] Units for exposure frequency are in events/year in the calculation of the dermally absorbed dose.

[2] In estimating the dermally absorbed dose for children age 7 through 16, the time-weighted, bodyweight normalized surface area exposed is

USEPA, 1989. Exposure Factors Handbook; EPA/600/8-89/043; May 1989.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9285.6-03.

USEPA, 1992. Region 6 Memorandum: Central Tendency and RME Exposure Parameters.

USEPA, 1995. Supplemental Guidance to RAGS: Region 4 Bulletins, Bulletin No. 3, November 1995.

USEPA, 1996. Exposure Factors Handbook 1996.

EQUATIONS

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE}_{\text{INGESTION}} = \text{CS} \times \text{IR} \times \text{FI} \times \text{CF} \times \text{EF} \times \text{ED} \\ \text{BW} \times \text{AT} \times 365 \text{ days/yr}$$

$$\text{INTAKE}_{\text{DERMAL}} = \text{AT} \times 365 \text{ days/year} \times \text{SA}_{\text{wtavg}}$$

Where:

$$\text{SA}_{\text{wtavg}} = \text{SUM} (\text{SA}_i \times \text{ED}_i) / \text{BW}_i$$

$$\text{DA}_{\text{event}} = \text{CS} \times \text{AF} \times \text{ABS}_i \times \text{CF}$$

Note: For noncarcinogenic effects: AT = ED.

TABLE G.36

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL (CENTRAL TENDENCY)
 ADOLESCENT TRESPASSER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day) ⁻¹	CANCER RISK INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [2] (mg/kg-day) ⁻¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Benzo(a)anthracene [1]	O	35	ug/kg	1.4E-10	7.3E+00	1.0E-09	0.01	1.0E-10	8.0E+00	8.1E-10	1.8E-09
Benzo(a)pyrene	O	370	ug/kg	1.4E-09	7.3E+00	1.1E-08	0.01	1.1E-09	8.0E+00	8.6E-09	1.9E-08
Benzo(b)fluoranthene [1]	O	41	ug/kg	1.6E-10	7.3E+00	1.2E-09	0.01	1.2E-10	8.0E+00	9.5E-10	2.1E-09
Benzo(k)fluoranthene [1]	O	3.9	ug/kg	1.5E-11	7.3E+00	1.1E-10	0.01	1.1E-11	8.0E+00	9.0E-11	2.0E-10
Carbazole	O	97	ug/kg	3.8E-10	2.0E-02	7.6E-12	0.01	2.8E-10	4.0E-02	1.1E-11	1.9E-11
Chrysene [1]	O	0.39	ug/kg	1.5E-12	7.3E+00	1.1E-11	0.01	1.1E-12	8.0E+00	9.0E-12	2.0E-11
Dibenz(a,h)anthracene [1]	O	240	ug/kg	9.4E-10	7.3E+00	6.9E-09	0.01	6.9E-10	8.0E+00	5.6E-09	1.2E-08
Indeno(1,2,3-cd)pyrene [1]	O	32	ug/kg	1.3E-10	7.3E+00	9.1E-10	0.01	9.3E-11	8.0E+00	7.4E-10	1.7E-09
Dieldrin	O	32	ug/kg	1.3E-10	1.6E+01	2.0E-09	0.01	9.3E-11	3.2E+01	3.0E-09	5.0E-09
Arsenic	I	3.8	mg/kg	1.5E-08	1.5E+00	2.2E-08	0.001	1.1E-09	1.5E+00	1.6E-09	2.4E-08
Lead	I	473	mg/kg	1.9E-06	ND		0.001	1.4E-07	ND		
SUMMARY CANCER RISK						4E-08				2E-08	7E-08
[1] Carcinogenic PAH concentrations are adjusted by their respective toxicity equivalent factors (USEPA, 1995).											
[2] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995).											
[3] Calculated from oral CSFs.											

TABLE 36

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL (CENTRAL TENDENCY)
 ADOLESCENT TRESPASSER
 NAS WHITTING FIELD
 MILTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	4.8E-08	ND		0.01	3.5E-08	ND		
Benzo(a)pyrene	O	370	ug/kg	5.1E-08	ND		0.01	3.7E-08	ND		
Benzo(b)fluoranthene	O	410	ug/kg	5.6E-08	ND		0.01	4.1E-08	ND		
Benzo(k)fluoranthene	O	390	ug/kg	5.3E-08	ND		0.01	3.9E-08	ND		
Carbazole	O	97	ug/kg	1.3E-08	ND		0.01	9.8E-09	ND		
Chrysene	O	390	ug/kg	5.3E-08	ND		0.01	3.9E-08	ND		
Dibenz(a,h)anthracene	O	240	ug/kg	3.3E-08	ND		0.01	2.4E-08	ND		
Indeno(1,2,3-cd)pyrene	O	320	ug/kg	4.4E-08	ND		0.01	3.2E-08	ND		
Dieldrin	O	32	ug/kg	4.4E-09	5.0E-05	8.8E-05	0.01	3.2E-09	2.5E-05	1.3E-04	2.2E-04
Aluminum	I	11300	mg/kg	1.5E-03	1.0E+00	1.5E-03	0.001	1.1E-04	2.0E-01	5.7E-04	2.1E-03
Arsenic	I	3.8	mg/kg	5.2E-07	3.0E-04	1.7E-03	0.001	3.8E-08	2.9E-04	1.3E-04	1.9E-03
Cadmium	I	2.1	mg/kg	2.9E-07	1.0E-03	2.9E-04	0.001	2.1E-08	1.0E-05	2.1E-03	2.4E-03
Iron	I	13900	mg/kg	1.9E-03	3.0E-01	6.3E-03	0.001	1.4E-04	6.0E-03	2.3E-02	3.0E-02
Lead	I	473	mg/kg	6.5E-05	ND		0.001	4.8E-06	ND		
Manganese	I	296	mg/kg	4.1E-05	4.7E-02	8.6E-04	0.001	3.0E-06	1.9E-03	1.6E-03	2.4E-03
SUMMARY HAZARD INDEX							0.01			0.03	0.04
<p>[1] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995) [2] Calculated from oral RfDs.</p>											

TABLE G-37

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL (CENTRAL TENDENCY)
 ADULT RESIDENT
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION SOIL	CS	chemical specific	chemical-specific	
INGESTION RATE	IR	.50	mg/day	USEPA, 1996
FRACTION INGESTED	FI	100%	unitless	USEPA, 1995
ADHERENCE FACTOR	AF	0.7	mg/cm ² -event	USEPA, 1992
ABSORPTION FRACTION	ABS _d	chemical specific	unitless	USEPA, 1995
SURFACE AREA EXPOSED	SA	5,000	cm ²	USEPA, 1992
DOSE ABSORBED PER EVENT	DA _{event}	chemical specific	mg/cm ² -event	USEPA, 1992
CONVERSION FACTOR	CF	1.00E-09	kg/ug	Organic conversion
CONVERSION FACTOR	CF	1.00E-06	kg/mg	Inorganic conversion
BODY WEIGHT	BW	70	kg	USEPA, 1991
EXPOSURE FREQUENCY	EF	350	days/year [1]	USEPA, 1992
EXPOSURE DURATION	ED	7	years	USEPA, 1992
AVERAGING TIME				
CANCER	AT	30	years	USEPA, 1991
NONCANCER	AT	7	years	USEPA, 1992

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors";
 OSWER Directive 9285.6-03.

USEPA, 1992. Region 6 Memorandum: Central Tendency and RME Exposure Parameters.

USEPA, 1995. Supplemental Guidance to RAGS: Region IV, Human Health Risk Assessment Bulletin No. 3.

USEPA, 1996. Exposure Factors Handbook, 1996.

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE}_{\text{INGESTION}} = \frac{\text{CS} \times \text{IR} \times \text{FI} \times \text{CF} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

$$\text{INTAKE}_{\text{DERMAL}} = \frac{\text{DA}_{\text{event}} \times \text{SA} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

Where:

$$\text{DA}_{\text{event}} = \text{CS} \times \text{AF} \times \text{ABS}_d \times \text{CF}$$

Note: For noncarcinogenic effects, AT = ED.

TABLE 637

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL, (CENTRAL TENDENCY)
 ADULT RESIDENT
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day) ⁻¹	CANCER RISK INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [2] (mg/kg-day) ⁻¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Benzo(a)anthracene [1]	O	35	ug/kg	2.4E-09	7.3E+00	1.8E-08	0.01	4.8E-10	8.0E+00	3.8E-09	2.1E-08
Benzo(a)pyrene	O	370	ug/kg	2.5E-08	7.3E+00	1.9E-07	0.01	5.1E-09	8.0E+00	4.1E-08	2.3E-07
Benzo(b)fluoranthene [1]	O	41	ug/kg	2.8E-09	7.3E+00	2.1E-08	0.01	5.6E-10	8.0E+00	4.5E-09	2.5E-08
Benzo(k)fluoranthene [1]	O	3.9	ug/kg	2.7E-10	7.3E+00	2.0E-09	0.01	5.3E-11	8.0E+00	4.3E-10	2.4E-09
Carbazole	O	97	ug/kg	6.6E-09	2.0E-02	1.3E-10	0.01	1.3E-09	4.0E-02	5.3E-11	1.9E-10
Chrysene [1]	O	0.39	ug/kg	2.7E-11	7.3E+00	2.0E-10	0.01	5.3E-12	8.0E+00	4.3E-11	2.4E-10
Dibenz(a,h)anthracene [1]	O	240	ug/kg	1.6E-08	7.3E+00	1.2E-07	0.01	3.3E-09	8.0E+00	2.6E-08	1.5E-07
Indeno(1,2,3-cd)pyrene [1]	O	32	ug/kg	2.2E-09	7.3E+00	1.6E-08	0.01	4.4E-10	8.0E+00	3.5E-09	2.0E-08
Dieldrin	O	32	ug/kg	2.2E-09	1.6E+01	3.5E-08	0.01	4.4E-10	3.2E+01	1.4E-08	4.9E-08
Arsenic	I	3.8	mg/kg	2.6E-07	1.5E+00	3.9E-07	0.001	5.2E-09	1.5E+00	7.8E-09	4.0E-07
Lead	I	473	mg/kg	3.2E-05	ND		0.001	6.5E-07	ND		
SUMMARY CANCER RISK						8E-07				1E-07	9E-07
[1] Carcinogenic PAH concentrations are adjusted by their respective toxicity equivalent factors (USEPA, 1995).											
[2] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995).											
[3] Calculated from oral CSFs.											

TABLE 637

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL (CENTRAL TENDENCY)
 ADULT RESIDENT
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	2.4E-07	ND		0.01	4.8E-08	ND		
Benzo(a)pyrene	O	370	ug/kg	2.5E-07	ND		0.01	5.1E-08	ND		
Benzo(b)fluoranthene	O	410	ug/kg	2.8E-07	ND		0.01	5.6E-08	ND		
Benzo(k)fluoranthene	O	390	ug/kg	2.7E-07	ND		0.01	5.3E-08	ND		
Carbazole	O	97	ug/kg	6.6E-08	ND		0.01	1.3E-08	ND		
Chrysene	O	390	ug/kg	2.7E-07	ND		0.01	5.3E-08	ND		
Dibenz(a,h)anthracene	O	240	ug/kg	1.6E-07	ND		0.01	3.3E-08	ND		
Indeno(1,2,3-cd)pyrene	O	320	ug/kg	2.2E-07	ND		0.01	4.4E-08	ND		
Dieldrin	O	32	ug/kg	2.2E-08	5.0E-05	4.4E-04	0.01	4.4E-09	2.5E-05	1.8E-04	6.1E-04
Aluminum	I	11300	mg/kg	7.7E-03	1.0E+00	7.7E-03	0.001	1.5E-04	2.0E-01	7.7E-04	8.5E-03
Arsenic	I	3.8	mg/kg	2.6E-06	3.0E-04	8.7E-03	0.001	5.2E-08	2.9E-04	1.8E-04	8.9E-03
Cadmium	I	2.1	mg/kg	1.4E-06	1.0E-03	1.4E-03	0.001	2.9E-08	1.0E-05	2.9E-03	4.3E-03
Iron	I	13900	mg/kg	9.5E-03	3.0E-01	3.2E-02	0.001	1.9E-04	6.0E-03	3.2E-02	6.3E-02
Lead	I	473	mg/kg	3.2E-04	ND		0.001	6.5E-06	ND		
Manganese	I	296	mg/kg	2.0E-04	4.7E-02	4.3E-03	0.001	4.1E-06	1.9E-03	2.1E-03	6.4E-03
SUMMARY HAZARD INDEX						0.05				0.04	0.09
[1] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November, 1995).											
[2] Calculated from oral RfDs.											

TABLE G-38

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL (CENTRAL TENDENCY)
CHILD RESIDENT
NAS WHITTING FIELD
MILTON, FLORIDA
SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION SOIL	CS	chemical-specific	chemical-specific	
INGESTION RATE	IR	100	mg/day	USEPA, 1995
FRACTION INGESTED	FI	100%	unitless	USEPA, 1995
ADHERENCE FACTOR	AF	0.2	mg/cm ² -event	USEPA, 1995
AGE-SPECIFIC SURFACE AREA	SA	age-specific	cm ²	USEPA, 1989
ABSORPTION FRACTION	ABS	chemical-specific	unitless	USEPA, 1995
CONVERSION FACTOR	CF	1.00E-06	kg/mg	Inorganic conversion
CONVERSION FACTOR	CF	1.00E-09	kg/ug	Organic conversion
BODY WEIGHT	BW	15	kg	USEPA, 1991
AGE-SPECIFIC BODY WEIGHT	BW	age-specific	kg	USEPA, 1989
EXPOSURE FREQUENCY	EF	150	days/year [1]	USEPA, 1995
EXPOSURE DURATION	ED	2	years	USEPA, 1995
AGE-SPECIFIC EXPOSURE DURATION	ED	age-specific	years	Assumption
AGE-WEIGHTED SURFACE AREA (2)	SA _{adj}	766	cm ² -year/kg	USEPA, 1992
DOSE ABSORBED PER EVENT	DA _{event}	chemical-specific	mg/cm ² -event	USEPA, 1992
AVERAGING TIME:				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	2	years	USEPA, 1995

[1] Air Force meteorological data summary for Eglin AFB (close proximity to Milton) states that there is 0.01 inches of rain for 110 days per year. Exposure frequency assumes half of the rainy days require indoor restriction.

[2] In estimating the dermally absorbed dose for children age 1 through 6, the time-weighted, bodyweight normalized surface area exposed is calculated from surface area, exposure duration, and body weight for each of 6 age periods; age 1 through 6, per USEPA, 1992.

USEPA, 1989. Exposure Factors Handbook; EPA/600/8-89/043; May 1989.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9285.0-03.

USEPA, 1995. Supplemental Guidance to RAGS: Region IV, Human Health Risk Assessment Bulletin No. 3.

USEPA, 1996. Exposure Factors Handbook; 1996.

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE}_{\text{INGESTION}} = \text{CS} \times \text{IR} \times \text{FI} \times \text{CF} \times \text{EF} \times \text{ED} \\ \text{BW} \times \text{AT} \times 365 \text{ days/yr}$$

$$\text{INTAKE}_{\text{DERMAL}} = (\text{DA}_{\text{event}} \times \text{EF} / \text{AT} \times 365 \text{ days/year}) \times \text{SA}_{\text{adj}}$$

Where:

$$\text{SA}_{\text{adj}} = \text{SUM} (\text{SA} \times \text{ED} / \text{BW})$$

$$\text{DA}_{\text{event}} = \text{CS} \times \text{AF} \times \text{ABS} \times \text{CF}$$

Note: For noncarcinogenic effects, AT = ED.

TABLE 638

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL (CENTRAL TENDENCY)
 CHILD RESIDENT
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day) ⁻¹	CANCER RISK INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [2] (mg/kg-day) ⁻¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Benzo(a)anthracene [1]	O	35	ug/kg	6.4E-09	7.3E+00	4.7E-08	0.01	7.3E-10	8.0E+00	5.9E-09	5.3E-08
Benzo(a)pyrene	O	370	ug/kg	6.8E-08	7.3E+00	4.9E-07	0.01	7.8E-09	8.0E+00	6.2E-08	5.6E-07
Benzo(b)fluoranthene [1]	O	41	ug/kg	7.5E-09	7.3E+00	5.5E-08	0.01	8.6E-10	8.0E+00	6.9E-09	6.2E-08
Benzo(k)fluoranthene [1]	O	3.9	ug/kg	7.1E-10	7.3E+00	5.2E-09	0.01	8.2E-11	8.0E+00	6.5E-10	5.9E-09
Carbazole	O	97	ug/kg	1.8E-08	2.0E-02	3.5E-10	0.01	2.0E-09	4.0E-02	8.1E-11	4.4E-10
Chrysenes [1]	O	0.39	ug/kg	7.1E-11	7.3E+00	5.2E-10	0.01	8.2E-12	8.0E+00	6.5E-11	5.9E-10
Dibenz(a,h)anthracene [1]	O	240	ug/kg	4.4E-08	7.3E+00	3.2E-07	0.01	5.0E-09	8.0E+00	4.0E-08	3.6E-07
Indeno(1,2,3-cd)pyrene [1]	O	32	ug/kg	5.8E-09	7.3E+00	4.3E-08	0.01	6.7E-10	8.0E+00	5.4E-09	4.8E-08
Dieldrin	O	32	ug/kg	5.8E-09	1.6E+01	9.4E-08	0.01	6.7E-10	3.2E+01	2.1E-08	1.2E-07
Arsenic	I	3.8	mg/kg	6.9E-07	1.5E+00	1.0E-06	0.001	8.0E-09	1.5E+00	1.2E-08	1.1E-06
Lead	I	473	mg/kg	8.6E-05	ND		0.001	9.9E-07	ND		
SUMMARY CANCER RISK						2E-06				2E-07	2E-06
<p>[1] Carcinogenic PAH concentrations are adjusted by their respective toxicity equivalent factors (USEPA, 1995). [2] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995). [3] Calculated from oral CSFs.</p>											

TABLE G-38

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL (CENTRAL TENDENCY)
 CHILD RESIDENT
 NAS WHITTING FIELD
 MILTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	2.2E-06	ND		0.01	2.6E-07	ND		
Benzo(a)pyrene	O	370	ug/kg	2.4E-06	ND		0.01	2.7E-07	ND		
Benzo(b)fluoranthene	O	410	ug/kg	2.6E-06	ND		0.01	3.0E-07	ND		
Benzo(k)fluoranthene	O	390	ug/kg	2.5E-06	ND		0.01	2.9E-07	ND		
Carbazole	O	97	ug/kg	6.2E-07	ND		0.01	7.1E-08	ND		
Chrysene	O	390	ug/kg	2.5E-06	ND		0.01	2.9E-07	ND		
Dibenz(a,h)anthracene	O	240	ug/kg	1.5E-06	ND		0.01	1.8E-07	ND		
Indeno(1,2,3-cd)pyrene	O	320	ug/kg	2.0E-06	ND		0.01	2.4E-07	ND		
Dieldrin	O	32	ug/kg	2.0E-07	5.0E-05	4.1E-03	0.01	2.4E-08	2.5E-05	9.4E-04	5.0E-03
Aluminum	I	11300	mg/kg	7.2E-02	1.0E+00	7.2E-02	0.001	8.3E-04	2.0E-01	4.2E-03	7.6E-02
Arsenic	I	3.8	mg/kg	2.4E-05	3.0E-04	8.1E-02	0.001	2.8E-07	2.9E-04	9.6E-04	8.2E-02
Cadmium	I	2.1	mg/kg	1.3E-05	1.0E-03	1.3E-02	0.001	1.5E-07	1.0E-05	1.5E-02	2.9E-02
Iron	I	13900	mg/kg	8.9E-02	3.0E-01	3.0E-01	0.001	1.0E-03	6.0E-03	1.7E-01	4.7E-01
Lead	I	473	mg/kg	3.0E-03	ND		0.001	3.5E-05	ND		
Manganese	I	296	mg/kg	1.9E-03	4.7E-02	4.0E-02	0.001	2.2E-05	1.9E-03	1.1E-02	5.2E-02
SUMMARY HAZARD INDEX						0.51				0.20	0.71
<p>[1] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995). [2] Calculated from oral RfDs.</p>											

TABLE G 39

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL, (CENTRAL TENDENCY)
 OCCUPATIONAL WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION SOIL	CS	chemical-specific	chemical-specific	
INGESTION RATE	IR	50	mg/day	USEPA, 1996
FRACTION INGESTED	FI	100%	unitless	Assumption
ADHERENCE FACTOR	AF	0.2	mg/cm ² -event	USEPA, 1992
ABSORPTION FRACTION	ABS	chemical-specific	unitless	Assumption
SURFACE AREA EXPOSED	SA	2,000	cm ²	USEPA, 1996
DOSE ABSORBED PER EVENT	DA _{event}	chemical-specific	mg/cm ² -event	USEPA, 1995
CONVERSION FACTOR	CF	1.00E-09	kg/ug	Organic conversion
CONVERSION FACTOR	CF	1.00E-06	kg/mg	Inorganic conversion
BODY WEIGHT	BW	70	kg	USEPA, 1991
EXPOSURE FREQUENCY	EF	250	days/year [1]	USEPA, 1992
EXPOSURE DURATION	ED	9	years	USEPA, 1992
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	9	years	USEPA, 1992

[1] Units for exposure frequency are events/year in the calculation of the dermally absorbed dose.
 USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors".
 USEPA, 1992. Region 6 Memorandum: Central Tendency and RME Exposure Parameters.
 USEPA, 1995. Supplemental Guidance to RAGS: Region IV, Human Health Risk Assessment Bulletin No. 3.
 USEPA, 1996. Exposure Factors Handbook, 1996.

$$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$$

$$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$$

$$\text{INTAKE}_{\text{INGESTION}} = \frac{\text{CS} \times \text{IR} \times \text{FI} \times \text{CF} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

$$\text{INTAKE}_{\text{DERMAL}} = \frac{\text{DA}_{\text{event}} \times \text{SA} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$$

Where:

$$\text{DA}_{\text{event}} = \text{CS} \times \text{AF} \times \text{ABS} \times \text{CF}$$

Note: For noncarcinogenic effects, AT = ED

TABLE G39

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL (CENTRAL TENDENCY)
 OCCUPATIONAL WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

CARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day) ⁻¹	CANCER RISK INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [2] (mg/kg-day) ⁻¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Benzo(a)anthracene [1]	O	35	ug/kg	2.2E-09	7.3E+00	1.6E-08	0.01	1.8E-10	8.0E+00	1.4E-09	1.7E-08
Benzo(a)pyrene	O	370	ug/kg	2.3E-08	7.3E+00	1.7E-07	0.01	1.9E-09	8.0E+00	1.5E-08	1.8E-07
Benzo(b)fluoranthene [1]	O	41	ug/kg	2.6E-09	7.3E+00	1.9E-08	0.01	2.1E-10	8.0E+00	1.7E-09	2.0E-08
Benzo(k)fluoranthene [1]	O	3.9	ug/kg	2.5E-10	7.3E+00	1.8E-09	0.01	2.0E-11	8.0E+00	1.6E-10	1.9E-09
Carbazole	O	97	ug/kg	6.1E-09	2.0E-02	1.2E-10	0.01	4.9E-10	4.0E-02	2.0E-11	1.4E-10
Chrysene [1]	O	0.39	ug/kg	2.5E-11	7.3E+00	1.8E-10	0.01	2.0E-12	8.0E+00	1.6E-11	1.9E-10
Dibenz(a,h)anthracene [1]	O	240	ug/kg	1.5E-08	7.3E+00	1.1E-07	0.01	1.2E-09	8.0E+00	9.7E-09	1.2E-07
Indeno(1,2,3-cd)pyrene [1]	O	32	ug/kg	2.0E-09	7.3E+00	1.5E-08	0.01	1.6E-10	8.0E+00	1.3E-09	1.6E-08
Dieldrin	O	32	ug/kg	2.0E-09	1.6E+01	3.2E-08	0.01	1.6E-10	3.2E+01	5.2E-09	3.7E-08
Arsenic	I	3.8	mg/kg	2.4E-07	1.5E+00	3.6E-07	0.001	1.9E-09	1.5E+00	2.9E-09	3.6E-07
Lead	I	473	mg/kg	3.0E-05	ND		0.001	2.4E-07	ND		
SUMMARY CANCER RISK						7E-07				4E-08	8E-07
[1] Carcinogenic PAH concentrations are adjusted by their respective toxicity equivalent factors (USEPA, 1995).											
[2] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995).											
[3] Calculated from oral CSFs.											

TABLE 639

DIRECT CONTACT WITH AND INCIDENTAL INGESTION OF SURFACE SOIL, (CENTRAL TENDENCY)
 OCCUPATIONAL WORKER
 NAS WHITING FIELD
 MILTON, FLORIDA
 SITE 16

NONCARCINOGENIC EFFECTS

COMPOUND	INORGANIC OR ORGANIC I/O	SOIL CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	DERMAL ABS [1]	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Benzo(a)anthracene	O	350	ug/kg	1.7E-07	ND		0.01	1.4E-08	ND		
Benzo(a)pyrene	O	370	ug/kg	1.8E-07	ND		0.01	1.4E-08	ND		
Benzo(b)fluoranthene	O	410	ug/kg	2.0E-07	ND		0.01	1.6E-08	ND		
Benzo(k)fluoranthene	O	390	ug/kg	1.9E-07	ND		0.01	1.5E-08	ND		
Carbazole	O	97	ug/kg	4.7E-08	ND		0.01	3.8E-09	ND		
Chrysene	O	390	ug/kg	1.9E-07	ND		0.01	1.5E-08	ND		
Dibenz(a,h)anthracene	O	240	ug/kg	1.2E-07	ND		0.01	9.4E-09	ND		
Indeno(1,2,3-cd)pyrene	O	320	ug/kg	1.6E-07	ND		0.01	1.3E-08	ND		
Dieldrin	O	32	ug/kg	1.6E-08	5.0E-05	3.1E-04	0.01	1.3E-09	2.5E-05	5.0E-05	3.6E-04
Aluminum	I	11300	mg/kg	5.5E-03	1.0E+00	5.5E-03	0.001	4.4E-05	2.0E-01	2.2E-04	5.7E-03
Arsenic	I	3.8	mg/kg	1.9E-06	3.0E-04	6.2E-03	0.001	1.5E-08	2.9E-04	5.1E-05	6.2E-03
Cadmium	I	2.1	mg/kg	1.0E-06	1.0E-03	1.0E-03	0.001	8.2E-09	1.0E-05	8.2E-04	1.8E-03
Iron	I	13900	mg/kg	6.8E-03	3.0E-01	2.3E-02	0.001	5.4E-05	6.0E-03	9.1E-03	3.2E-02
Lead	I	473	mg/kg	2.3E-04	ND		0.001	1.9E-06	ND		
Manganese	I	296	mg/kg	1.4E-04	4.7E-02	3.1E-03	0.001	1.2E-06	1.9E-03	6.1E-04	3.7E-03
SUMMARY HAZARD INDEX							0.04			0.01	0.05
[1] USEPA Region IV guidance specifies absorption factors of 1% for organics and 0.1% for inorganics (November 1995).											
[2] Calculated from oral RfDs.											

TABLE G40

CONCENTRATION OF VOCs WHILE SHOWERING
ADULT RESIDENT
SITE 16
MILTON, FLORIDIA

EMPIRICAL CONSTANTS

CONSTANT	SYMBOL	VALUE	UNIT	SOURCE
Liquid-film mass transfer for CO ₂	K _l (CO ₂)	20	cm/hr	Calculated
Gas-film mass transfer for water	K _g (H ₂ O)	3000	cm/hr	Calculated
Molar gas constant x Temperature	RT	0.024	atm-m ³ /mole	
Reference temperature	T ₁	293	K	
Temperature of shower water	T _s	318	K	Assumption
Viscosity of water at shower temperature	u _s	0.6178	cp	Calculated
Viscosity of water at reference temperature	u ₁	0.65	cp	Calculated
Shower droplet free-fall time	t _s	1.5	sec	Assumption
Droplet diameter	d	1	mm	Foster & Chrostowski, 1987
Flow rate in shower	FR	20	l/min	Assumption
Volume of shower area	SV	12	m ³	Assumption
Air exchange rate	R	0.03	min ⁻¹	Calculated
Time in shower	D _s	12	min	USEPA, 1989
Time at which concentration is being calculated	t	12	min	Assumption

Foster, S.A. and Chrostowski, P.C., 1987. Inhalation Exposures to Volatile Organic Contaminants in the Shower.
USEPA, 1989, Exposure Factors Handbook; EPA/600/8-89/043, May 1989.
All equations and definitions of terms are presented in the Appendix to this report, Calculation of Air Concentration Using the Shower Model.

TABLE G40

CONCENTRATION OF VOCs WHILE SHOWERING
 ADULT RESIDENT
 SITE 16
 MILTON, FLORIDIA
 INTERIM CORRECTIVE MEASURE

SHOWER CONCENTRATIONS

COMPOUND	C _w (ug/l)	MW (g/mol)	H (atm-m ³ /mol)	k _l (cm/hr)	k _g (cm/hr)	K _L (cm/hr)	K _{al} (cm/hr)	C _{wd} (ug/l)	S (ug/m ³ -min)	C _(voc) (ug/m ³)
1,2-Dichloroethane	9.9	99.0	0.00098	1.3E+01	1.3E+03	1.1E+01	1.1E+01	2.4E+00	4.1E+00	4.1E+01
1,2-Dichloroethene (total)	9.1	97.0	0.00758	1.3E+01	1.3E+03	1.3E+01	1.4E+01	2.7E+00	4.5E+00	4.5E+01
Benzene	180	78.0	0.0056	1.5E+01	1.4E+03	1.4E+01	1.5E+01	5.7E+01	9.6E+01	9.6E+02
Chloroform	1	120.0	0.0037	1.2E+01	1.2E+03	1.1E+01	1.2E+01	2.6E-01	4.4E-01	4.4E+00
Trichloroethene	5.5	130.0	0.01	1.2E+01	1.1E+03	1.1E+01	1.2E+01	1.4E+00	2.4E+00	2.4E+01
C _w = Concentration in groundwater			K _L = Mass transfer coefficient							
MW = Molecular weight			K _{al} = Temperature correction of mass transfer coefficient							
H = Henry's Law constant			C _{wd} = Analyte concentration in water droplet							
k _l = Chemical-specific mass-transfer coefficient			S = Release rate of analyte to air							
k _g = Chemical-specific gas mass-transfer coefficient			C _(voc) = Analyte concentration in bathroom air at time t.							
$C_{(voc)} = (S/R) \times (e^{(RDs)} - 1) \times e^{(-Rt)}$										

TABLE 4

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES) (CENTRAL TENDENCY)
 ADULT RESIDENT
 SITE 16
 MILTON, FLORIDA

EXPOSURE PARAMETERS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical-specific	ug/liter	
INGESTION RATE	IR	1.4	liters/day	USEPA, 1992
BODY WEIGHT	BW	70	kg	USEPA, 1991
CONVERSION FACTOR	CF	0.001	mg/ug	
EXPOSURE FREQUENCY	EF	350	days/year	USEPA, 1992
EXPOSURE DURATION	ED	7	years	USEPA, 1992
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	7	years	USEPA, 1991

$CANCER\ RISK = INTAKE\ (mg/kg\text{-}day) \times CANCER\ SLOPE\ FACTOR\ (mg/kg\text{-}day)^{-1}$
 $HAZARD\ QUOTIENT = INTAKE\ (mg/kg\text{-}day) / REFERENCE\ DOSE\ (mg/kg\text{-}day)$

$INTAKE = \frac{CW \times IR \times EF \times ED \times CF}{BW \times AT \times 365\ days/year}$

Note: For noncarcinogenic effects, AT = ED.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors"; OSWER Directive 9285.6-03.
 USEPA, 1992. Region 5 Memorandum: Central Tendency and RMI Exposure Parameters.

TABLE G41

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES) (CENTRAL TENDENCY)
 ADULT RESIDENT
 SITE 16
 MILTON, FLORIDA

CARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	CANCER SLOPE FACTOR (mg/kg-day) ⁻¹	CANCER RISK INGESTION
1,2-Dichloroethane	9.9	UG/LITER	1.9E-05	9.1E-02	1.7E-06
Benzene	180	UG/LITER	3.5E-04	2.9E-02	1.0E-05
Chloroform	1	UG/LITER	1.9E-06	6.1E-03	1.2E-08
Trichloroethene	5.5	UG/LITER	1.1E-05	1.1E-02	1.2E-07
4,4-DDT	0.06	UG/LITER	1.2E-07	3.4E-01	3.9E-08
bis(2-Ethylhexyl)phthalate	6.9	UG/LITER	1.3E-05	1.4E-02	1.9E-07
Arsenic	3.3	UG/LITER	6.3E-06	1.5E+00	9.5E-06
TOTAL CANCER RISK					2E-05

TABLE G41

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES) (CENTRAL TENDENCY)
 ADULT RESIDENT
 SITE 16
 MILTON, FLORIDA

NONCARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	REFERENCE DOSE (mg/kg-day)	HAZARD QUOTIENT INGESTION
1,2-Dichloroethane	9.9	UG/LITER	1.9E-04	3.0E-01	6.3E-04
1,2-Dichloroethene	9.1	UG/LITER	1.7E-04	9.0E-03	1.9E-02
Benzene	180	UG/LITER	3.5E-03	3.0E-04	1.2E+01
Chloroform	1	UG/LITER	1.9E-05	1.0E-02	1.9E-03
Trichloroethene	5.5	UG/LITER	1.1E-04	6.0E-03	1.8E-02
bis(2-Ethylhexyl)phthalate	6.9	UG/LITER	1.3E-04	2.0E-02	6.6E-03
4,4-DDT	0.06	UG/LITER	1.2E-06	5.0E-04	2.3E-03
Aluminum	491	UG/LITER	9.4E-03	1.0E+00	9.4E-03
Arsenic	3.3	UG/LITER	6.3E-05	3.0E-04	2.1E-01
Barium	53.9	UG/LITER	1.0E-03	7.0E-02	1.5E-02
Cadmium	2.6	UG/LITER	5.0E-05	5.0E-04	1.0E-01
Iron	4570	UG/LITER	8.8E-02	3.0E-01	2.9E-01
Manganese	188	UG/LITER	3.6E-03	4.7E-02	7.7E-02
TOTAL HAZARD INDEX					12

ND = no data available.

TABLE G-42

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES) (CENTRAL TENDENCY)
 CHILD RESIDENT
 SITE 16
 MILTON, FLORIDA

EXPOSURE PARAMETERS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical-specific	ug/liter	
INGESTION RATE	IR	0.7	liters/day	USEPA, 1992
BODY WEIGHT	BW	15	kg	USEPA, 1991
CONVERSION FACTOR	CF	0.001	mg/ug	
EXPOSURE FREQUENCY	EF	350	days/year	USEPA, 1992
EXPOSURE DURATION	ED	2	years	USEPA, 1992
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	2	years	USEPA, 1991

$CANCER\ RISK = INTAKE\ (mg/kg\text{-}day) \times CANCER\ SLOPE\ FACTOR\ (mg/kg\text{-}day)^{-1}$
 $HAZARD\ QUOTIENT = INTAKE\ (mg/kg\text{-}day) / REFERENCE\ DOSE\ (mg/kg\text{-}day)$

$INTAKE = \frac{CW \times IR \times EF \times ED \times CF}{BW \times AT \times 365\ days/year}$

Notes: For noncarcinogenic effects, AT = ED.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance.
 Standard Default Exposure Factors; OSWER Directive 9203.6-03.
 USEPA, 1992. Region 6 Memorandum: Central Tendency and RME Exposure Parameters.

TABLE G42

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES) (CENTRAL TENDENCY)
 CHILD RESIDENT
 SITE 16
 MILTON, FLORDIA

CARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	CANCER SLOPE FACTOR (mg/kg-day) ⁻¹	CANCER RISK INGESTION
1,2-Dichlorethane	9.9	UG/LITER	1.3E-05	9.1E-02	1.2E-06
Benzene	180	UG/LITER	2.3E-04	2.9E-02	6.7E-06
Chloroform	1	UG/LITER	1.3E-06	6.1E-03	7.8E-09
Trichlorethene	5.5	UG/LITER	7.0E-06	1.1E-02	7.7E-08
4,4-DDT	0.06	UG/LITER	7.7E-08	3.4E-01	2.6E-08
bis(2-Ethylhexyl)phthalate	6.9	UG/LITER	8.8E-06	1.4E-02	1.2E-07
Arsenic	3.3	UG/LITER	4.2E-06	1.5E+00	6.3E-06
TOTAL CANCER RISK					1E-05

TABLE G42

INGESTION OF GROUNDWATER AS DRINKING WATER (UNFILTERED SAMPLES) (CENTRAL TENDENCY)
 CHILD RESIDENT
 SITE 16
 MILTON, FLORIDA

NONCARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	REFERENCE DOSE (mg/kg-day)	HAZARD QUOTIENT INGESTION
1,2-Dichloroethane	9.9	UG/LITER	4.4E-04	3.0E-01	1.5E-03
1,2-Dichloroethene	9.1	UG/LITER	4.1E-04	9.0E-03	4.5E-02
Benzene	180	UG/LITER	8.1E-03	3.0E-04	2.7E+01
Chloroform	1	UG/LITER	4.5E-05	1.0E-02	4.5E-03
Trichloroethene	5.5	UG/LITER	2.5E-04	6.0E-03	4.1E-02
bis(2-Ethylhexyl)phthalate	6.9	UG/LITER	3.1E-04	2.0E-02	1.5E-02
4,4-DDT	0.06	UG/LITER	2.7E-06	5.0E-04	5.4E-03
Aluminum	491	UG/LITER	2.2E-02	1.0E+00	2.2E-02
Arsenic	3.3	UG/LITER	1.5E-04	3.0E-04	4.9E-01
Barium	53.9	UG/LITER	2.4E-03	7.0E-02	3.4E-02
Cadmium	2.6	UG/LITER	1.2E-04	5.0E-04	2.3E-01
Iron	4570	UG/LITER	2.0E-01	3.0E-01	6.8E-01
Manganese	188	UG/LITER	8.4E-03	4.7E-02	1.8E-01
TOTAL HAZARD INDEX					29

TABLE G43

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER (CENTRAL TENDENCY)
ADULT RESIDENT - WADING
SITE 16
MILTON, FLORIDA

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical specific	ug/liter	
INGESTION RATE [1]	IR	0.026	liters/day	USEPA, 1995
SURFACE AREA [2]	SA	5,790	cm ²	USEPA, 1989
EVENT FREQUENCY	EV	1	events/day	Assumption
BODY WEIGHT	BW	70	kg	USEPA, 1991
DOSE ABSORBED PER EVENT	DAevent	chemical specific	mg/cm ² -event	Calculated
EXPOSURE TIME	ET	2.6	hours/day	Assumption
EXPOSURE FREQUENCY	EF	45	days/year	Assumption
EXPOSURE DURATION	ED	?	years	USEPA, 1992a
DIFFUSION DEPTH PER EVENT	PCevent	chemical specific	cm/event	Calculated per USEPA, 1992b [3]
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	?	years	USEPA, 1995
CONVERSION FACTOR	CF1	0.001	mg/ug	
CONVERSION FACTOR	CF2	0.001	liter/cm ³	

[1] Ingestion Rate = 0.026 l/day = 10 ml/hour x 2.6 hours/day x 0.001 l/ml

[2] Surface area assumes lower legs, hands, and feet are exposed.

[3] PCevent is calculated in the Dermal Guidance See Table C-35.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters."

USEPA, 1992a. Region 6 Memorandum: Central Tendency and RME Exposure Parameters.

USEPA, 1992b. Dermal Exposure Assessment: Principles and Applications. EPA/600/R-91/011B

USEPA, 1995. Supplemental Guidance to RAQS: Region 4 Bulletin, Bulletin No. 3, November 1995.

CANCER RISK = INTAKE (mg/kg-day) x CANCER SLOPE FACTOR (mg/kg-day)⁻¹

HAZARD QUOTIENT = INTAKE (mg/kg-day) / REFERENCE DOSE (mg/kg-day)

INTAKE-INGESTION = $\frac{CW \times IR \times EF \times ED \times CF1}{BW \times AT \times 365 \text{ days/yr}}$

INTAKE-DERMAL = $\frac{DAevent \times EV \times EF \times ED \times SA}{AT \times BW \times 365 \text{ days/yr}}$

Where:

DAevent = PCevent x CW x CF1 x CF2

Note: For noncarcinogenic effects, AT = ED.

TABLE C-43

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER (CENTRAL TENDENCY)
 ADULT RESIDENT - WADING
 SITE 16
 MILTON, FLORIDA

CARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF (mg/kg-day) ⁻¹	CANCER RISK INGESTION	PCEVENT[1] (cm/event)	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [2] (mg/kg-day) ⁻¹	CANCER RISK DERMAL	TOTAL CANCER RISK
Beryllium	0.21	ug/L	9.6E-10	4.3E+00	4.1E-09	0.0026	5.5E-10	4.3E+02	2.4E-07	2.4E-07
SUMMARY CANCER RISK					4E-09				2E-07	2E-07
[1] This chemical-specific value has been calculated in Table C-35.										
[2] Calculated from oral CSFs. ND = no data available.										

TABLE G-43

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER (CENTRAL TENDENCY)
 ADULT RESIDENT - WADING
 SITE 16
 MILTON, FLORIDA

NONCARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	PCEVENT[1] (cm/event)	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day) ⁻¹	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Beryllium	0.21	ug/L	9.6E-09	5.0E-03	1.9E-06	0.0026	5.5E-09	5.0E-05	1.1E-04	1.1E-04
SUMMARY HAZARD INDEX					2E-06				1E-04	1E-04
[1] This chemical-specific value has been calculated in Table C-35. [2] Calculated from oral RfDs. ND = no data available.										

TABLE G-44

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER (CENTRAL TENDENCY)
 CHILD RESIDENT - WADING
 SITE 16
 MILTON, FLORIDA

EXPOSURE PARAMETERS

EQUATIONS

PARAMETER	SYMBOL	VALUE	UNITS	SOURCE
CONCENTRATION WATER	CW	chemical-specific	ug/liter	
INGESTION RATE [1]	IR	0.13	liters/day	USEPA, 1995
AGE-SPECIFIC SURFACE AREA [2]	SA	age-specific	cm ²	USEPA, 1989
EVENT FREQUENCY	EV	1	events/day	Assumption
BODY WEIGHT	BW	15	kg	USEPA, 1991
DOSE ABSORBED PER EVENT	DA _{event}	chemical-specific	mg/cm ² -event	Calculated
EXPOSURE FREQUENCY	EF	100	days/year	Assumption
EXPOSURE DURATION	ED	2	years	USEPA, 1992a
AGE-WEIGHTED SURFACE AREA [3]	SA _{aw/adj}	766	cm ² -yr/kg	Calculated per USEPA, 1992b
DIFFUSION DEPTH PER EVENT [4]	PC _{event}	chemical-specific	cm/event	Calculated per USEPA, 1992b
AVERAGING TIME				
CANCER	AT	70	years	USEPA, 1991
NONCANCER	AT	2	years	USEPA, 1992a
CONVERSION FACTOR	CF1	0.001	mg/ug	
CONVERSION FACTOR	CF2	0.001	liter/cm ³	

$\text{CANCER RISK} = \text{INTAKE (mg/kg-day)} \times \text{CANCER SLOPE FACTOR (mg/kg-day)}^{-1}$
$\text{HAZARD QUOTIENT} = \text{INTAKE (mg/kg-day)} / \text{REFERENCE DOSE (mg/kg-day)}$
$\text{INTAKE-INGESTION} = \frac{\text{CW} \times \text{IR} \times \text{EF} \times \text{ED} \times \text{CF1}}{\text{BW} \times \text{AT} \times 365 \text{ days/yr}}$
$\text{INTAKE-DERMAL} = \frac{\text{DA}_{\text{event}} \times \text{EV} \times \text{EF} \times \text{SA}_{\text{aw/adj}}}{\text{AT} \times 365 \text{ days/yr}}$
<p>Where:</p> $\text{SA}_{\text{aw/adj}} = \text{Sum (SA} \times \text{ED} / \text{BW)}$ $\text{DA}_{\text{event}} = \text{PC}_{\text{event}} \times \text{CW} \times \text{CF1} \times \text{CF2}$
<p>Note: For noncarcinogenic effects, AT = ED.</p>

[1] Ingestion Rate = 0.13 l/day = 30 ml/hour x 2.6 hours/day x 0.001 l/ml

[2] Surface area assumes lower legs, hands, and feet are exposed.

[3] PC_{event} is calculated in the Dermal Guidance See Table C-35.

USEPA, 1989. Exposure Factors Handbook; EPA/600/8-89/040; May 1989.

USEPA, 1991. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Parameters".

USEPA, 1992a. Region 6 Memorandum: Central Tendency and RME Exposure Parameters.

USEPA, 1992b. Dermal Exposure Assessment: Principles and Applications; EPA/600/9-91/011B.

TABLE G-44

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER (CENTRAL TENDENCY)
 CHILD RESIDENT - WADING
 SITE 16
 MILTON, FLORIDA

CARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL CSF	CANCER RISK INGESTION	PCEVENT [1]	INTAKE DERMAL (mg/kg-day)	DERMAL CSF [2]	CANCER RISK DERMAL	TOTAL CANCER RISK
Beryllium	0.21	ug/L	1.4E-08	4.3E+00	6.1E-08	0.0026	1.6E-09	4.3E+02	7.0E-07	7.7E-07
SUMMARY CANCER RISK					6E-08				7E-07	8E-07
[1] This chemical-specific value has been calculated in Table C-35.										
ND = no data available.										

TABLE G44

INGESTION OF AND DIRECT CONTACT WITH SURFACE WATER (CENTRAL TENDENCY)
 CHILD RESIDENT - WADING
 SITE 16
 MILTON, FLORIDA

NONCARCINOGENIC EFFECTS

COMPOUND	WATER CONCENTRATION	UNITS	INTAKE INGESTION (mg/kg-day)	ORAL RfD (mg/kg-day)	HAZARD QUOTIENT INGESTION	PCEVENT [1] (cm/event)	INTAKE DERMAL (mg/kg-day)	DERMAL RfD [2] (mg/kg-day)	HAZARD QUOTIENT DERMAL	TOTAL HAZARD QUOTIENT
Beryllium	0.21	ug/L	5.0E-07	5.0E-03	1.0E-04	0.0026	5.7E-08	5.0E-05	1.1E-03	1.2E-03
SUMMARY HAZARD INDEX					1E-04				1E-03	1E-03
[1] This chemical-specific value has been calculated in Table C-35. [2] Calculated from oral RfDs. ND = no data available.										

HUMAN HEALTH TOXICITY PROFILES

1,4-Dichlorobenzene. 1,4-Dichlorobenzene has been used as mothballs, an insecticidal fumigant, a germicide, and a space deodorant. Human exposure to 1,4-dichlorobenzene has produced irritation to skin, throat, and eyes; prolonged exposure to high concentrations may cause weakness, dizziness, loss of weight, or liver injury. In several studies involving female rats and mice, no overt signs of toxicity were apparent at any exposure level. Non-tumor and tumor pathology did not indicate any treatment related effect of either species. An embryotoxicity and teratology study on rats did not demonstrate any signs of embryo- or phytotoxicity or teratogenicity at any exposure level (Loeser, 1983). In a series of mutagenicity tests, 1,4-dichlorobenzene did not produce a mutagenic response. (Loeser, 1983). Other exposure studies in rats have produced developmental abnormalities, phytotoxicity, and kidney tumors. Additional exposure studies in animals have produced histological changes in the lung, cirrhosis and necrosis of the liver, swelling of the tubular epithelium of the kidneys. 1,4-dichlorobenzene has been classified by the USEPA as a group C carcinogen, possibly carcinogenic to humans.

References:

Health Effects Summary Tables (HEAST), 1993. United States Environmental Protection Agency.

Loeser E, Litchfield MH; Food Chem Toxicol 21 (6): 825-32 (1983)

1,1-Dichloroethene. 1,1-Dichloroethene is a man-made chlorinated solvent that is used to make polyvinylidene chloride copolymers, which are used as flexible films for packaging all types of materials, including food.

Data on 1,1-dichloroethene exposure in humans are limited. However, available evidence suggests that 1,1-dichloroethene causes central nervous system depression and liver toxicity in humans. Toxicity data on laboratory animals confirm this evidence, and also indicate that 1,1-dichloroethene may produce adverse effects on the kidney, heart, and lung. Pharmacokinetic data from laboratory animals suggest that 1,1-dichloroethene is metabolized to toxic metabolites, and that these metabolites are responsible for the adverse effects. Therefore, organs with high biotransformation enzyme activity, such as the liver, kidney, and lungs, are likely to be adversely impacted. Limited evidence in animals suggests that 1,1-dichloroethene may be carcinogenic. Therefore, the USEPA has placed 1,1-dichloroethene in weight-of-evidence group C, possible human carcinogen.

References:

MADEP, 1992. "Risk Assessment Shortform Residential Exposure Scenario, Version 1.6"; Policy #WSC/ORS-142-92; Office of Research and Standards and the Bureau of Waste Site Cleanup, Boston, MA; September 1992.

Agency for Toxic Substances and Disease Registry (ATSDR), 1992. "Toxicological Profile for 1,1-Dichloroethene"; Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, October 1992.

1,2-Dichloroethene. 1,2-Dichloroethene is a volatile organic compound which exists as cis- and trans-isomers. The commercially used material is usually a mixture of the two isomers. In the past, it was used as a general inhalation anesthetic. It is used most often as a solvent for dyes, perfume oils, waxes, resins, and plastics. It is also used as an intermediate in the synthesis of polymers.

1,2-Dichloroethene is absorbed by all routes of administration. Distribution is rapid and, due to its lipophilic nature, occurs to all organ systems. It is extensively metabolized to dichloroacetaldehyde and chloroacetic acids which are excreted primarily through urine.

Dermal contact to 1,2-dichloroethene may result in defatting of the skin and dermatitis. Exposure to airborne 1,2-dichloroethene causes irritation to eyes, mucous membranes and the upper respiratory tract. Systemically, the trans-isomer is believed to be more toxic than the cis-isomer. However, both have been reported to produce central nervous system depression and toxicity to liver and lungs. No data on the reproductive toxicity of 1,2-dichloroethene exists. Both isomers have tested negative for mutagenicity in vitro tests. Cancer effects have not been studied in humans or animals.

References:

Agency for Toxic Substances and Disease Registry (ATSDR), 1990. "Toxicological Profile for 1,2-Dichloroethene"; Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, February 1990.

Mycroft, F.J., Jones, J.R., and Olson, K.R. 1990. Environmental and Occupational Toxicology. In: Poisoning and Drug Overdose. Ed. K.R. Olson. Appleton & Lange, CT. p. 397.

Aluminum. Aluminum occurs naturally in the soil and makes up approximately 8 percent of the earth's crust. Higher soil concentrations are associated with industries which burn coal and aluminum mining and smelting. Human exposures to aluminum may occur through ingestion of foods grown in soil that contains aluminum and use of antacids, antiperspirants, and other drug store items. Aluminum in antiperspirants can cause skin rashes in some people. Factory workers who inhale large amounts of aluminum dust may develop lung problems. Aluminum has caused lower birth weights in some animals. Studies have shown that aluminum accumulates in the brains of people with Alzheimer's disease. However, any causal link between aluminum exposure and this disease is yet to be demonstrated. Both human epidemiological studies and animal experiments strongly suggest that aluminum is not a carcinogen.

References:

Agency for Toxic Substances and Disease Registry (ATSDR), 1989. "Toxicological Profile for Aluminum"; Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, October 1989.

Antimony. Antimony enters the environment during the mining and processing of its ores and other related metals. Small amounts of antimony are also released into the environment by incinerators and coal-burning power plants. Antimony will strongly adhere to soil which contains iron, manganese, or aluminum. Antimony was used for medicinal purposes to treat people infected with parasites. However, chronic exposure can cause eye, skin, and lung irritation, as well as heart problems, vomiting and diarrhea. The oral RfD was based on changes in glucose and cholesterol levels in an oral drinking water study in rats. Antimony has not been evaluated by the USEPA for evidence of human carcinogenic potential.

References:

Agency for Toxic Substances and Disease Registry (ATSDR), 1991. "Toxicological Profile for Antimony"; Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, February 1991.

Integrated Risk Information System (IRIS), 1993. United States Environmental Protection Agency.

Arsenic. Arsenic has once been used in pesticide formulations and has industrial uses in tanneries, as well as the glass and wine making industries. Toxicity depends on its chemical form. Arsenic is an irritant of the skin, mucous membranes, and gastrointestinal tract. Symptoms of acute toxicity include vomiting, diarrhea, convulsions, and a severe drop in blood pressure. Subchronic effects include hyperpigmentation, sensory-motor polyneuropathy, persistent headache, and lethargy. Chronic oral exposure has caused skin lesions, peripheral vascular disease, and peripheral neuropathy. The USEPA has classified arsenic as Group A, human carcinogen, based on increased incidence of skin and lung cancer in epidemiology studies.

References:

Agency for Toxic Substances and Disease Registry (ATSDR), 1992. "Toxicological Profile for Arsenic"; Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, February 1992.

Benzene. Benzene is an organic solvent that is found in the environment from both natural processes from petroleum sources. Benzene is used in the synthesis of many industrial chemicals and pharmaceuticals, for the extraction of fats and oils, in the manufacture of explosives, and is a major component of petroleum based fuels such as gasoline.

Benzene is readily absorbed orally, moderately absorbed by inhalation, and poorly absorbed dermally. Its toxic actions are primarily a result of its metabolites, which are largely produced in the liver, and to some extent, in the bone marrow. Acute exposure to benzene has produced central nervous system depression in humans and animals.

Chronic exposures have produced adverse liver effects and hematological toxicity, including aplastic anemia and leukemia. Available evidence does not suggest that benzene is teratogenic in humans or animals. There is sufficient evidence of benzene-induced carcinogenicity in humans via inhalation exposure, placing it in USEPA weight-of-evidence group A, human carcinogen.

References:

MADEP, 1992. "Risk Assessment Shortform Residential Exposure Scenario, Version 1.6"; Policy #WSC/ORS-

Bis(2-ethylhexyl)phthalate (DEHP). DEHP is used industrially as a plasticizer for resins and is found in many plastic materials as it makes them more flexible. It is also used in manufacturing organic pump fluids in electrical capacitors. Acute exposure to DEHP has produced eye and mucous membrane irritation, nausea, and diarrhea. Chronic exposure of laboratory animals to DEHP indicate that the target organs are the liver, causing morphological and biochemical changes, as well as the testes, producing damage to the seminiferous tubules. DEHP has produced developmental and reproductive effects in laboratory animals including spina bifida and reduced fertility. DEHP has been shown to cause a dose-related increase in liver tumors in mice and rats. Thus, the USEPA has designated DEHP as a B2, probable human carcinogen.

References:

ATSDR, 1991. Toxicological Profile for Di(2-ethylhexyl)phthalate. Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, October, 1991.

Chlorobenzene. Chlorobenzene is used industrially as a solvent and in the manufacture of other chemicals. It is an intermediate in the manufacture of dyestuffs and pesticides. Acute exposures have caused irritation of the eyes, nose, and skin, as well as CNS depression accompanied by drowsiness, numbness, nausea, and vomiting. Evidence from animal studies indicate that exposure via ingestion or inhalation can produce severe kidney and liver effects. The USEPA has classified chlorobenzene in Group D, inadequate evidence of carcinogenicity.

References:

Clayton, George D. and Florence E. Clayton, editors, 1981. Patty's Industrial Hygiene and Toxicology, 3rd Revised Edition; John Wiley & Sons; New York.

Integrated Risk Information System (IRIS), 1993. United States Environmental Protection Agency.

DDT. DDT was one of the most highly used insecticides, and is now ubiquitous in the environment. It was used extensively in World War II to control lice (applied directly to human skin), and later used as an agricultural insecticide and as a public health tool to control insects which spread typhus and malaria. DDD and DDE were contained as impurities in DDT, and are also primary metabolites of DDT, and share similar toxicological properties. DDT, DDD, and DDE are highly persistent in the environment, and thus tend to bioconcentrate in the food chain. This, combined with its toxicological properties, has been attributed to the decline in population of several predatory bird species.

DDT is absorbed to a minor extent via inhalation and dermal routes, and to a large extent by the oral route. Exposure to humans is likely greatest through ingestion of mucous that was contaminated with DDT that had been inhaled. DDT is absorbed into the lymphatic system and distributed to fats throughout the body. In both humans and animals, DDT acts as a CNS stimulant by interfering with the movement of ions within neurons. DDT acts as an estrogenic compound in animals, and this has been attributed to numerous adverse reproductive effects observed in animals exposed to DDT. DDT also causes liver hypertrophy, hepatocyte degeneration, and induces the enzyme cytochrome P450, which can effect the metabolism of other xenobiotics. There is no conclusive evidence of DDT-induced carcinogenicity in humans. However, DDT has produced liver tumors in laboratory animals. DDD, DDE, and DDT have, therefore, been placed in USEPA's weight of evidence group B2, probable human carcinogen.

References:

Agency for Toxic Substances and Disease Registry (ATSDR), 1992. "Toxicological Profile for DDD, DDE, and DDT"; Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, October 1992.

Iron. Iron is a metal which is required for a variety of physiological functions such as heme biosynthesis, oxidative phosphorylation and mixed-function oxidase-mediated metabolic reactions. Only divalent forms of iron are absorbed. As absorption occurs, divalent iron is biochemically converted to trivalent iron, the biologically active form. Under normal conditions, absorbed dietary iron is complexed to hemoglobin and transported to the liver for storage until needed for physiological reactions. The balance of iron is regulated only by the amount of dietary intake and the degree of intestinal absorption. Intestinal absorption tends to be low (2 - 15%) except during periods of increased iron need when absorption efficiency increases dramatically.

Acute iron toxicity has been well characterized following the accidental ingestion of iron-containing preparations

by children. Shortly after ingestion, the corrosive effects of iron cause vomiting and diarrhea, often bloody. Later signs include shock, metabolic acidosis, seizures, liver and/or kidney failure, coma, and death. Chronic iron overload manifests as disturbances in liver function, diabetes mellitus, and endocrine and cardiovascular effects. Inhalation of iron containing dust or fumes in occupational settings may result in deposition of iron particles in the lungs leading to interstitial fibrosis. Autopsies of hematite miners noted an increase in lung cancer. However, the etiology of the lung cancer may be related to factors other than iron exposure such as cigarette, silica or PAH exposures.

References:

Aisen, P., Cohen, G. and Kang, J.O., 1990. Iron Toxicosis. *Int. Rev. Exp. Pathol.* 31:1-46.

Goyer, R.A., 1991. Toxic Effects of Metals. In: Casarett and Doull's Toxicology: The Basic Science of Poisons, 3rd edition. Eds. C.D. Klaassen, M.O. Amdur and J. Doull. Macmillan Publishing Co. N.Y.

Manganese. Manganese is a naturally-occurring substance found in many types of rock. It does not generally occur in the environment as the pure metal, rather, it is found combined with other chemicals such as sulfur, oxygen, and chlorine. Manganese is mixed with iron to make various types of steel. Manganese is a component of some ceramics, pesticides, fertilizers, and in nutritional supplements. In small doses manganese is beneficial to human health. Manganese miners and steel workers exposed to elevated concentrations of manganese have evidenced mental and emotional disturbances, and slow and clumsy body movements. Target organs of manganese are the lung and CNS. When inhaled, manganese dust can also cause lung irritation. EPA has classified manganese as a Class D, not classifiable as to human carcinogenicity.

References:

Agency for Toxic Substances and Disease Registry (ATSDR), 1991. "Toxicological Profile for Manganese"; Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, February 1991.

Thallium. Thallium is a naturally-occurring soft metal that is a minor constituent in a variety of ores and is obtained as a by-product of the refining of iron, cadmium, and zinc. It is used as a catalyst, in certain alloys, jewelry, thermometers, semiconductors, dyes and pigments, and optical lenses. It has been used medically as a depilatory agent. Additionally, it is used as a rodenticide and insecticide. Thallium is efficiently absorbed from the gastrointestinal tract. Excretion occurs primarily through urine and feces. Following absorption, distribution occurs to kidney tissue to a large extent, with lesser distribution to thyroid, intestines, testes, pancreas, skin, bone, and spleen.

Thallium is one of the more toxic metals. Acute toxicity results in gastrointestinal irritation, shock, ascending paralysis, seizures, and psychic disturbances. Signs of subacute or chronic thallium poisoning include hair loss, nail dystrophy, cataracts, peripheral muscular weakness and atrophy, chorea, peripheral neuropathy, and kidney damage. Loss of vision have been related to industrial thallium exposures. No information is available which addresses the carcinogenic potential of thallium.

References:

Goyer, R.A., 1991. Toxic Effects of Metals. In: Casarett and Doull's Toxicology: The Basic Science of Poisons, 3rd edition. Eds. C.D. Klaassen, M.O. Amdur and J. Doull. Macmillan Publishing Co. N.Y.

Twieg, M., 1990. Thallium. In: Poisoning and Drug Overdose. Ed. K.R. Olson. Appleton & Lange, CT. pps. 276-7.

Trichloroethene. Trichloroethene is a man-made chlorinated solvent that is used extensively in industry as a metal degreasing agent. Trichloroethene is also used in dry cleaning and as a solvent in paints and adhesives.

Several human deaths and acute neurotoxic effects have been attributed to oral and inhalation exposure to trichloroethene. In animals, oral and inhalation exposure to trichloroethene have produce neurotoxic effects, including behavioral changes, and renal toxicity. Additionally, inhalation and oral exposures to trichloroethene in animals have produced lung, liver, and testicular cancers. Epidemiological data in humans is insufficient to conclude whether trichloroethene is a human carcinogen. However, studies on trichloroethene metabolism suggest that it is metabolized similarly in humans and laboratory animals. Therefore, the USEPA has placed trichloroethene in weight-of-evidence group B2, probable human carcinogen.

References:

MADEP, 1992. "Risk Assessment Shortform Residential Exposure Scenario, Version 1.6"; Policy #WSC/ORS-142-92; Office of Research and Standards and the Bureau of Waste Site Cleanup, Boston, MA; September 1992.

APPENDIX H
ECOLOGICAL RISK DATA

Table H - 1
Summary of Bioaccumulation Data

Remedial investigation Report
Site 16
Naval Air Station Whiting Field
Milton, Florida

Analyte	Bioaccumulation Factor [a]					
	Log K _{ow} [b]	Invertebrate [c]	Plant [d]	Mammal [e]	Bird [f]	
SEMIVOLATILES						
Benzo(a)anthracene	5.7	5.8	5.0E-02	3.4E-03	9.5E-01	NA
Benzo(a)pyrene	6.0	5.8	5.0E-02	3.4E-03	9.5E-01	NA
Benzo(b)fluoranthene	6.1	5.8	5.0E-02	3.4E-03	9.5E-01	NA
Benzo(k)fluoranthene	6.1	5.8	5.0E-02	3.4E-03	9.5E-01	NA
Benzo (g,h,i) perylene	6.51	5.8	5.0E-02	3.4E-03	9.5E-01	NA
Carbazole	3.76 [g]		5.0E-02	5.2E-02	1.5E-01	NA
Chrysene	5.7	5.8	5.0E-02	3.4E-03	9.5E-01	NA
Dibenzo(a,h)anthracene	6.5	5.8	5.0E-02	3.4E-03	9.5E-01	NA
bis(2-Ethylhexyl)phthalate	5.1		5.0E-02	8.7E-03	1.9E-01	NA
Fluoranthene	4.95	5.8	5.0E-02	3.4E-03	9.5E-01	NA
Indeno(1,2,3-cd)pyrene	6.6	5.8	5.0E-02	3.4E-03	9.5E-01	NA
Phenanthrene	4.5	5.8	5.0E-02	3.4E-03	9.5E-01	NA
Pyrene	5.3	5.8	5.0E-02	3.4E-03	9.5E-01	NA
PESTICIDES/PCBs						
4,4'-DDD	6		3.3E+00 [ab]	1.0E-02 [ac]	1.2E+00 [ad]	2.9E+00 [(ae)]
4,4'-DDE	5.7		1.7E+00 [ab]	1.0E-02 [ac]	1.2E+00 [ad]	2.9E+00 [(ae)]
4,4'-DDT	6.4		5.7E-01 [ab]	1.0E-02 [ac]	1.2E+00 [ad]	2.9E+00 [(ae)]
Aroclor-1254	7.1 [h]		5.8E+00 [i]	1.2E-01 [i]	3.8E+00 [j]	3.2E-01 [k]
Dieldrin	4.6		5.5E+00 [o]	1.7E-02	1.5E+00 [p]	4.4E-01 [q]
INORGANICS						
Aluminum	NA		7.5E-02 [r]	8.0E-04 [s]	7.5E-02 [t]	NA
Arsenic	NA		6.6E-03 [ag]	3.0E-01 [ah]	1.0E-01 [t]	6.0E-03
Barium	NA		7.5E-03 [r]	3.0E-02 [s]	7.5E-03 [t]	NA
Cadium	NA		1.1E+01 [u]	3.3E+01 [v]	2.1E+00 [t]	3.8E-01 [w]
Chromium	NA		1.6E-01 [ai]	1.5E-03 [s]	2.8E-01 [t]	2.8E-01

Table H - 1
Summary of Bioaccumulation Data

Remedial investigation Report
Site 16
Naval Air Station Whiting Field
Milton, Florida

Analyte	Bioaccumulation Factor [a]				
	Log K _{ow} [b]	Invertebrate [c]	Plant [d]	Mammal [e]	Bird [f]
Copper	NA	1.6E-01 [l]	7.8E-01 [x]	6.0E-01 [v]	NA
Lead	NA	7.8E-02 [y]	0.0E+00 [v]	1.5E-02 [t]	NA
Manganese	NA	2.0E-02 [r]	5.0E-02 [s]	2.0E-02 [t]	NA
Mercury	NA	6.80E-02 [z]	1.8E-01 [s]	1.0E-02 [aa]	2.3 [aa]
Silver	NA	1.5E-01 [r]	8.0E-02 [s]	1.5E-01 [t]	NA
Vanadium	NA	1.2E-01 [r]	1.1E-03 [s]	1.2E-01 [t]	NA
Zinc	NA	1.8E+00 [l]	6.1E-01 [x]	2.1E+00 [t]	NA

NOTES:

- [a] Units for bioaccumulation factors (BAFs) are mg/kg (fresh) tissue weight over mg/kg (dry) soil weight for invertebrates and plants. The BAF units for small mammals and small birds are mg/kg (fresh) tissue weight over mg/kg (fresh) food weight.
- [b] Log K_{ow} values are from the Superfund Chemical Data Matrix (USEPA, 1993), unless otherwise noted. Average Log K_{ow} for classes of semivolatiles are presented in the second log K_{ow} column. When available, chemical class log K_{ow} averages are used instead of chemical specific log K_{ow} to calculate BAF values.
- [c] The value is an average BAF for semivolatiles measured in earthworms (Beyer, 1990), unless otherwise noted. Dry weight values were converted to wet weight assuming earthworm are 80% water ($BAF_{\text{wet weight}} = BAF_{\text{dry weight}} / 0.2$).
- [d] Plant BAF were calculated using the following equation presented by Travis and Arms (1988) unless otherwise noted:
 $\log(\text{Plant Bioaccumulation Factor}) = 1.588 - 0.578(\log K_{ow})$. The calculated plant BAF value was converted from dry weight to wet weight by dividing the BAF by a factor of 0.2 (assuming 80% water content of plants) ($BAF_{\text{wet weight}} = BAF_{\text{dry weight}} / 0.2$).
- [e] Mammalian BAFs were calculated using the following equation from Travis and Arms (1988), unless otherwise noted:
 $\log \text{BTF (biotransfer factor)} = \log K_{ow} - 7.6$.
- To convert from BTF to BAF, the calculated log BTF is first transformed to base 10 then multiplied by the average ingestion rates for nonlactating and lactating test animals (12 kg/day). BAFs are converted from dry to wet feed weight by divided the BAF by a factor of 0.2 ($BAF_{\text{wet weight}} = \text{BTF} * 12 \text{ mg/day} / 0.2$). There is an uncertainty involved in using this equation for PAHs because the study by Travis and Arms (1988) did not use PAHs in the regression analysis.
- For semivolatile analytes with Log K_{ow} less than 5 ($\log K_{ow} < 5$) the BAF was assigned a minimal value of 0.15.
- When no literature values for pesticides and PCBs were available, the BAF was calculated regardless of the Log K_{ow}, due to the

Table H - 1
Summary of Bioaccumulation Data

Remedial investigation Report
Site 16
Naval Air Station Whiting Field
Milton, Florida

Analyte	Bioaccumulation Factor [a]				
	Log K _{ow} [b]	Invertebrate [c]	Plant [d]	Mammal [e]	Bird [f]
	tendency of these lipophylic compounds to bioaccumulate.				
	[f] Bioaccumulation data are generally lacking for avians. Therefore, there is uncertainty associated with estimating body-dose for birds without considering what chemicals may bioaccumulated in prey-item tissue.				
	[g] Hansch and Leo (1976).				
	[h] USEPA (1990) Basics of Pump-and-Treat Ground-Water Remediation Technology				
	[i] Aroclor 1260 is used as a surrogate.				
	[j] BAF calculated from discussion in Eisler (1986) stating that Aroclor 1254 residues in subcutaneous fat of adult minks were up to 38 times dietary levels. Converted to whole body concentrations assuming 10% lipid content.				
	[k] BAF calculated from discussion in Eisler, 1986. Kestrels fed 33 mg PCB/kg diet for 62-69 days accumulated 107 mg PCB/kg lipid weight in muscle. Assuming muscle is 10% lipid content, the muscle concentration is estimated at 10.7 mg/kg.				
	[l] BAF for earthworms from Diercxsens et al. (1985).				
	[m] Arithmetic mean BAF for corn, leaves, carrots, beets, sugarbeets, radishes, and soybeans (tops, roots, and whole plants) from USEPA (1985c) and Webber et al. (1983).				
	[n] Aroclor 1254 is used as a surrogate.				
	[o] Geometric mean of reported BAFs for earthworms (Gish, 1970) converted from dry weight to wet weight assuming 80% water composition of earthworms.				
	[p] BAF calculated from data presented by Potter et al (1974). Based on an average dieldrin concentration in cow muscle and fat of 0.17 mg/kg (dry weight) and a dieldrin concentration of 0.11 mg/kg in the diet (dry weight).				
	[q] Jeffries and Davis (1968).				
	[r] Prey-specific value is not available. The value shown is the small mammal BAF for this chemical.				
	[s] Value from Baes et al. (1984) for leafy portions of plants multiplied by 0.2 to represent 80% water composition of plants.				
	[t] Value derived from BTFs, presented in Baes et al. (1984) for uptake into cattle. BTF converted to BAF by multiplying by food ingestion rate of 50 kg/day wet weight.				
	[u] Mean of values reported for Sorex araneus in MacFadyen (1980).				
	[v] Mammal value for copper and plant value for cadmium from Levine et al. (1989). Lead does not accumulate in plant tissue; therefore, a BAF of zero was assigned.				
	[w] Based on accumulation of cadmium in kidneys of European quail in Pimentel et al. (1984).				
	[x] Median of values reported from Levine et al. (1989).				
	[y] Geometric mean of BAF values (fresh weight/dry weights) for worms and woodlice (USEPA, 1985a). Fresh weight tissue concentrations calculated assuming 80% body water content.				
	[z] Uptake value (fresh wt./dry wt.) for earthworms from USEPA (1985b) sludge document. Fresh weight tissue concentration calculated				

Table H - 1
Summary of Bioaccumulation Data

Remedial investigation Report
Site 16
Naval Air Station Whiting Field
Milton, Florida

Analyte	Bioaccumulation Factor [a]				
	Log K _{ow} [b]	Invertebrate [c]	Plant [d]	Mammal [e]	Bird [f]
assuming 80% body water content.					
[aa] USEPA, 1985b.					
[ab] Geometric means of 4,4'-DDT (Davis (1968), Davis & Harrison (1966), Wheatley & Hardman (1968), Bailey (1970), Cramp & Olney (1967), Beyer & Gish (1980), 4,4'DDE (Davis (1968), Davis & Harrison (1966), Wheatley & Hardman (1968), Bailey (1970), Cramp & Olney (1967), Cramp & Olney (1967), etc.) reported for earthworms. Dry soil conc. Calculated assuming 10% moisture content in sandy-loam soils.					
[ac] Geometric mean of 4,4'-DDT & 4,4'-DDE BAFs (fresh wt/dry wt) reported for roots (carrot, potato), grains, and legumes derived from USEPA (1985b) converted from dry wt. To wet wt. Per values provided by Suter (1993).					
[ad] BAF for shrews & voles calculated using measured conc. Of DDT in stomach content and in whole body (Forsyth & Petrie, 1984).					
[ae] Whole-body pheasant BAF for 4,4'-DDT presented in USEPA (1985b); derived from Kenaga (1973).					
[af] Amphipod to sediment mean biomagnification factor for total DDT in Lake Michigan and Lake Ontario (1991).					
[ag] Average of values of industrial soils from Beyer & Cromatic (1987) multiplied by 0.2 to represent 90% water composition in earthworms.					
[ah] Average of BAF values reported from Wang et. Al (1984), Sheppard et. al. (1985), and Merry et al. (1986).					
[ai] From Barnhouse (1988).					
Notes:					
Log Kow = Logarithm transformation of the octanol/water partitioning coefficient					
NA = not available.					
PCBs = polychlorinated biphenyls.					
BAF = bioaccumulation factor					
mg/kg = milligrams per kilogram.					
BTF = biotransfer factor.					
> = greater than.					
< = less than.					
% = percent.					

References:

Table H - 1
Summary of Bioaccumulation Data

Remedial investigation Report
Site 16
Naval Air Station Whiting Field
Milton, Florida

Analyte	Bioaccumulation Factor [a]				
	Log K _{ow} [b]	Invertebrate [c]	Plant [d]	Mammal [e]	Bird [f]
<p>Baes, C.F. III, R.D. Sharp, A.L. Sjoreen, and R.W. Shor. 1984. "A Review and Analysis of Parameters for Assessing Transport of Environmentally Released Radionuclides through Agriculture." ORNL-5786. U.S. Department of Energy, Environmental Sciences Division Oak Ridge, Tennessee: Oak Ridge National Laboratory (September).</p> <p>Beyer, W.N. 1990. "Evaluating Soil Contamination." Biological Report No. 90(2). U.S. Department of the Interior, Fish and Wildlife Service. Washington, D.C.</p> <p>Diercxsens, P., D. deWeck, N. Borsinger, B. Rosset, and J. Tarradellas. 1985. "Earthworm Contamination by PCBs and Heavy Metals." Chemosphere 14:511-522.</p> <p>Eisler, R. 1986. "Polychlorinated Biphenyl Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review." Biological Report No. 85(91.7). U.S. Department of the Interior, Fish and Wildlife Service. Washington, D.C.</p> <p>Gish, C.D. 1970. "Organochlorine Insecticide Residues in Soils and Soil Invertebrates from Agricultural Lands." Pesticides Monit. Journal 3(71):[n.pp.].</p> <p>Hansch, C.H., and A. Leo. 1979. Substituent Constants for Correlation Analysis in Chemistry and Biology. New York: John Wiley & Sons, Inc.</p> <p>Jeffries, D.J., and B.N.K. Davis. 1968. "Dynamics of Dieldrin in Soil, Earthworms, and Song Thrushes." Journal of Wildlife Management 32:441-456.</p> <p>Levine, M.B., A.T. Hall, G.W. Barrett, and D.H. Taylor. 1989. "Heavy Metal Concentrations During Ten Years of Sludge Treatment to an Old-Field Community." Journal of Environ. Qual. 18:411-418.</p> <p>Maughan, J.T. 1993. Ecological Assessment of Hazardous Waste Sites. New York: Van Nostrand Reinhold.</p> <p>Pimentel, D.D., M.N. Culliney, G.S. Stoewsand, J.L. Anderson, C.A. Bache, W.H. Gutenmann, and D.J. Lisk. 1984. Cadmium in Japanese Quail Fed Earthworms Inhabiting a Golf Course. Nutr. Rep. Int. 30:475-481.</p> <p>Suter, G. W. 1993. "Ecological Risk Assessment," Chelsea Michigan: Lewis Publishers.</p> <p>Travis, C.C., and A.D. Arms. 1988. "Bioconcentration of Organics in Beef, Milk, and Vegetation." Environ. Sci. Tech. 22:271-274.</p> <p>U.S. Environmental Protection Agency (USEPA). 1985a. "Environmental Profiles and Hazard Indices for Constituents of Municipal Sludge: Lead." Office of Water Regulations and Standards. Washington, D.C.</p> <p>U.S. Environmental Protection Agency (USEPA). 1985b. "Environmental Profiles and Hazard Indices for Constituents of Municipal Sludge: Mercury." Office of Water Regulations and Standards. Washington, D.C.</p> <p>U.S. Environmental Protection Agency (USEPA). 1985c. "Environmental Profiles and Hazard Indices for Constituents of Municipal Sludge: Polychlorinated Biphenyls." Office of Water Regulations and Standards. Washington, D.C.</p> <p>U.S. Environmental Protection Agency (USEPA). 1990. "Basics of Pump-and-Treat Ground Water Remediation</p>					

Table H - 1
Summary of Bioaccumulation Data

Remedial investigation Report
 Site 16
 Naval Air Station Whiting Field
 Milton, Florida

Analyte	Bioaccumulation Factor [a]				
	Log K _{ow} [b]	Invertebrate [c]	Plant [d]	Mammal [e]	Bird [f]
<p>Technology." EPA-600/8-90/003. Office of Research and Development, Washington, D.C.</p> <p>U.S. Environmental Protection Agency (USEPA). 1993. Superfund Chemical Data Matrix (SCDM). Washington, D.C.</p> <p>Wang, D.S., R.W. Weaver, and J.R. Melton. 1984. "Microbial Decomposition of Plant Tissue Contaminated with Arsenic and Mercury." Environ. Pollut. 43a:275-282.</p> <p>Webber, M.D., H.D. Monteith, and D.G.M. Corneau. 1983. "Assessment of Heavy Metals and PCBs at Sludge Application Sites." J. WPCF. 55(2):187-195.</p>					

**Table H - 2
Ingestion Toxicity Information for Wildlife**

Remedial Investigation Report
Site 16
NAS Whiting Field
Milton, Florida

Analyte	Test Species	Test Type	Duration	Effect	Lethal RTV mg/kg-BW-day			Sublethal RTV mg/kg-BW-day			References	
					Oral LD ₅₀	LOAEL	RTV ¹	LOAEL	NOAEL	RTV ²		
Semivolatile Organic Compounds												
Benzo(a)anthracene	Rodents	Oral (chronic)	HR	Carcinogenicity					2		Eisler, R., 1987b	
Benzo(a)pyrene	Rat	Oral (chronic)	Pregnancy	Sterility in offspring					40		USEPA, 1984b	
	Rat	Oral (chronic)	3.5 months	Reproductive					50		USEPA, 1984b	
	Mouse	Oral	Multigenerational	Decreased fertility of F1 progeny; decreased F2 litter size.				10		10	MacKenzie, et al. 1981	
	Mouse	Oral (subchronic)	6 months	Mortality		120	12				USEPA, 1984c	
Benzo(b)fluoranthene	Rodents	Oral (chronic)	NR	Carcinogenicity					40		Eisler, R., 1987b	
Benzo(k)fluoranthene												
Benzo(g,h,i)perylene	Rodents	Oral (chronic)	NR	Carcinogenicity					99		Eisler, R., 1987b	
Carbazole	Rat	Oral LD ₅₀		Mortality	500		100				USEPA, 1986	
Chrysene	Rodents	Oral (chronic)	NR	Carcinogenicity					99		Eisler, R., 1987b	
Dibenz(a,h)anthracene	Rat	Oral (chronic)	3.5 months	Reproductive					50		USEPA, 1984c	
bis(2-Ethylhexyl)phthalate	Rat	Oral LD ₅₀	NR	Mortality	30,600						RTECS, 1993	
	Rat	Oral	NR	Reproductive effects					7,140		RTECS, 1993	
	Rat	Oral	NR	Reproductive effects					35	3.5	RTECS, 1993	
	Rat	Oral	NR	Reproductive effects					6,000		RTECS, 1993	
	Rat	Oral	NR	Reproductive effects					17,200		RTECS, 1993	
	Rat	Oral	NR	Reproductive effects					10,000		RTECS, 1993	
	Rat	Oral	NR	Reproductive effects					9,766		RTECS, 1993	
	Mouse	Oral LD ₅₀	NR	Mortality	30,000						RTECS, 1993	
	Mouse	Oral	NR	Reproductive effects					78,880		RTECS, 1993	
	Mouse	Oral	NR	Reproductive effects					4,200		RTECS, 1993	
	Mouse	Oral	NR	Reproductive effects					50		RTECS, 1993	
	Mouse	Oral	NR	Reproductive effects					1,000		RTECS, 1993	
	Mouse	Oral	NR	Reproductive effects					2,040		RTECS, 1993	
	Rabbit	Oral LD ₅₀	NR	Mortality	34,000						RTECS, 1993	
	Guinea pig	Oral LD ₅₀	NR	Mortality	26,000						RTECS, 1993	
	Guinea pig	Oral	NR	Reproductive effects					20,000		RTECS, 1993	
	Mammal	Oral	NR	Reproductive effects					20,000		RTECS, 1993	
	Mammal	Oral	NR	Reproductive effects					509,000		RTECS, 1993	
	Mouse	Oral LD ₅₀		Mortality		800		160				RTECS, 1993
	Mouse	Oral (subchronic)	13 weeks	Renal effects					125			RTECS, 1993
Fluoranthene	Rat	Oral LD ₅₀	NR	Mortality	2,000		400				RTECS, 1994	
	Mouse	Oral (subchronic)	90 days	Nephropathy; clinical and pathological effects				250	125		IRIS, 1993	
Indeno(1,2,3-cd)pyrene	Rodents	Oral (chronic)	NR	Carcinogenicity					72		Eisler, R., 1987b	

**Table H - 2
Ingestion Toxicity Information for Wildlife**

Remedial investigation Report
Site 16
NAS Whiting Field
Milton, Florida

Analyte	Test Species	Test Type	Duration	Effect	Lethal RTV mg/kg-BW-day			Sublethal RTV mg/kg-BW-day			References
					Oral LD ₅₀	LOAEL	RTV ¹	LOAEL	NOAEL	RTV ²	
Phenanthrene	Mouse	Oral LD ₅₀	NR	Mortality	700		140				RTECS, 1994
	Mouse	Oral (subchronic)	6 months	Increased liver weight				120			IRIS, 1993
Pyrene	Rat	Oral LD ₅₀	NR	Mortality	2,700						RTECS, 1993
	Mouse	Oral LD ₅₀	NR	Mortality	800		160				RTECS, 1993
	Mouse	Oral (chronic)	13 weeks	Renal effects				125	75		IRIS, 1993
Pesticides/PCBs											
4,4'-DDD	Rat	Oral LD-d50	NR	Mortality	800						RTECS, 1993
	Mouse	Oral LD-d50	NR	Mortality	700						RTECS, 1993
	Hampster	Oral LD-d50	NR	Mortality	> 5,000						RTECS, 1993
	Mallard	Oral LD-d50	NR	Eggshell thinning				2.91			USEPA, 1993c
	Mallard	Oral LD-d50	NR	Reproductive: embryo mortality, cracked egg				0.58			USEPA, 1993c
	Kestrel	Oral LD-d50	NR	Eggshell thinning				0.39			USEPA, 1993c
4,4'-DDE	Rat	Oral LD-d50	NR	Mortality	87						RTECS, 1993
4,4'-DDT	Rat	Oral LD-d50		Mortality	100						USEPA, 1985
	Rat	Oral	NR	Reproductive				112			RTECS, 1993
	Rat	Oral	NR	Reproductive				100			RTECS, 1993
	Rat	Oral	NR	Reproductive				430			RTECS, 1993
	Rat	Oral	NR	Reproductive				1890			RTECS, 1993
	Rat	Oral	NR	Reproductive				250			RTECS, 1993
	Rat	Oral	NR	Reproductive				50			RTECS, 1993
	Rat	Oral (chronic)	3 generations	Reproductive				0.2			IRIS, 1991
	Rat	Oral	2 years	Reproductive				2.5			USEPA, 1993c
	Mouse	Oral LD-d50	NR	Mortality	135						RTECS, 1993
	Mouse	Oral LD-d50		Mortality	200						USEPA, 1985d
	Mouse	Oral	NR	Reproductive				504			RTECS, 1993
	Mouse	Oral	NR	Reproductive				81			RTECS, 1993
	Mouse	Oral	NR	Reproductive				124			RTECS, 1993
	Mouse	Oral	NR	Reproductive				148			RTECS, 1993
	Rabbit	Oral LD-d50	NR	Mortality	250						RTECS, 1993
	Rabbit	Oral	NR	Reproductive				150			RTECS, 1993
	Guinea Pig	Oral LD-d50	NR	Mortality	150						RTECS, 1993
	Hamster	Oral LD-d50	NR	Mortality	> 5000						RTECS, 1993
	Dog	Oral LD-d50	NR	Mortality	150						RTECS, 1993
Dog	Oral LD-d50		Mortality	60						USEPA, 1985d	
Dog	Oral	NR	Reproductive				3540			RTECS, 1993	
Dog	Oral (chronic)	14 months	Stillbirth, delayed estrus, reduced libido				12			ATSDR, 1992b	
Monkey	Oral LD-d50	NR	Mortality	200						RTECS, 1993	

**Table H - 2
Ingestion Toxicity Information for Wildlife**

Remedial investigation Report
Site 16
NAS Whiting Field
Milton, Florida

Analyte	Test Species	Test Type	Duration	Effect	Lethal RTV mg/kg-BW-day			Sublethal RTV mg/kg-BW-day			References
					Oral LD ₅₀	LOAEL	RTV ¹	LOAEL	NOAEL	RTV ²	
Aroclor 1254	Chicken	Oral (subchronic)	10 weeks	Decreased reproductive success; toxic symptoms				91.4			USEPA, 1985d
	Rock Dove	Oral LD-d50		Mortality	4000						USFWS, 1984
	Black Duck	Oral (chronic)	2 years	Reduced eggshell thickness				0.14			Longcore & Stendel
	Mallard	Oral LD-d50		Mortality	2240						USFWS, 1984
	Mallard	Oral (subchronic)	96 days	Reduced eggshell thickness				2.8			Longcore & Stendel
	Mallard	Oral	NR	Eggshell thinning				1.16			USEPA, 1993c
	Mallard	Oral	NR	Eggshell thinning				2.91			USEPA, 1993c
	Mallard	Oral	2 years	Reproductive				1.45			USEPA, 1993c
	California quail	Oral LD-d50		Mortality	595						USFWS, 1984
	Japanese quail	Oral LD-d50		Mortality	841						USFWS, 1984
	Pheasant	Oral LD-d50		Mortality	1334						USFWS, 1984
	Sandhill Crane	Oral LD-d50		Mortality	1200						USFWS, 1984
	Kestrel	Oral (chronic)	7 wk - 1 year	Reduced eggshell thickness				0.56			USEPA, 1985d
	Kestrel	Oral (chronic)	1 year	Reduced eggshell thickness				0.16			Wiemeyer, et al.
	Barn owl	Oral (chronic)	2 years	Reduced eggshell thickness				0.14			Longcore & Stendel
	Mouse	Oral	NR	Reproductive				1.53	0.153		USEPA, 1993b
	Chicken	Oral (chronic)	NR	Embryonic mortality				0.9			USEPA, 1976
	Rock dove	Oral (chronic)	NR	Parental incubation behavior				0.9	0.09		Peakall, D.B., et al., 1973
	American kestrel	Oral (chronic)	69 days	Reduced sperm concentration				9	0.9		Eisler, R., 1986,
	Mink	Oral dose	160 days	Reproductive				0.096	0.0096		USEPA, 1993b
	Mink	Oral	NR	Kit growth				0.15			USEPA, 1993b
	Mink	Oral	12.5 days	Reproductive				0.375			USEPA, 1993b
	Chicken	Oral	39 weeks	Egg production and fertility				2.44			USEPA, 1993b
	Chicken	Oral	NR	Egg production and hatchability				9.8			USEPA, 1993b
	Chicken	Maternal diet	NR	Chick growth				0.98			USEPA, 1993b
	Pheasant	Oral	16 weeks	Egg hatchability				1.8			USEPA, 1993b
	Dieldrin	Mouse	Oral LD ₅₀	NR	Mortality	38		7.6			
Mouse		Oral (chronic)	80 weeks	Body tremors				0.33			NCI, 1978
Mouse		Oral (chronic)	2 year	Liver enlargement w/ histopathology				0.1			IRIS, 1993
Mouse		Oral (chronic)	2 year	Hepatic cancer				1.3			ATSDR, 1992
Rat		Oral (chronic)	2 year	Histologic changes				2			ATSDR, 1992
Rat		Oral (chronic)	2 year	Liver lesions				0.05	0.005		IRIS, 1993
Dog		Oral (chronic)	2 year	Increased liver weight; liver/body weight				0.05	0.005		IRIS, 1993
Dog		Oral (chronic)	25 months	Hepatocyte degeneration				0.5			ATSDR, 1992
Monkey		Oral (chronic)	120 days	Tremors and convulsions				0.1			Smith, R.M., et al., 1976
Mouse		Oral (subchronic)	4 weeks	Decreased pup survival				0.65	0.065		Virgo, B.B., et al., 1975
Rat		Oral LD ₅₀	NR	Mortality	46						Allen, J.R., et al., 1979
Guinea pig		Oral LD ₅₀	NR	Mortality	25		5				Allen, J.R., et al., 1979

**Table H - 2
Ingestion Toxicity Information for Wildlife**

Remedial investigation Report
Site 16
NAS Whiting Field
Milton, Florida

Analyte	Test Species	Test Type	Duration	Effect	Lethal RTV mg/kg-BW-day			Sublethal RTV mg/kg-BW-day			References
					Oral LD ₅₀	LOAEL	RTV ¹	LOAEL	NOAEL	RTV ²	
	Rabbit	Oral LD ₅₀	NR	Mortality	45						Allen, J.R., et al., 1979
	House sparrow	Oral LD ₅₀	NR	Mortality	48						USFWS, 1984
	Chicken	Oral LD ₅₀	NR	Mortality	20						Allen, J.R., et al., 1979
	Rock dove	Oral LD ₅₀	NR	Mortality	27						Virgo, B.B., et al., 1975
	Gray partridge	Oral LD ₅₀	NR	Mortality	9						Virgo, B.B., et al., 1975
	Chukar	Oral LD ₅₀	NR	Mortality	25						Virgo, B.B., et al., 1975
	Japanese quail	Oral LD ₅₀	5 days	Mortality	6		1.2				Hill, E.F. et al., 1975
	Japanese quail	Oral LD ₅₀	NR	Mortality	70						Virgo, B.B., et al., 1975
	California quail	Oral LD ₅₀	NR	Mortality	9						Virgo, B.B., et al., 1975
	Bobwhite	Oral LD ₅₀	5 days	Mortality	3		6				Hill, E.F. et al., 1975
	Pheasant	Oral LD ₅₀	NR	Mortality	79						Virgo, B.B., et al., 1975
	Mallard	Oral LD ₅₀	5 days	Mortality	12						Hill, E.F. et al., 1975
	Mallard	Oral LD ₅₀	5 days	Mortality	11						Hill, E.F. et al., 1975
	Mallard	Oral LD ₅₀	NR	Mortality	381						Virgo, B.B., et al., 1975
	Whistling duck	Oral LD ₅₀	NR	Mortality	100						Virgo, B.B., et al., 1975
	Canada goose	Oral LD ₅₀	NR	Mortality	141						Virgo, B.B., et al., 1975
	Goat	Oral LD ₅₀	NR	Mortality	100						Allen, J.R., et al., 1979
	Sheep	Oral LD ₅₀	NR	Mortality	50						Allen, J.R., et al., 1979
	Cattle	Oral LD ₅₀	NR	Mortality	60						Allen, J.R., et al., 1979
	Mule deer	Oral LD ₅₀	NR	Mortality	75						Allen, J.R., et al., 1979
	Cat	Oral LD ₅₀	NR	Mortality	300						Allen, J.R., et al., 1979
	Dog	Oral LD ₅₀	NR	Mortality	65		1.3				Allen, J.R., et al., 1979
Inorganic Analytes											
Aluminum	Mouse	Oral (chronic)	2-3 generations	Reduced body weight gain of newborns				425		425	NIOSH, 1985
	Rat	Oral (subchronic)	15 days	Reduced growth				100			Bernuzzi, V., et al., 1989
	Rat	Oral LD ₅₀	NR	Mortality	3,700		740				Sax, N.I, 1984
Arsenic	Rat	Oral	NR	Reproductive effects			0.61				RTECS, 1993
	Rat	Oral	NR	Reproductive effects			0.58				RTECS, 1993
	Rat	Oral LD-d50	NR	Mortality	763						RTECS, 1993
	Mouse	Oral LD-d50	NR	Mortality	145						RTECS, 1993
	Mallard	Oral LD-d50	NR	Mortality	323						Eisler, 1988
	Cowbird	Oral LD-d50	NR	Mortality	18						Eisler, 1988
	Young chicken	Oral	11 days	Egg production					1		Hermeyer, 1971
	Dog	Oral (chronic)	56 days	Mortality			3.1				ATSDR, 1991
Barium	Rat	Oral (chronic)	68 weeks	Renal ultrastructure changes				142			IRIS, 1993
	Rat	Oral (subchronic)	13 weeks	Renal effects				91			Dietz, D.D., et al., 1992
	Rat	Oral (acute)	10 days	Decreased ovarian weight				198		19.8	ATSDR, 1990a

**Table H - 2
Ingestion Toxicity Information for Wildlife**

Remedial investigation Report
Site 16
NAS Whiting Field
Milton, Florida

Analyte	Test Species	Test Type	Duration	Effect	Lethal RTV mg/kg-BW-day			Sublethal RTV mg/kg-BW-day			References	
					Oral LD ₅₀	LOAEL	RTV ¹	LOAEL	NOAEL	RTV ²		
Cadmium	Rat	Oral (subchronic)	13 weeks	20% population mortality		430	43				Dietz, D.D., et al., 1992	
	Rat	Oral	NR	Reproductive effects				155			RTECS, 1993	
	Rat	Oral	NR	Reproductive effects				220			RTECS, 1993	
	Rat	Oral	NR	Reproductive effects				21.5	2.15		RTECS, 1993	
	Rat	Oral	NR	Reproductive effects				23			RTECS, 1993	
	Rat	Oral LD ₅₀		Mortality	250						Eisler, R., 1985	
	Rat	Oral LD ₅₀	NR	Mortality	225						RTECS, 1993	
	Mouse	Oral LD ₅₀	NR	Mortality	890						RTECS, 1993	
	Mouse	Oral	NR	Reproductive effects				448			RTECS, 1993	
	Mouse	Oral	NR	Reproductive effects				1,700			RTECS, 1993	
	Chromium	Guinea pig	Oral LD ₅₀	NR	Mortality	150		30				Eisler, R., 1985
Mallard		Oral (subchronic)	90 days	Egg production suppressed				10	1		Eisler, R., 1985	
Japanese quail		Oral LD ₅₀	5 days	Mortality	126						Hill & Camardese	
Rat		Oral (subchronic)	90 days	Histopathologic & reproductive effects					1400		Ivankovic & Preuss	
Mouse		Oral (chronic)	7 weeks	Decreased spermatogenesis				3.5			ATSDR, 1993	
Black Duck		Oral (subchronic)	5 months	Reproductive effects					200		Outridge & Sche	
Rat		Oral LD ₅₀		Mortality	200						ATSDR, 1991	
Copper	Rat	Single oral dose		Reproductive effects	91			152			RTECS, 1993	
	Rat	Oral LD ₅₀	NR	Mortality	940		188				Sax, N.I., 1984	
	Mouse	Oral (chronic)	30 days	Decreased litter sizes with teratogenic effects				100	10		Lecyk, M., 1980	
Lead	Rat	Oral	NR	Reproductive effects				790			RTECS, 1993	
	Rat	Oral	NR	Reproductive effects				1,140			RTECS, 1993	
	Rat	Oral	NR	Reproductive effects				520			RTECS, 1993	
	Rat	Oral	NR	Reproductive effects				1,100			RTECS, 1993	
	Calf	Oral LD ₅₀	NR	Mortality	220						Eisler, R., 1988	
	Rat	Oral (subchronic)	12-14 days	Decreased fetal body weight				2.5			McClain, R.M., et al., 1972	
	Mouse	Oral	NR	Reproductive effects				1,120			RTECS, 1993	
	Mouse	Oral	NR	Reproductive effects				6,300			RTECS, 1993	
	Mouse	Oral	NR	Reproductive effects				300	30		RTECS, 1993	
	Mouse	Oral	NR	Reproductive effects				4,800			RTECS, 1993	
	Domestic animal	Oral	NR	Reproductive effects				662			RTECS, 1993	
	Mammal	Oral	NR	Reproductive effects				2,118			RTECS, 1993	
	Kestrel	Diet	NR	Decreased egg laying fertility; decreased egg shell thickness					4.61	4.61		Eisler, R., 1988
	Kestrel nestlings	Oral	10 days	Reduced growth and brain weight; abnormal development				125			Eisler, R., 1988	
	Japanese quail	Oral LD ₅₀	5 days	Mortality		24,752					Hill, E.F., et al., 1986	

**Table H - 2
Ingestion Toxicity Information for Wildlife**

Remedial investigation Report
Site 16
NAS Whiting Field
Milton, Florida

Analyte	Test Species	Test Type	Duration	Effect	Lethal RTV mg/kg-BW-day			Sublethal RTV mg/kg-BW-day			References
					Oral LD ₅₀	LOAEL	RTV ¹	LOAEL	NOAEL	RTV ²	
Manganese	Rat	Oral (chronic)	2 generations	Developmental effects					7		Kimmel, C.A., et al., 1980
	Guinea pig	Oral LD ₅₀		Mortality	300		60				Sax, N.I., 1984
	Rock dove	Oral (chronic)	NR	Kidney pathology; learning deficiencies				6.25			Allen, J.R., et al., 1979
	Rock dove	Oral LD ₅₀		Mortality	375		75				Kendall, R.J., et al., 1985
	Mouse	Oral (subchronic)	90 days	Delayed growth of testes				140		14	ATSDR, 1990b
	Mouse	Oral (chronic)	103 weeks	Mortality	4,050						ATSDR, 1990b
	Rat	Oral LD ₅₀	NR	Mortality	410						ATSDR, 1990b
	Rat	Oral LD ₅₀	20 days	Mortality	225		45				ATSDR, 1990b
	Rat	Oral (subchronic)	20 days	Decreased litter weight during gestation					620		ATSDR, 1990b
	Rat	Oral (chronic)	103 weeks	Mortality	930						ATSDR, 1990b
	Guinea pig	Oral LD ₅₀	NR	Mortality	400						USEPA, 1984a
	Monkey	Oral (chronic)	18 months	Weakness, rigidity					25		ATSDR, 1990b
	Rodents/livestock	Oral (subchronic)	10 days - 2 month	Decreased growth rate				100			Cunningham, et al., 1966
Mercury	Mouse	Oral (subchronic)	180 days	Mortality		2,300					Gianutsos, G., et al., 1982
	Mouse	Oral LD ₅₀		Mortality	22		4.4				NIOSH, 1985
	Rock dove	Oral LD ₅₀		Mortality	22.8						Eisler, R., 1987a
	Chicken	Oral LD ₅₀		Mortality	20		4				Fimreite, N., 1979
	Corturnix	Oral LD ₅₀		Mortality	11						Eisler, R., 1987a
	Bobwhite quail	Oral LD ₅₀	5 days	Mortality	523						Hill, E.F., et al., 1975
	Ring-necked pheasa	Oral LD ₅₀		Mortality	11.5						Eisler, R., 1987a
	Mouse	Oral (subchronic)	50 days	Embryotoxicity and teratogenicity				0.9			Suzuki, T., 1979
	Mouse	Oral (subchronic)	Day 6-17 (gest)	Stillbirths and neonatal death				4			Suzuki, T., 1979
	Rat	Oral (chronic)	NR	Reduced fertility				0.5		0.05	Eisler, R., 1987a
	organomercury	Rat	Oral (subchronic)	Day 6-14 (gest)	Retarded fetus growth				4		Suzuki, T., 1979
	organomercury	Rat	Oral LD ₅₀		Mortality	18		3.6			NIOSH, 1985
	organomercury	Pig	Oral (subchronic)	Pregnancy	High incidence of stillbirths			0.5		0.05	Eisler, R., 1987a
	organomercury	Mule deer	Oral LD ₅₀		Mortality	17.9					Eisler, R., 1987a
	organomercury	River otter	Oral LD ₅₀		Mortality	2					Eisler, R., 1987a
	organomercury	Mink	Oral LD ₅₀		Mortality	1		0.2			Eisler, R., 1987a
	organomercury	Gray partridge	Oral LD ₅₀		Mortality	17.6					Eisler, R., 1987a
methylmercury	Dog	Oral (subchronic)	Pregnancy	High incidence of stillbirths			0.1		0.01	Eisler, R., 1987a	
methylmercury	Chukar	Oral LD ₅₀		Mortality	26.9					Eisler, R., 1987a	
methylmercury	Mallard	Oral	NR	Reproduction, behavior			0.064		0.0064	USEPA, 1993c	
methylmercury	Black duck	Oral (subchronic)	28 weeks	Reproduction inhibited			0.22			Eisler, R., 1987a	
methylmercury	Fulvous whistling d	Oral LD ₅₀		Mortality	37.8					Eisler, R., 1987a	
methylmercury	Northern bobwhite	Oral LD ₅₀		Mortality	23.8					Eisler, R., 1987a	
methylmercury	Gray pheasant	Oral (subchronic)	30 days	Reduced reproductive ability				0.64		Eisler, R., 1987a	
ethylmercury	House sparrow	Oral LD ₅₀		Mortality	12.6					Eisler, R., 1987a	

**Table H - 2
Ingestion Toxicity Information for Wildlife**

Remedial investigation Report
Site 16
NAS Whiting Field
Milton, Florida

Analyte	Test Species	Test Type	Duration	Effect	Lethal RTV mg/kg-BW-day			Sublethal RTV mg/kg-BW-day			References
					Oral LD ₅₀	LOAEL	RTV ¹	LOAEL	NOAEL	RTV ²	
ethylmercury	Bantam chicken	Oral LD ₅₀		Mortality	190						Fimreite, N., 1979
ethylmercury	Prairie chicken	Oral LD ₅₀		Mortality	11.5		2.3				Eisler, R., 1987a
ethylmercury	Japanese quail	Oral LD ₅₀		Mortality	14.4						Eisler, R., 1987a
Silver	Mouse	Intraperitoneal (acute)		Mortality	34		6.8				NIOSH, 1985
	Rat	Oral (chronic)	37 week	Weight gain				222.2			ATSDR, 1990d
	Mouse	Oral (chronic)	125 days	Hypoactivity				18.1			ATSDR, 1990d
Vanadium	Japanese quail	Oral LD ₅₀	5 days	Mortality	96		19.2				Hill, E.P., et al., 1986
	Mouse	Gavage LD ₅₀	One time	Mortality	31		6.2				ATSDR, 1990e
	Rat	Oral (subchronic)	2 months	Hypertension				15			Susic, D., et al., 1986
	Rat	Oral (subchronic)	35 days	Development effects					8.4	8.4	Domingo, J.L., et al., 1986
	Chicken	Oral (subchronic)	6 weeks	Decrease in egg laying				11		1.1	Berg, L.R., et al., 1963
Zinc	Rat	Oral LD ₅₀		Mortality	2,510		502				RTECS, 1993
	Rat	Oral	Gestation	Fetal resorptions in 4 to 20% of population				200		20	Schlicker, S.A., et al., 1988
	Ferret	Oral	3-13 days	Mortality and gastrointestinal effects		390					Straube, E.F., et al., 1980
	Rat	Oral (subchronic)	NR	Kidney toxicity				160			Uobet, J.M., et al., 1988
Total Recoverable Petroleum Hydrocarbons											
TRPH	NA	NA	NA	NA							

¹ Selected lethal RTVs are boxed. The lethal RTVs correspond to the NOAEL when available. When an NOAEL is not available, then the RTV value is calculated by applying a ten-fold application factor to the LOAEL or a five-fold application factor to the Oral LD₅₀.

² Selected sublethal RTVs are boxed. The sublethal RTV corresponds to the NOAEL when available. When an NOAEL is not available, the sublethal RTV value is calculated by applying a ten-fold application factor to the sublethal LOAEL.

³ Value for benzo(a)pyrene chosen as a surrogate for all PAHs. Chemical-specific toxicity studies for ecologically significant endpoints are lacking for other PAHs. The sublethal RTV is equal to the LOAEL value because the toxicity test is multi-generational in duration.

⁴ Converted to dose per kilogram body weight by multiplying the reported value by ingestion rate and dividing by body weight. Body weights for birds obtained from Dunning, 1984. Ingestion rates were calculated using the following regression equation (for all birds) from USEPA, 1993a): Food Ingestion (kg/day) = 0.00582 * Body Weight^{0.651} (kg). Ingestion rates for the chicken from NRC, 1984.

⁵ Sublethal RTV for aluminum is equal to the LOAEL value because the toxicity test is multi-generational in duration.

⁶ Converted from 30 ppm to 11 mg/kg BW-day using standard default parameters USEPA, 1988.

Notes: mg/kg = milligrams per kilogram
 RTV = reference toxicity value.
 BW = Body weight.
 LD₅₀ = dose resulting in 50% mortality in test population.
 LOAEL = lowest observed adverse effect level.
 NOAEL = no observed adverse effect level.

**Table H - 2
Ingestion Toxicity Information for Wildlife**

Remedial investigation Report
Site 16
NAS Whiting Field
Milton, Florida

Analyte	Test Species	Test Type	Duration	Effect	Lethal RTV mg/kg-BW-day			Sublethal RTV mg/kg-BW-day			References
					Oral LD ₅₀	LOAEL	RTV ¹	LOAEL	NOAEL	RTV ²	

NR = not reported.
PCBs = polychlorinated biphenyls.
PAH = polynuclear aromatic hydrocarbons.
LC_{20,10} = lethal concentration for 20% or 10% of the population.
> = greater than.
% = percent.
gest = gestation.

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**Table H - 2
Ingestion Toxicity Information for Wildlife**

Remedial investigation Report
Site 16
NAS Whiting Field
Milton, Florida

Analyte	Test Species	Test Type	Duration	Effect	Lethal RTV mg/kg-BW-day			Sublethal RTV mg/kg-BW-day			References
					Oral LD ₅₀	LOAEL	RTV ¹	LOAEL	NOAEL	RTV ²	
											<p>Hill, E.F. et al., 1975, "Lethal Dietary Toxicities of Environmental Pollutants to Birds," Special Scientific Report, Wildlife No. 191, U.S. Fish and Wildlife Service, Washington, D.C.</p> <p>Hill, E.F., and M.B. Camardese, 1986, "Lethal Dietary Toxicities of Environmental Contaminants and Pesticides to Coturnix," Technical Report No. 2, U.S. Fish and Wildlife Service, Washington, D.C.</p> <p>Integrated Risk Information System (IRIS), 1988-1993, "Volumes I and II. Chemical Files," U.S. Environmental Protection Agency, Washington, D.C.</p> <p>Kendall, R.J., and P.F. Scanlon, 1985, "Histology and Ultrastructure of Kidney Tissue from Ringed Turtle Doves that Ingested Lead," Journal of Environ. Pathol. Toxicol. Oncol. Vol. 6, pp. 85-96.</p> <p>Kimmel, C.A., L.D. Grant, C.S. Sloan, and B.C. Gladen, 1980, "Chronic Low-Level Lead Toxicity on the Rat," Toxicol. Appl. Pharmacol. 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**Table H - 2
Ingestion Toxicity Information for Wildlife**

Remedial investigation Report
Site 16
NAS Whiting Field
Milton, Florida

Analyte	Test Species	Test Type	Duration	Effect	Lethal RTV mg/kg-BW-day			Sublethal RTV mg/kg-BW-day			References
					Oral LD ₅₀	LOAEL	RTV ¹	LOAEL	NOAEL	RTV ²	
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Table H - 3
RTVs Selected for Ecological Risk Assessment [a]
Units (mg/kgBW/day)

Remedial investigation Report
 Site 16
 Naval Air Station Whiting Field
 Milton, Florida

Analyte	Small Mammal [b]		Small Bird [c]		Predatory Mammal [d]		Predatory Bird [e]	
	Lethal	Sublethal	Lethal	Sublethal	Lethal	Sublethal	Lethal	Sublethal
Semivolatile Organic Compounds								
Benzo(a)anthracene	12 [f]	10 [f]	NA	NA	12 [f]	10 [f]	NA	NA
Benzo(a)pyrene	12	10	NA	NA	12	10	NA	NA
Benzo(b)fluoranthene	12 [f]	10 [f]	NA	NA	12 [f]	10 [f]	NA	NA
Benzo(g,h,i)perylene	12 [f]	10 [f]	NA	NA	12 [f]	10 [f]	NA	NA
Benzo(k)fluoranthene	12 [f]	10 [f]	NA	NA	12 [f]	10 [f]	NA	NA
Carbazole	100	NA	NA	NA	100	NA	NA	NA
Chrysene	12 [f]	10 [f]	NA	NA	12 [f]	10 [f]	NA	NA
Dibenz (a,h) anthracene	12 [f]	10 [f]	NA	NA	12 [f]	10 [f]	NA	NA
bis(2-Ethylhexyl)phthalate	160	3.5	NA	NA	160	3.5	NA	NA
Fluoranthene	400	10 [f]	NA	NA	400	10 [f]	NA	NA
Indeno(1,2,3-cd)pyrene	12 [f]	10 [f]	NA	NA	12 [f]	10 [f]	NA	NA
Phenanthrene	140	10 [f]	NA	NA	140	10 [f]	NA	NA
Pyrene	160	10 [f]	NA	NA	160	10 [f]	NA	NA
Pesticides/PCBs								
4,4'-DDD	17.4	0.2	119	0.14	12	12	119	0.14
4,4'-DDE	140	0.2	119	0.39	140	12	119	0.39
4,4'-DDT	140	0.2	119	0.14	12	12	119	0.14
Aroclor-1254	100 [g]	0.153	16 [g]	0.09	150 [g]	0.0096	16 [g]	0.9 [h]
Dieldrin	5	0.065	1.2	NA	13	0.065	1.2	NA
Inorganic Compounds								
Aluminum	740	425	NA	NA	740	425	NA	NA
Arsenic	29	0.58	3.6	1	3.1	0.58	3.6	1
Barium	43	19.8	NA	NA	43	19.8	NA	NA
Cadmium	30	2.15	NA	1	30	2.15	NA	1
Chromium	40	3.5	25.2	200	40	3.5	25.2	200
Copper	188	10	NA	NA	188	10	NA	NA
Lead	60	30	75	4.61	60	30	75	4.61
Manganese	45	14	NA	NA	45	14	NA	NA

Table H - 3
RTVs Selected for Ecological Risk Assessment [a]
Units (mg/kgBW/day)

Remedial investigation Report
 Site 16
 Naval Air Station Whiting Field
 Milton, Florida

Analyte	Small Mammal [b]		Small Bird [c]		Predatory Mammal [d]		Predatory Bird [e]	
	Lethal	Sublethal	Lethal	Sublethal	Lethal	Sublethal	Lethal	Sublethal
Mercury	4.4	0.05	4	0.064	4.4	0.05	4	0.064
Mercury (organic)	3.6	0.05	2.3	0.0064	0.2	0.01	2.3	0.0064
Silver	6.8	NA	NA	NA	6.8	NA	NA	NA
Vanadium	6.2	8.4	19.2	1.1	6.2	8.4	19.2	1.1
Zinc	502	20	NA	NA	502	20	NA	NA

Notes:

- [a] Lethal RTVs correspond to the boxed lethal RTV presented in Table D-2. Lethal RTVs correspond to the highest NOAEL. When an NOAEL value is not available then one-tenth of the lowest LOAEL, or one-fifth of the lowest LD₅₀ is used as a surrogate value.
- Sublethal RTVs correspond to the boxed sublethal RTV in table D-2. Lethal RTVs correspond to the highest NOAEL. When an NOAEL value is not available, then one-tenth of the sublethal LOAEL is used as a surrogate.
- [b] These RTVs represent chemical concentrations that are not anticipated to result in adverse effects for the cotton mouse or short-tailed shrew.
- [c] These RTVs represent chemical concentrations that are not anticipated to result in adverse effects for the eastern meadowlark.
- [d] These RTVs represent chemical concentrations that are not anticipated to result in adverse effects for the red fox. When no data are available, the small mammal value is used as a surrogate.
- [e] These RTVs represent chemical concentrations that are not anticipated to result in adverse effects for the great-horned owl. When no data are available, the small bird value is used as a surrogate.
- [f] The value for benzo(a)pyrene was used as a surrogate.
- [g] The value for Aroclor -1260 is used as a surrogate.
- [h] The value for Aroclor - 1254 is used as a surrogate.

Notes:

- NA = not available.
- RTV = reference toxicity value.
- LD₅₀ = dose resulting in 50% mortality in test population.
- LOAEL = lowest observed adverse effect level.
- NOAEL = no observed adverse effect level.
- PCBs = polychlorinated biphenyls.

Table H - 4
Summary of Toxicity Data for Plant Receptors
Remedial Investigation Report
Site 16
Naval Air Station Whiting Field
Milton, Florida

Analyte	Reference	RTV in Soil (mg/Kg)
SEMI-VOLATILE ORGANICS		
Benzo(a)anthracene		25 [b]
Benzo(a)pyrene		25 [b]
Benzo(b)fluoranthene		25 [b]
Benzo(k)fluoranthene		25 [b]
Benzo(g,h,i)perylene		25 [b]
Carbazole		NA
Chrysene		25 [b]
Dibenzo(a,h)anthracene		25 [b]
bis(2-Ethylhexyl)phthalate	Hulzebos <i>et al.</i> , 1993 [c]	>1,000
Fluoranthene		25 [b]
Indeno(1,2,3-cd)pyrene		25 [b]
Phenanthrene		25 [b]
Pyrene		25 [b]
PESTICIDES/PCBs		
4,4'-DDD		12.5 [d]
4,4'-DDE		12.5 [d]
4,4'-DDT		12.5 [d]
Aroclors	Will and Suter, 1994	40
Dieldrin		12.5 [d]
INORGANICS		
Aluminum	Will and Suter, 1994	50
Arsenic	Will and Suter, 1994	10
Barium	Will and Suter, 1994	500
Cadmium	Will and Suter, 1994	3
Chromium	Will and Suter, 1994	2
Copper	Will and Suter, 1994	100
Lead	Will and Suter, 1994	50

Table H - 4
Summary of Toxicity Data for Plant Receptors
Remedial Investigation Report
Site 16
Naval Air Station Whiting Field
Milton, Florida

Analyte	Reference	RTV in Soil (mg/Kg)
Manganese	Will and Suter, 1994	500
Mercury	Will and Suter, 1994	0.3
Silver	Will and Suter, 1994	2
Vanadium	Will and Suter, 1994	2
Zinc	Will and Suter, 1994	50

[a] RTVs in soil are equal to chemical concentrations in soil that are not expected to result in adverse effects to plants.

[b] Value represents 14-day growth EC₅₀ for *Lactuca sativa* in soil.

[c] Value for acenaphthene used as a surrogate (Will and Suter, 1994).

[d] Value for 4,4'-DDT used as a surrogate.

Notes:

NA = Not Available.

RTV = reference toxicity value.

PCBs = polychlorinated biphenyls.

References:

Hulzebos, E.M., D.M.M. Adema, E.M. Dirven-van Breemen, L. Henzen, W.A. van Dis, H.A. Herbold, J.A. Hoekstra, R. Baerselman, and C.A.M. van Gestel. 1993. "Phytotoxicity Studies with *Lactuca sativa* in Soil and Nutrient Solution." *Environ. Toxicol. and Chem.* 1

Will, M.E., and G.W. Suter. 1994. *Toxicological Benchmarks for Screening Potential Contaminants of Concern for Effects on Terrestrial Plants*. 1994 Rev. (September). Environmental Sciences Division, Oak Ridge, Tennessee: Oak Ridge National Laboratory.

Table H - 5
Summary of Toxicity Data for Terrestrial Invertebrates

Remedial Investigation Report
Site 16
Naval Air Station Whiting Field
Milton, Florida

Analyte	Test Type	Test Duration	Test Species	Chemical Concentration (mg/kg)	Effect	RTV (mg/kg)	Reference
SEMIVOLATILE ORGANIC COMPOUNDS							
Benzo(a)anthracene	Soil Test	14-day	<i>E. foetida</i>	173	LC ₅₀	34	[a] Neuhauser <i>et al.</i> , 1985.
Benzo(a)pyrene	Soil Test	14-day	<i>E. foetida</i>	173	LC ₅₀	34	[a] Neuhauser <i>et al.</i> , 1985.
Benzo(b and k)fluoranthene	Soil Test	14-day	<i>E. foetida</i>	173	LC ₅₀	34	[a] Neuhauser <i>et al.</i> , 1985.
Benzo(g,h,i)perylene	Soil Test	14-day	<i>E. foetida</i>	173	LC ₅₀	34	[a] Neuhauser <i>et al.</i> , 1985.
Carbazole	NA	NA	NA	NA	NA	NA	NA
Chrysene	Soil Test	14-day	<i>E. foetida</i>	173	LC ₅₀	34	[a] Neuhauser <i>et al.</i> , 1985.
Dibenz(a,h)anthracene	Soil Test	14-day	<i>E. foetida</i>	173	LC ₅₀	34	[a] Neuhauser <i>et al.</i> , 1985.
bis(2-Ethylhexyl)phthalate	Soil Test	14-day	4 test species	2,390	LC ₅₀	478	[b] Neuhauser <i>et al.</i> , 1985.
Fluoranthene	Soil Test	14-day	<i>E. foetida</i>	173	LC ₅₀	34	[a] Neuhauser <i>et al.</i> , 1985.
Indeno(1,2,3-cd)pyrene	Soil Test	14-day	<i>E. foetida</i>	173	LC ₅₀	34	[a] Neuhauser <i>et al.</i> , 1985.
Phenanthrene	Soil Test	14-day	<i>E. foetida</i>	173	LC ₅₀	34	[a] Neuhauser <i>et al.</i> , 1985.
Pyrene	Soil Test	14-day	<i>E. foetida</i>	173	LC ₅₀	34	[a] Neuhauser <i>et al.</i> , 1985.
PESTICIDES/PCBs							
4,4'-DDD	Soil Test	NS	NS	60	58 % mortality	12	[e] USEPA, 1985
4,4'-DDE	Soil Test	NS	NS	60	58 % mortality	12	[e] USEPA, 1985
4,4'-DDT	Soil Test	NS	NS	60	58 % mortality	12	USEPA, 1985
Aroclor-1254	NA	NA	NA	NA	NA	NA	NA
Dieldrin	Soil Test	89-day	<i>E. foetida</i>	10	6 % decrease in number of cocoons hatched		Reinecke and Venter, 1985
Dieldrin	Soil Test	89-day	<i>E. foetida</i>	30	26 % decrease in number of cocoons hatched	30	Reinecke and Venter, 1985
Dieldrin	Soil Test	89-day	<i>E. foetida</i>	100	36 % decrease in number of cocoons hatched		Reinecke and Venter, 1985
Dieldrin	Soil Test	89-day	<i>E. foetida</i>	100	50 % decrease in number of cocoons produced		Reinecke and Venter, 1985
Endrin	NA	NA	NA	NA	NA	NA	NA
INORGANIC ANALYTES							
Aluminum	NA	NA	NA	NA	NA	NA	NA
Arsenic	Soil Test	14-day	<i>E. foetida</i>	100	0 % mortality	100	Bouche <i>et al.</i> , 1987
Arsenic	Soil Test	14-day	<i>E. foetida</i>	200	100 % mortality		Bouche <i>et al.</i> , 1987
Barium	NA	NA	NA	NA	NA	NA	NA
Cadmium	Soil Test	14-day	<i>E. foetida</i>	900	0 % mortality		Bouche <i>et al.</i> , 1987
Cadmium	Soil Test	14-day	<i>E. foetida</i>	2,700	100 % mortality		Bouche <i>et al.</i> , 1987
Cadmium	Soil Test	14-day	<i>E. foetida</i>	1,000	[c] LC ₅₀		van Gestel and van Dis, 1988
Cadmium	Soil Test	20-week	<i>E. foetida</i>	50	[d] Decrease in cocoon production	50	[e] Malecki <i>et al.</i> , 1982
Cadmium	Soil Test	2-week	<i>E. foetida</i>	1,843	LC ₅₀		Neuhauser <i>et al.</i> , 1985
Chromium							
Copper	Soil Test	14-day	<i>E. foetida</i>	10	0 % mortality		Bouche <i>et al.</i> , 1987
Copper	Soil Test	14-day	<i>E. foetida</i>	30	20 % mortality	30	Bouche <i>et al.</i> , 1987

**Table H - 5
Summary of Toxicity Data for Terrestrial Invertebrates**

**Remedial Investigation Report
Site 16
Naval Air Station Whiting Field
Milton, Florida**

Analyte	Test Type	Test Duration	Test Species	Chemical Concentration (mg/kg)	Effect	RTV (mg/kg)	Reference
Copper	Soil Test	20-week	<i>E. foetida</i>	2,000	[d] Decrease in cocoon production		Malecki et al., 1982
Copper	Soil Test	2-week	<i>E. foetida</i>	643	LC ₅₀		Neuhauser et al., 1985
Lead	Soil Test	20-week	<i>E. foetida</i>	5,000	[d] Decrease in cocoon production		Malecki et al., 1982
Lead	Soil Test	2-week	<i>E. foetida</i>	5,941	LC ₅₀	1,190 [e]	Neuhauser et al., 1985
Manganese	NA	NA	NA	NA	NA	NA	NA
Mercury	Soil Test	14-day	<i>E. foetida</i>	36	0 % mortality	36	Bouche et al., 1987
Mercury	Soil Test	14-day	<i>E. foetida</i>	216	60 % mortality		Bouche et al., 1987
Silver	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA
Zinc	Soil Test	20-week	<i>E. foetida</i>	5,000	[d] Decrease in cocoon production		Malecki et al., 1982
Zinc	Soil Test	2-week	<i>E. foetida</i>	662	LC ₅₀	130 [e]	Neuhauser et al., 1985

NOTES:

[a] Equal to the lowest LC₅₀ in each chemical class, multiplied by a safety factor of 0.2.

Value for fluorene used for PAHs.

[b] Mean of LC₅₀ for four test species (*A. tuberculata*, *E. foetida*, *E. eugeniae*, and *P. excavatus*) from artificial soil tests; values used for a whole chemical class are multiplied by a factor of 0.2 (Neuhauser et al., 1986). Value for dimethylphthalate used for phthalates.

[c] LC₅₀ value for soil at pH = 7.0; LC₅₀ = 320 ug/g - 560 ug/g for soil pH = 4.1.

[d] Acetate salt.

[e] Conservative factor of 0.2 applied to endpoint; resultant value should be protective of 99.9% of the exposed population from acute effects (USEPA, 1986).

Notes:

RTV = reference toxicity value.

NA = not available.

PCBs = polychlorinated biphenyls.

mg/kg = milligrams per kilogram.

LD₅₀ = dose resulting in 50% mortality in test population.

References:

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TABLE H-6

ESTIMATION OF CHRONIC EXPOSURES TO TERRESTRIAL RECEPTORS FROM EXPOSURE TO RME CONCENTRATIONS IN FOOD AND SURFACE SOIL

REMEDIAL INVESTIGATION REPORT
 Naval Air Station Whiting Field-Site 16

EXPOSURE CONCENTRATION DATA

CHEMICAL	REASONABLE MAXIMUM SOIL CONCENTRATION (mg/kg)
Benzo (a) anthracene	3.5E-01
Benzo (a) pyrene	3.7E-01
Benzo (b) fluoranthene	4.1E-01
Benzo (k) fluoranthene	3.9E-01
Benzo (g,h,i) perylene	3.0E-01
bis(2-Ethylhexyl) phthalate	1.2E-01
Carbazole	9.7E-02
Chrysene	3.9E-01
Dibenzo (a,h) anthracene	2.4E-01
Fluoranthene	3.4E-01
Indeno (1,2,3-cd) pyrene	3.2E-01
Phenanthrene	2.3E-01
Pyrene	3.1E-01
4,4-DDD	6.2E-03
4,4-DDE	3.7E-02
4,4-DDT	2.0E-02
Aroclor-1254	6.8E-02
Dieldrin	3.2E-02
Aluminum	1.1E+04
Arsenic	3.8E+00
Barium	6.3E+01
Cadmium	2.1E+00
Chromium	1.5E+01
Copper	7.8E+01
Lead	4.7E+02
Manganese	3.0E+02
Mercury	1.3E-01
Silver	2.3E+00
Vanadium	2.1E+01
Zinc	4.1E+02

TISSUE LEVELS IN PRIMARY PREY ITEMS (Site Specific)

Invertebrate BAF [a]	Invertebrate Tissue Level (mg/kg) [b]	Plant BAF [a]	Plant Tissue Level (mg/kg) [b]	Mammal BAF [a]	Mammal Tissue Level (mg/kg) [c]	Bird BAF [a]	Small Bird Tissue Level (mg/kg) [c]
5.0E-02	1.8E-02	3.4E-03	1.2E-03	9.5E-01	5.6E-03	NA	0.0E+00
5.0E-02	1.9E-02	3.4E-03	1.3E-03	9.5E-01	5.9E-03	NA	0.0E+00
5.0E-02	2.1E-02	3.4E-03	1.4E-03	9.5E-01	6.6E-03	NA	0.0E+00
5.0E-02	1.9E-02	3.4E-03	1.3E-03	9.5E-01	6.2E-03	NA	0.0E+00
5.0E-02	1.5E-02	3.4E-03	1.0E-03	9.5E-01	4.8E-03	NA	0.0E+00
5.0E-02	5.9E-03	8.7E-03	1.0E-03	1.9E-01	4.1E-04	NA	0.0E+00
5.0E-02	4.9E-03	5.2E-02	5.0E-03	1.5E-01	0.0E+00	NA	0.0E+00
5.0E-02	1.9E-02	3.4E-03	1.3E-03	9.5E-01	6.2E-03	NA	0.0E+00
5.0E-02	1.2E-02	3.4E-03	8.3E-04	9.5E-01	3.8E-03	NA	0.0E+00
5.0E-02	1.7E-02	3.4E-03	1.2E-03	9.5E-01	5.5E-03	NA	0.0E+00
5.0E-02	1.6E-02	3.4E-03	1.1E-03	9.5E-01	5.2E-03	NA	0.0E+00
5.0E-02	1.2E-02	3.4E-03	8.0E-04	9.5E-01	3.7E-03	NA	0.0E+00
5.0E-02	1.6E-02	3.4E-03	1.1E-03	9.5E-01	5.0E-03	NA	0.0E+00
3.3E+00	2.0E-02	1.0E-02	6.2E-05	1.2E+00	1.9E-03	2.9E+00	9.1E-04
1.7E+00	6.3E-02	1.0E-02	3.7E-04	1.2E+00	6.3E-03	2.9E+00	2.8E-03
5.7E-01	1.1E-02	1.0E-02	2.0E-04	1.2E+00	1.4E-03	2.9E+00	5.5E-04
5.8E+00	3.9E-01	1.2E-01	8.2E-03	3.8E+00	1.2E-01	3.2E-01	1.9E-03
5.5E+00	1.7E-01	1.7E-02	5.4E-04	1.5E+00	2.0E-02	4.4E-01	1.2E-03
7.5E-02	8.5E+02	8.0E-04	9.0E+00	7.5E-02	1.5E+01	NA	0.0E+00
6.6E-03	2.5E-02	3.0E-01	1.1E+00	1.0E-01	4.0E-02	6.0E-03	5.2E-05
7.5E-03	4.8E-01	3.0E-02	1.9E+00	7.5E-03	1.0E-02	NA	0.0E+00
1.1E+01	2.2E+01	3.3E+01	6.9E+01	2.1E+00	4.8E+01	3.8E-01	2.3E-01
1.6E-01	2.4E+00	1.5E-03	2.3E-02	2.8E-01	1.0E-01	2.8E-01	1.4E-02
1.6E-01	1.3E+01	7.8E-01	6.1E+01	6.0E-01	1.2E+01	NA	0.0E+00
7.8E-02	3.7E+01	0.0E+00	0.0E+00	1.5E-02	1.3E-01	NA	0.0E+00
2.0E-02	5.9E+00	5.0E-02	1.5E+01	2.0E-02	1.7E-01	NA	0.0E+00
6.8E-02	8.8E-03	1.8E-01	2.3E-02	1.0E-02	9.4E-05	2.3E+00	8.2E-04
1.5E-01	3.5E-01	8.0E-02	1.8E-01	1.5E-01	1.6E-02	NA	0.0E+00
1.2E-01	2.5E+00	1.1E-03	2.3E-02	1.2E-01	5.4E-02	NA	0.0E+00
1.8E+00	7.3E+02	6.1E-01	2.5E+02	2.1E+00	2.9E+02	NA	0.0E+00

[a] Bioaccumulation factors are presented in Appendix H, Table H-1

[b] Plant and invertebrate tissue concentrations are calculated by multiplying the soil concentration by the plant or invertebrate BAF.

[c] Mammal and bird tissue concentrations are calculated by multiplying the small mammal or bird body weight- and ingestion rate-normalized TBD by the mammal or bird BAF.

NA = Not analyzed

ND = Not detected

TBD = Total body dose

TABLE H-6

ESTIMATION OF CHRONIC EXPOSURES TO TERRESTRIAL RECEPTORS FROM EXPOSURE TO RME CONCENTRATIONS IN FOOD AND SURFACE SOIL

REMEDIAL INVESTIGATION REPORT

Naval Air Station Whiting Field-Site 16

TOTAL BODY DOSE (mg/kgBW-day) [a]

Chemical	Cotton mouse	Eastern Meadowlark	Short-tailed shrew	Great-horned owl	Red fox
Benzo (a) anthracene	9.2E-04	8.5E-05	7.2E-04	2.8E-06	3.6E-07
Benzo (a) pyrene	9.8E-04	9.0E-05	7.6E-04	2.9E-06	3.8E-07
Benzo (b) fluoranthene	1.1E-03	9.9E-05	8.4E-04	3.3E-06	4.2E-07
Benzo (k) fluoranthene	1.0E-03	9.4E-05	8.0E-04	3.1E-06	3.9E-07
Benzo (g,h,i) perylene	7.9E-04	7.2E-05	6.1E-04	2.4E-06	3.0E-07
bis(2-Ethylhexyl) phthalate	3.6E-04	2.9E-05	2.4E-04	5.2E-07	1.0E-07
Carbazole	6.4E-04	2.6E-05	2.1E-04	3.4E-07	9.0E-08
Chrysene	1.0E-03	9.4E-05	8.0E-04	3.1E-06	3.9E-07
Dibenzo (a,h) anthracene	6.3E-04	5.8E-05	4.9E-04	1.9E-06	2.4E-07
Fluoranthene	9.1E-04	8.3E-05	7.1E-04	2.7E-06	3.5E-07
Indeno (1,2,3-cd) pyrene	8.5E-04	7.8E-05	6.6E-04	2.6E-06	3.3E-07
Phenanthrene	6.1E-04	5.6E-05	4.8E-04	1.8E-06	2.4E-07
Pyrene	8.3E-04	7.6E-05	6.4E-04	2.5E-06	3.2E-07
4,4-DDD	2.1E-04	4.3E-05	2.4E-04	6.2E-07	1.1E-07
4,4-DDE	6.9E-04	1.3E-04	7.8E-04	2.1E-06	3.6E-07
4,4-DDT	1.6E-04	2.6E-05	1.6E-04	4.9E-07	7.6E-08
Aroclor-1254	4.5E-03	8.2E-04	4.6E-03	3.5E-05	3.1E-06
Dieldrin	1.7E-03	3.6E-04	2.0E-03	5.8E-06	9.7E-07
Aluminum	3.0E+01	3.3E+00	2.6E+01	4.3E-02	1.1E-02
Arsenic	1.0E-01	1.2E-03	7.9E-03	2.4E-05	5.2E-06
Barium	2.8E-01	1.1E-02	1.0E-01	2.2E-04	4.5E-05
Cadmium	5.9E+00	8.4E-02	3.8E-01	1.3E-02	7.9E-04
Chromium	5.3E-02	7.0E-03	5.0E-02	8.1E-05	2.0E-05
Copper	5.3E+00	7.0E-02	3.7E-01	3.7E-03	3.7E-04
Lead	1.2E+00	1.4E-01	1.1E+00	1.7E-03	4.4E-04
Manganese	1.8E+00	6.1E-02	5.3E-01	1.1E-03	2.4E-04
Mercury	2.3E-03	4.9E-05	3.3E-04	5.3E-07	1.7E-07
Silver	2.3E-02	1.1E-03	7.7E-03	1.3E-05	3.4E-06
Vanadium	6.5E-02	8.1E-03	6.0E-02	8.8E-05	2.4E-05
Zinc	2.8E+01	1.7E+00	9.4E+00	8.1E-02	7.1E-03

[a] Calculated by summing the products of individual prey type concentrations and percent in diet, multiplying by the SFF, exposure duration, and ingestion rate, and then dividing by body weight.

TABLE H-7

ESTIMATION OF CHRONIC EXPOSURES TO TERRESTRIAL RECEPTORS FROM EXPOSURE TO RME CONCENTRATIONS IN FOOD AND SURFACE SOIL

REMEDIAL INVESTIGATION REPORT
Naval Air Station Whiting Field-Site 16

EXPOSURE PARAMETERS [c]

Indicator Species		Percent Prey in Diet					Home Range (acres)	Site Foraging Frequency [d]	Dietary Ingestion Rate (kg/day)	Water Ingestion Rate (l/day)	Body Weight (kg)	Exposure Duration	
		Inverts	Plants	Small Mammals	Amphibians	Birds							
<i>Cotton mouse</i>	Small herb. mammal	10%	88%	0%	0%	0%	2%	0.147	6.8E-01	0.0029	0.003	0.021	1
<i>Eastern Meadowlark</i>	Small omn. bird	75%	20%	0%	0%	0%	5%	5.0	2.0E-02	0.012	0.0115	0.087	1
<i>Short-tailed shrew</i>	Small omn. mammal	78%	12%	0%	0%	0%	10%	0.96	1.0E-01	0.002	0.0025	0.017	1
<i>Great-horned owl</i>	Predatory bird	0%	0%	80%	0%	19%	1%	15	6.7E-03	0.078	0.077	1.5	1
<i>Red fox</i>	Predatory mammal	20%	10%	57%	0%	10%	3%	250	4.0E-04	0.24	0.398	4.69	1

SITE AREA	0.1 acres
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NOTES:

[c] Documentation of exposure parameters presented in Table 7-7.

[d] Site Foraging Frequency (SFF). Calculated by dividing site area by receptor home range (cannot exceed 1.0)

TABLE H-8
RISK FROM POTENTIAL LETHAL EFFECTS FOR TERRESTRIAL RECEPTORS FROM RME CONCENTRATIONS
OF ECPCs IN FOOD AND SURFACE SOIL

REMEDIAL INVESTIGATION REPORT
Naval Air Station Whiting Field-Site 16

CHEMICAL	Cotton mouse			Eastern Meadowlark			Short-tailed shrew		
	TBD	Lethal RTV	HQ	TBD	Lethal RTV	HQ	TBD	Lethal RTV	HQ
Benzo (a) anthracene	9.2E-04	1.2E+01	7.7E-05	8.5E-05			7.2E-04	1.2E+01	6.0E-05
Benzo (a) pyrene	9.8E-04	1.2E+01	8.2E-05	9.0E-05			7.6E-04	1.2E+01	6.4E-05
Benzo (b) fluoranthene	1.1E-03	1.2E+01	9.0E-05	9.9E-05			8.4E-04	1.2E+01	7.0E-05
Benzo (k) fluoranthene	1.0E-03	1.2E+01	8.5E-05	9.4E-05			8.0E-04	1.2E+01	6.6E-05
Benzo (g,h,i) perylene	7.9E-04	1.2E+01	6.6E-05	7.2E-05			6.1E-04	1.2E+01	5.1E-05
bis(2-Ethylhexyl) phthalate	3.6E-04	1.6E+02	2.2E-06	2.9E-05			2.4E-04	1.6E+02	1.5E-06
Carbazole	6.4E-04	1.0E+02	6.4E-06	2.6E-05			2.1E-04	1.0E+02	2.1E-06
Chrysene	1.0E-03	1.2E+01	8.5E-05	9.4E-05			8.0E-04	1.2E+01	6.6E-05
Dibenzo (a,h) anthracene	6.3E-04	1.2E+01	5.3E-05	5.8E-05			4.9E-04	1.2E+01	4.1E-05
Fluoranthene	9.1E-04	4.0E+02	2.3E-06	8.3E-05			7.1E-04	4.0E+02	1.8E-06
Indeno (1,2,3-cd) pyrene	8.5E-04	1.2E+01	7.1E-05	7.8E-05			6.6E-04	1.2E+01	5.5E-05
Phenanthrene	6.1E-04	1.4E+02	4.4E-06	5.6E-05			4.8E-04	1.4E+02	3.4E-06
Pyrene	8.3E-04	1.6E+02	5.2E-06	7.6E-05			6.4E-04	1.6E+02	4.0E-06
4,4-DDD	2.1E-04	1.7E+01	1.2E-05	4.3E-05	1.2E+02	3.6E-07	2.4E-04	1.7E+01	1.4E-05
4,4-DDE	6.9E-04	1.4E+02	4.9E-06	1.3E-04	1.2E+02	1.1E-06	7.8E-04	1.4E+02	5.5E-06
4,4-DDT	1.6E-04	1.7E+01	9.2E-06	2.6E-05	1.2E+02	2.2E-07	1.6E-04	1.7E+01	9.2E-06
Aroclor-1254	4.5E-03	1.0E+02	4.5E-05	8.2E-04	1.6E+01	5.1E-05	4.6E-03	1.0E+02	4.6E-05
Dieldrin	1.7E-03	5.0E+00	3.5E-04	3.6E-04	1.2E+00	3.0E-04	2.0E-03	5.0E+00	4.1E-04
Aluminum	3.0E+01	7.4E+02	4.0E-02	3.3E+00			2.6E+01	7.4E+02	3.6E-02
Arsenic	1.0E-01	2.9E+01	3.5E-03	1.2E-03	3.6E+00	3.3E-04	7.9E-03	2.9E+01	2.7E-04
Barium	2.8E-01	4.3E+01	6.5E-03	1.1E-02			1.0E-01	4.3E+01	2.4E-03
Cadmium	5.9E+00	3.0E+01	2.0E-01	8.4E-02			3.8E-01	3.0E+01	1.3E-02
Chromium	5.3E-02	4.0E+01	1.3E-03	7.0E-03	2.6E+01	2.7E-04	5.0E-02	4.0E+01	1.2E-03
Copper	5.3E+00	1.9E+02	2.8E-02	7.0E-02			3.7E-01	1.9E+02	2.0E-03
Lead	1.2E+00	6.0E+01	2.1E-02	1.4E-01	7.5E+01	1.9E-03	1.1E+00	6.0E+01	1.9E-02
Manganese	1.8E+00	4.5E+01	4.1E-02	6.1E-02			5.3E-01	4.5E+01	1.2E-02
Mercury	2.3E-03	4.4E+00	5.1E-04	4.9E-05	4.0E+00	1.2E-05	3.3E-04	4.4E+00	7.6E-05
Silver	2.3E-02	6.8E+00	3.3E-03	1.1E-03			7.7E-03	6.8E+00	1.1E-03
Vanadium	6.5E-02	6.2E+00	1.1E-02	8.1E-03	1.9E+01	4.2E-04	6.0E-02	6.2E+00	9.7E-03
Zinc	2.8E+01	5.0E+02	5.7E-02	1.7E+00			9.4E+00	5.0E+02	1.9E-02
SUMMARY HAZARD INDEX			4.1E-01			3.3E-03			1.2E-01

TBD = Total Body Dose (mg/kgBW-day).

RTV = Reference Toxicity Value (mg/kgBW-day); wildlife RTVs are presented in Appendix F, Table F-9.

HQ = Hazard Quotient (calculated by dividing TBD by RTV)

NA = Not Available

TABLE H-8
RISK FROM POTENTIAL LETHAL EFFECTS FOR TERRESTRIAL RECEPTORS FROM RME CONCENTRATIONS
OF ECPCs IN FOOD AND SURFACE SOIL

REMEDIAL INVESTIGATION REPORT
Naval Air Station Whiting Field-Site 16

CHEMICAL	Great-horned owl			Red fox		
	TBD	Lethal RTV	HQ	TBD	Lethal RTV	HQ
Benzo (a) anthracene	2.8E-06			3.6E-07	1.2E+01	3.0E-08
Benzo (a) pyrene	2.9E-06			3.8E-07	1.2E+01	3.1E-08
Benzo (b) fluoranthene	3.3E-06			4.2E-07	1.2E+01	3.5E-08
Benzo (k) fluoranthene	3.1E-06			3.9E-07	1.2E+01	3.3E-08
Benzo (g,h,i) perylene	2.4E-06			3.0E-07	1.2E+01	2.5E-08
bis(2-Ethylhexyl) phthalate	5.2E-07			1.0E-07	1.6E+02	6.4E-10
Carbazole	3.4E-07			9.0E-08	1.0E+02	9.0E-10
Chrysene	3.1E-06			3.9E-07	1.2E+01	3.3E-08
Dibenzo (a,h) anthracene	1.9E-06			2.4E-07	1.2E+01	2.0E-08
Fluoranthene	2.7E-06			3.5E-07	4.0E+02	8.7E-10
Indeno (1,2,3-cd) pyrene	2.6E-06			3.3E-07	1.2E+01	2.7E-08
Phenanthrene	1.8E-06			2.4E-07	1.4E+02	1.7E-09
Pyrene	2.5E-06			3.2E-07	1.6E+02	2.0E-09
4,4-DDD	6.2E-07	1.2E+02	5.2E-09	1.1E-07	1.2E+01	9.4E-09
4,4-DDE	2.1E-06	1.2E+02	1.7E-08	3.6E-07	1.4E+02	2.6E-09
4,4-DDT	4.9E-07	1.2E+02	4.1E-09	7.6E-08	1.2E+01	6.4E-09
Aroclor-1254	3.5E-05	1.6E+01	2.2E-06	3.1E-06	1.5E+02	2.1E-08
Dieldrin	5.8E-06	1.2E+00	4.9E-06	9.7E-07	1.3E+01	7.5E-08
Aluminum	4.3E-02			1.1E-02	7.4E+02	1.4E-05
Arsenic	2.4E-05	3.6E+00	6.7E-06	5.2E-06	3.1E+00	1.7E-06
Barium	2.2E-04			4.5E-05	4.3E+01	1.0E-06
Cadmium	1.3E-02			7.9E-04	3.0E+01	2.6E-05
Chromium	8.1E-05	2.5E+01	3.2E-06	2.0E-05	4.0E+01	5.1E-07
Copper	3.7E-03			3.7E-04	1.9E+02	2.0E-06
Lead	1.7E-03	7.5E+01	2.2E-05	4.4E-04	6.0E+01	7.4E-06
Manganese	1.1E-03			2.4E-04	4.5E+01	5.3E-06
Mercury	5.3E-07	4.0E+00	1.3E-07	1.7E-07	4.4E+00	3.8E-08
Silver	1.3E-05			3.4E-06	6.8E+00	5.0E-07
Vanadium	8.8E-05	1.9E+01	4.6E-06	2.4E-05	6.2E+00	3.9E-06
Zinc	8.1E-02			7.1E-03	5.0E+02	1.4E-05
SUMMARY HAZARD INDEX			4.4E-05			7.8E-05

TBD = Total Body Dose (mg/kgBW-day).

RTV = Reference Toxicity Value (mg/kgBW-day); wildlife RTVs are presented in Appendix F, Table F-9.

HQ = Hazard Quotient (calculated by dividing TBD by RTV)

NA = Not Available

TABLE H-9
RISK FROM POTENTIAL SUBLETHAL EFFECTS FOR TERRESTRIAL RECEPTORS FROM RME CONCENTRATIONS
OF ECPCs IN FOOD AND SURFACE SOIL

REMEDIAL INVESTIGATION REPORT
Naval Air Station Whiting Field-Site 16

CHEMICAL	Cotton mouse			Eastern Meadowlark			Short-tailed shrew			
	Sublethal			Sublethal			Sublethal			
	TBD	RTV	HQ	TBD	RTV	HQ	TBD	RTV	HQ	
Benzo (a) anthracene	9.2E-04	1.0E+01	9.2E-05	8.5E-05			7.2E-04	1.0E+01	7.2E-05	
Benzo (a) pyrene	9.8E-04	1.0E+01	9.8E-05	9.0E-05			7.6E-04	1.0E+01	7.6E-05	
Benzo (b) fluoranthene	1.1E-03	1.0E+01	1.1E-04	9.9E-05			8.4E-04	1.0E+01	8.4E-05	
Benzo (k) fluoranthene	1.0E-03	1.0E+01	1.0E-04	9.4E-05			8.0E-04	1.0E+01	8.0E-05	
Benzo (g,h,i) perylene	7.9E-04	1.0E+01	7.9E-05	7.2E-05			6.1E-04	1.0E+01	6.1E-05	
bis(2-Ethylhexyl) phthalate	3.6E-04	3.5E+00	1.0E-04	2.9E-05			2.4E-04	3.5E+00	6.9E-05	
Carbazole	6.4E-04			2.6E-05			2.1E-04			
Chrysene	1.0E-03	1.0E+01	1.0E-04	9.4E-05			8.0E-04	1.0E+01	8.0E-05	
Dibenzo (a,h) anthracene	6.3E-04	1.0E+01	6.3E-05	5.8E-05			4.9E-04	1.0E+01	4.9E-05	
Fluoranthene	9.1E-04	1.0E+01	9.1E-05	8.3E-05			7.1E-04	1.0E+01	7.1E-05	
Indeno (1,2,3-cd) pyrene	8.5E-04	1.0E+01	8.5E-05	7.8E-05			6.6E-04	1.0E+01	6.6E-05	
Phenanthrene	6.1E-04	1.0E+01	6.1E-05	5.6E-05			4.8E-04	1.0E+01	4.8E-05	
Pyrene	8.3E-04	1.0E+01	8.3E-05	7.6E-05			6.4E-04	1.0E+01	6.4E-05	
4,4-DDD	2.1E-04	2.0E-01	1.0E-03	4.3E-05	1.4E-01	3.1E-04	2.4E-04	2.0E-01	1.2E-03	
4,4-DDE	6.9E-04	2.0E-01	3.5E-03	1.3E-04	3.9E-01	3.4E-04	7.8E-04	2.0E-01	3.9E-03	
4,4-DDT	1.6E-04	2.0E-01	8.0E-04	2.6E-05	1.4E-01	1.9E-04	1.6E-04	2.0E-01	8.0E-04	
Aroclor-1254	4.5E-03	1.5E-01	2.9E-02	8.2E-04	9.0E-02	9.1E-03	4.6E-03	1.5E-01	3.0E-02	
Dieldrin	1.7E-03	6.5E-02	2.7E-02	3.6E-04			2.0E-03	6.5E-02	3.1E-02	
Aluminum	3.0E+01	4.3E+02	7.0E-02	3.3E+00			2.6E+01	4.3E+02	6.2E-02	
Arsenic	1.0E-01	5.8E-01	1.8E-01	1.2E-03	1.0E+00	1.2E-03	7.9E-03	5.8E-01	1.4E-02	
Barium	2.8E-01	2.0E+01	1.4E-02	1.1E-02			1.0E-01	2.0E+01	5.2E-03	
Cadmium	5.9E+00	2.2E+00	2.8E+00	8.4E-02	1.0E+00	8.4E-02	3.8E-01	2.2E+00	1.8E-01	
Chromium	5.3E-02	3.5E+00	1.5E-02	7.0E-03	2.0E+02	3.5E-05	5.0E-02	3.5E+00	1.4E-02	
Copper	5.3E+00	1.0E+01	5.3E-01	7.0E-02			3.7E-01	1.0E+01	3.7E-02	
Lead	1.2E+00	3.0E+01	4.1E-02	1.4E-01	4.6E+00	3.0E-02	1.1E+00	3.0E+01	3.7E-02	
Manganese	1.8E+00	1.4E+01	1.3E-01	6.1E-02			5.3E-01	1.4E+01	3.8E-02	
Mercury	2.3E-03	5.0E-02	4.5E-02	4.9E-05	6.4E-02	7.6E-04	3.3E-04	5.0E-02	6.7E-03	
Silver	2.3E-02			1.1E-03			7.7E-03			
Vanadium	6.5E-02	8.4E+00	7.8E-03	8.1E-03	1.1E+00	7.4E-03	6.0E-02	8.4E+00	7.2E-03	
Zinc	2.8E+01	2.0E+01	1.4E+00	1.7E+00			9.4E+00	2.0E+01	4.7E-01	
SUMMARY HAZARD INDEX			5.3E+00				1.3E-01			

TBD = Total Body Dose (mg/kgBW-day).

RTV = Reference Toxicity Value (mg/kgBW-day); wildlife RTVs are presented in Appendix F, Table F-9.

HQ = Hazard Quotient (calculated by dividing TBD by RTV)

NA = Not Available

TABLE H-9
RISK FROM POTENTIAL SUBLETHAL EFFECTS FOR TERRESTRIAL RECEPTORS FROM RME CONCENTRATIONS
OF ECPCs IN FOOD AND SURFACE SOIL

REMEDIAL INVESTIGATION REPORT
Naval Air Station Whiting Field-Site 16

CHEMICAL	Great-horned owl			Red fox		
	TBD	Sublethal		TBD	Sublethal	
		RTV	HQ		RTV	HQ
Benzo (a) anthracene	2.8E-06			3.6E-07	1.0E+01	3.6E-08
Benzo (a) pyrene	2.9E-06			3.8E-07	1.0E+01	3.8E-08
Benzo (b) fluoranthene	3.3E-06			4.2E-07	1.0E+01	4.2E-08
Benzo (k) fluoranthene	3.1E-06			3.9E-07	1.0E+01	3.9E-08
Benzo (g,h,i) perylene	2.4E-06			3.0E-07	1.0E+01	3.0E-08
bis(2-Ethylhexyl) phthalate	5.2E-07			1.0E-07	3.5E+00	2.9E-08
Carbazole	3.4E-07			9.0E-08		
Chrysene	3.1E-06			3.9E-07	1.0E+01	3.9E-08
Dibenzo (a,h) anthracene	1.9E-06			2.4E-07	1.0E+01	2.4E-08
Fluoranthene	2.7E-06			3.5E-07	1.0E+01	3.5E-08
Indeno (1,2,3-cd) pyrene	2.6E-06			3.3E-07	1.0E+01	3.3E-08
Phenanthrene	1.8E-06			2.4E-07	1.0E+01	2.4E-08
Pyrene	2.5E-06			3.2E-07	1.0E+01	3.2E-08
4,4-DDD	5.9E-07	1.4E-01	4.2E-06	1.1E-07	1.2E+01	9.3E-09
4,4-DDE	2.0E-06	3.9E-01	5.1E-06	3.6E-07	1.2E+01	3.0E-08
4,4-DDT	4.7E-07	1.4E-01	3.4E-06	7.6E-08	1.2E+01	6.3E-09
Aroclor-1254	3.5E-05	9.0E-01	3.9E-05	3.1E-06	9.6E-03	3.3E-04
Dieldrin	5.8E-06			9.7E-07	6.5E-02	1.5E-05
Aluminum	4.3E-02			1.1E-02	4.3E+02	2.5E-05
Arsenic	2.4E-05	1.0E+00	2.4E-05	5.2E-06	5.8E-01	9.0E-06
Barium	2.2E-04			4.5E-05	2.0E+01	2.3E-06
Cadmium	1.3E-02	1.0E+00	1.3E-02	7.9E-04	2.2E+00	3.7E-04
Chromium	8.1E-05	2.0E+02	4.0E-07	2.0E-05	3.5E+00	5.8E-06
Copper	3.7E-03			3.7E-04	1.0E+01	3.7E-05
Lead	1.7E-03	4.6E+00	3.6E-04	4.4E-04	3.0E+01	1.5E-05
Manganese	1.1E-03			2.4E-04	1.4E+01	1.7E-05
Mercury	5.0E-07	6.4E-02	7.9E-06	1.7E-07	5.0E-02	3.3E-06
Silver	1.3E-05			3.4E-06		
Vanadium	8.8E-05	1.1E+00	8.0E-05	2.4E-05	8.4E+00	2.9E-06
Zinc	8.1E-02			7.1E-03	2.0E+01	3.5E-04
SUMMARY HAZARD INDEX			1.4E-02			1.2E-03

TBD = Total Body Dose (mg/kgBW-day).

RTV = Reference Toxicity Value (mg/kgBW-day); wildlife RTVs are presented in Appendix F, Table F-9.

HQ = Hazard Quotient (calculated by dividing TBD by RTV)

NA = Not Available

TABLE H-10

ESTIMATION OF SUBCHRONIC EXPOSURES TO TERRESTRIAL RECEPTORS FROM EXPOSURE TO CT CONCENTRATIONS IN FOOD AND SURFACE SOIL

REMEDIAL INVESTIGATION REPORT
Naval Air Station Whiting Field-Site 16

EXPOSURE CONCENTRATION DATA

CHEMICAL	CENTRAL TENDENCY EXPOSURE CONCENTRATION (mg/kg)
Benzo (a) anthracene	2.9E-01
Benzo (a) pyrene	3.3E-01
Benzo (b) fluoranthene	3.7E-01
Benzo (k) fluoranthene	3.4E-01
Benzo (g,h,i) perylene	2.5E-01
bis(2-Ethylhexyl) phthalate	1.2E-01
Carbazole	9.7E-02
Chrysene	3.3E-01
Dibenzo (a,h) anthracene	2.1E-01
Fluoranthene	2.9E-01
Indeno (1,2,3-cd) pyrene	2.7E-01
Phenanthrene	2.0E-01
Pyrene	2.6E-01
4,4-DDD	4.4E-03
4,4-DDE	1.5E-02
4,4-DDT	1.1E-02
Aroclor-1254	4.6E-02
Dieldrin	1.5E-02
Aluminum	8.7E+03
Arsenic	2.8E+00
Barium	3.7E+01
Cadmium	1.2E+00
Chromium	1.1E+01
Copper	3.3E+01
Lead	1.1E+02
Manganese	1.3E+02
Mercury	1.0E-01
Silver	1.4E+00
Vanadium	1.6E+01
Zinc	1.0E+02

TISSUE LEVELS IN PRIMARY
PREY ITEMS (Site Specific)

Invertebrate BAF [a]	Invertebrate Tissue Level (mg/kg) [b]	Plant BAF [a]	Plant Tissue Level (mg/kg) [b]	Mammal BAF [a]	Mammal Tissue Level (mg/kg) [c]	Bird BAF [a]	Small Bird Tissue Level (mg/kg) [c]
5.0E-02	1.4E-02	3.4E-03	9.8E-04	9.5E-01	4.6E-03	NA	0.0E+00
5.0E-02	1.6E-02	3.4E-03	1.1E-03	9.5E-01	5.2E-03	NA	0.0E+00
5.0E-02	1.8E-02	3.4E-03	1.3E-03	9.5E-01	5.9E-03	NA	0.0E+00
5.0E-02	1.7E-02	3.4E-03	1.2E-03	9.5E-01	5.5E-03	NA	0.0E+00
5.0E-02	1.3E-02	3.4E-03	8.6E-04	9.5E-01	4.0E-03	NA	0.0E+00
5.0E-02	5.9E-03	8.7E-03	1.0E-03	1.9E-01	4.1E-04	NA	0.0E+00
5.0E-02	4.9E-03	5.2E-02	5.0E-03	1.5E-01	0.0E+00	NA	0.0E+00
5.0E-02	1.6E-02	3.4E-03	1.1E-03	9.5E-01	5.2E-03	NA	0.0E+00
5.0E-02	1.1E-02	3.4E-03	7.3E-04	9.5E-01	3.4E-03	NA	0.0E+00
5.0E-02	1.4E-02	3.4E-03	9.9E-04	9.5E-01	4.6E-03	NA	0.0E+00
5.0E-02	1.3E-02	3.4E-03	9.2E-04	9.5E-01	4.2E-03	NA	0.0E+00
5.0E-02	9.8E-03	3.4E-03	6.7E-04	9.5E-01	3.1E-03	NA	0.0E+00
5.0E-02	1.3E-02	3.4E-03	8.8E-04	9.5E-01	4.1E-03	NA	0.0E+00
3.3E+00	1.5E-02	1.0E-02	4.4E-05	1.2E+00	1.4E-03	2.9E+00	6.4E-04
1.7E+00	2.6E-02	1.0E-02	1.5E-04	1.2E+00	2.6E-03	2.9E+00	1.2E-03
5.7E-01	6.2E-03	1.0E-02	1.1E-04	1.2E+00	7.5E-04	2.9E+00	3.0E-04
5.8E+00	2.7E-01	1.2E-01	5.5E-03	3.8E+00	8.4E-02	3.2E-01	1.3E-03
5.5E+00	8.1E-02	1.7E-02	2.5E-04	1.5E+00	9.5E-03	4.4E-01	5.4E-04
7.5E-02	6.5E+02	8.0E-04	7.0E+00	7.5E-02	1.2E+01	NA	0.0E+00
6.6E-03	1.8E-02	3.0E-01	8.4E-01	1.0E-01	2.9E-02	6.0E-03	3.9E-05
7.5E-03	2.8E-01	3.0E-02	1.1E+00	7.5E-03	6.0E-03	NA	0.0E+00
1.1E+01	1.3E+01	3.3E+01	4.0E+01	2.1E+00	2.7E+01	3.8E-01	1.3E-01
1.6E-01	1.7E+00	1.5E-03	1.6E-02	2.8E-01	7.2E-02	2.8E-01	1.0E-02
1.6E-01	5.2E+00	7.8E-01	2.5E+01	6.0E-01	5.1E+00	NA	0.0E+00
7.8E-02	8.6E+00	0.0E+00	0.0E+00	1.5E-02	2.9E-02	NA	0.0E+00
2.0E-02	2.6E+00	5.0E-02	6.5E+00	2.0E-02	7.4E-02	NA	0.0E+00
6.8E-02	6.8E-03	1.8E-01	1.8E-02	1.0E-02	7.2E-05	2.3E+00	6.3E-04
1.5E-01	2.1E-01	8.0E-02	1.1E-01	1.5E-01	1.0E-02	NA	0.0E+00
1.2E-01	1.9E+00	1.1E-03	1.7E-02	1.2E-01	4.0E-02	NA	0.0E+00
1.8E+00	1.8E+02	6.1E-01	6.3E+01	2.1E+00	7.2E+01	NA	0.0E+00

[a] Bioaccumulation factors are presented in

Appendix H, Table H-1

[b] Plant and invertebrate tissue concentrations are calculated by multiplying the soil concentration by the plant or invertebrate BAF.

[c] Mammal and bird tissue concentrations are calculated by multiplying the small mammal or bird body weight- and ingestion rate-normalized TBD by the mammal or bird BAF.

NA = Not analyzed

ND = Not detected

TBD = Total body dose

TABLE H-10

ESTIMATION OF SUBCHRONIC EXPOSURES TO TERRESTRIAL RECEPTORS FROM EXPOSURE TO CT CONCENTRATIONS IN FOOD AND SURFACE SOI

REMEDIAL INVESTIGATION REPORT

Naval Air Station Whiting Field-Site 16

TOTAL BODY DOSE (mg/kgBW-day) [a]

Chemical	Cotton mouse	Eastern Meadowlark	Short-tailed shrew	Great-horned owl	Red fox
Benzo (a) anthracene	7.5E-04	6.9E-05	5.9E-04	2.3E-06	2.0E-05
Benzo (a) pyrene	8.6E-04	7.9E-05	6.7E-04	2.6E-06	2.3E-05
Benzo (b) fluoranthene	9.7E-04	8.9E-05	7.6E-04	2.9E-06	2.6E-05
Benzo (k) fluoranthene	9.0E-04	8.3E-05	7.0E-04	2.7E-06	2.4E-05
Benzo (g,h,i) perylene	6.6E-04	6.1E-05	5.1E-04	2.0E-06	1.8E-05
bis(2-Ethylhexyl) phthalate	3.6E-04	2.9E-05	2.4E-04	5.2E-07	7.1E-06
Carbazole	6.4E-04	2.6E-05	2.1E-04	3.4E-07	6.2E-06
Chrysene	8.6E-04	7.9E-05	6.7E-04	2.6E-06	2.3E-05
Dibenzo (a,h) anthracene	5.6E-04	5.1E-05	4.3E-04	1.7E-06	1.5E-05
Fluoranthene	7.6E-04	6.9E-05	5.9E-04	2.3E-06	2.0E-05
Indeno (1,2,3-cd) pyrene	7.0E-04	6.4E-05	5.5E-04	2.1E-06	1.9E-05
Phenanthrene	5.2E-04	4.7E-05	4.0E-04	1.5E-06	1.4E-05
Pyrene	6.7E-04	6.2E-05	5.2E-04	2.0E-06	1.8E-05
4,4-DDD	1.5E-04	3.0E-05	1.7E-04	4.4E-07	5.5E-06
4,4-DDE	2.8E-04	5.4E-05	3.1E-04	8.4E-07	1.0E-05
4,4-DDT	8.7E-05	1.4E-05	8.7E-05	2.6E-07	2.9E-06
Aroclor-1254	3.0E-03	5.6E-04	3.1E-03	2.4E-05	1.5E-04
Dieldrin	8.1E-04	1.7E-04	9.5E-04	2.7E-06	3.2E-05
Aluminum	2.3E+01	2.5E+00	2.0E+01	3.3E-02	5.7E-01
Arsenic	7.5E-02	8.8E-04	5.8E-03	1.8E-05	2.7E-04
Barium	1.6E-01	6.2E-03	5.9E-02	1.3E-04	1.8E-03
Cadmium	3.4E+00	4.8E-02	2.2E-01	7.6E-03	3.2E-02
Chromium	3.7E-02	4.9E-03	3.5E-02	5.8E-05	1.0E-03
Copper	2.2E+00	2.9E-02	1.5E-01	1.5E-03	1.1E-02
Lead	2.9E-01	3.3E-02	2.6E-01	3.9E-04	7.2E-03
Manganese	8.0E-01	2.6E-02	2.3E-01	4.7E-04	7.2E-03
Mercury	1.7E-03	3.7E-05	2.6E-04	4.1E-07	8.9E-06
Silver	1.4E-02	6.8E-04	4.7E-03	7.6E-06	1.4E-04
Vanadium	4.9E-02	6.1E-03	4.5E-02	6.6E-05	1.2E-03
Zinc	7.2E+00	4.3E-01	2.4E+00	2.0E-02	1.2E-01

[a] Calculated by summing the products of individual prey type concentrations and percent in diet, multiplying by the SFF, exposure duration, and ingestion rate, and then dividing by body weight.

TABLE H-11

ESTIMATION OF SUBCHRONIC EXPOSURES TO TERRESTRIAL RECEPTORS FROM EXPOSURE TO CT CONCENTRATIONS IN FOOD AND SURFACE SOIL

REMEDIAL INVESTIGATION REPORT
Naval Air Station Whiting Field-Site 16

EXPOSURE PARAMETERS [c]

Indicator Species		Percent Prey in Diet					Home Range		Site Foraging Frequency [d]	Dietary Ingestion Rate (kg/day)	Water Ingestion Rate (l/day)	Body Weight (kg)	Exposure Duration
		Inverts	Plants	Small Mammals	Amphibians	Birds	Soil	(acres)					
Cotton mouse	Small herb. mammal	10%	88%	0%	0%	0%	2%	0.147	6.8E-01	0.0029	0.003	0.021	1
Eastern Meadowlark	Small omn. bird	75%	20%	0%	0%	0%	5%	5	2.0E-02	0.012	0.0115	0.087	1
Short-tailed shrew	Small omn. mammal	78%	12%	0%	0%	0%	10%	0.96	1.0E-01	0.002	0.0025	0.017	1
Great-horned owl	Predatory bird	0%	0%	80%	0%	19%	1%	15	6.7E-03	0.078	0.077	1.5	1
Red fox	Predatory mammal	20%	10%	57%	0%	10%	3%	250	2.8E-02	0.240	0.398	4.69	1

SITE AREA: 0.1 acres

NOTES:

[c] Documentation of exposure parameters presented in Table 9-8.

[d] Site Foraging Frequency (SFF). Calculated by dividing site area by receptor home range (cannot exceed 1.0)

TABLE H-12
RISK FROM POTENTIAL LETHAL EFFECTS FOR TERRESTRIAL RECEPTORS FROM CENTRAL TENDENCY
EXPOSURE CONCENTRATIONS OF ECPCs IN FOOD AND SURFACE SOIL

REMEDIAL INVESTIGATION REPORT
Naval Air Station Whiting Field-Site 16

CHEMICAL	Cotton mouse			Eastern Meadowlark			Short-tailed shrew		
	TBD	Lethal RTV	HQ	TBD	Lethal RTV	HQ	TBD	Lethal RTV	HQ
Benzo (a) anthracene	7.5E-04	1.2E+01	6.3E-05	6.9E-05			5.9E-04	1.2E+01	4.9E-05
Benzo (a) pyrene	8.6E-04	1.2E+01	7.2E-05	7.9E-05			6.7E-04	1.2E+01	5.6E-05
Benzo (b) fluoranthene	9.7E-04	1.2E+01	8.1E-05	8.9E-05			7.6E-04	1.2E+01	6.3E-05
Benzo (k) fluoranthene	9.0E-04	1.2E+01	7.5E-05	8.3E-05			7.0E-04	1.2E+01	5.9E-05
Benzo (g,h,i) perylene	6.6E-04	1.2E+01	5.5E-05	6.1E-05			5.1E-04	1.2E+01	4.3E-05
bis(2-Ethylhexyl) phthalate	3.6E-04	1.6E+02	2.2E-06	2.9E-05			2.4E-04	1.6E+02	1.5E-06
Carbazole	6.4E-04	1.0E+02	6.4E-06	2.6E-05			2.1E-04	1.0E+02	2.1E-06
Chrysene	8.6E-04	1.2E+01	7.2E-05	7.9E-05			6.7E-04	1.2E+01	5.6E-05
Dibenzo (a,h) anthracene	5.6E-04	1.2E+01	4.7E-05	5.1E-05			4.3E-04	1.2E+01	3.6E-05
Fluoranthene	7.6E-04	4.0E+02	1.9E-06	6.9E-05			5.9E-04	4.0E+02	1.5E-06
Indeno (1,2,3-cd) pyrene	7.0E-04	1.2E+01	5.8E-05	6.4E-05			5.5E-04	1.2E+01	4.5E-05
Phenanthrene	5.2E-04	1.4E+02	3.7E-06	4.7E-05			4.0E-04	1.4E+02	2.9E-06
Pyrene	6.7E-04	1.6E+02	4.2E-06	6.2E-05			5.2E-04	1.6E+02	3.3E-06
4,4-DDD	1.5E-04	1.7E+01	8.5E-06	3.0E-05	1.2E+02	2.6E-07	1.7E-04	1.7E+01	9.9E-06
4,4-DDE	2.8E-04	1.4E+02	2.0E-06	5.4E-05	1.2E+02	4.6E-07	3.1E-04	1.4E+02	2.2E-06
4,4-DDT	8.7E-05	1.7E+01	5.0E-06	1.4E-05	1.2E+02	1.2E-07	8.7E-05	1.7E+01	5.0E-06
Aroclor-1254	3.0E-03	1.0E+02	3.0E-05	5.6E-04	1.6E+01	3.5E-05	3.1E-03	1.0E+02	3.1E-05
Dieldrin	8.1E-04	5.0E+00	1.6E-04	1.7E-04	1.2E+00	1.4E-04	9.5E-04	5.0E+00	1.9E-04
Aluminum	2.3E+01	7.4E+02	3.1E-02	2.5E+00			2.0E+01	7.4E+02	2.7E-02
Arsenic	7.5E-02	2.9E+01	2.6E-03	8.8E-04	3.6E+00	2.4E-04	5.8E-03	2.9E+01	2.0E-04
Barium	1.6E-01	4.3E+01	3.8E-03	6.2E-03			5.9E-02	4.3E+01	1.4E-03
Cadmium	3.4E+00	3.0E+01	1.1E-01	4.8E-02			2.2E-01	3.0E+01	7.3E-03
Chromium	3.7E-02	4.0E+01	9.3E-04	4.9E-03	2.6E+01	1.9E-04	3.5E-02	4.0E+01	8.8E-04
Copper	2.2E+00	1.9E+02	1.2E-02	2.9E-02			1.5E-01	1.9E+02	8.1E-04
Lead	2.9E-01	6.0E+01	4.8E-03	3.3E-02	7.5E+01	4.4E-04	2.6E-01	6.0E+01	4.3E-03
Manganese	8.0E-01	4.5E+01	1.8E-02	2.6E-02			2.3E-01	4.5E+01	5.1E-03
Mercury	1.7E-03	4.4E+00	4.0E-04	3.7E-05	4.0E+00	9.4E-06	2.6E-04	4.4E+00	5.8E-05
Silver	1.4E-02	6.8E+00	2.0E-03	6.8E-04			4.7E-03	6.8E+00	6.9E-04
Vanadium	4.9E-02	6.2E+00	7.9E-03	6.1E-03	1.9E+01	3.2E-04	4.5E-02	6.2E+00	7.3E-03
Zinc	7.2E+00	5.0E+02	1.4E-02	4.3E-01			2.4E+00	5.0E+02	4.7E-03
SUMMARY HAZARD INDEX			2.1E-01			1.4E-03			6.1E-02

TBD = Total Body Dose (mg/kgBW-day)

RTV = Reference Toxicity Value (mg/kgBW-day); wildlife RTVs are presented in Appendix S, Table S-9.

HQ = Hazard Quotient (calculated by dividing TBD by RTV)

NA = Not Available

TABLE H-12
RISK FROM POTENTIAL LETHAL EFFECTS FOR TERRESTRIAL RECEPTORS FROM CENTRAL TENDENCY
EXPOSURE CONCENTRATIONS OF ECPCs IN FOOD AND SURFACE SOIL

REMEDIAL INVESTIGATION REPORT
Naval Air Station Whiting Field-Site 16

CHEMICAL	Great-horned owl			Red fox		
	TBD	Lethal RTV	HQ	TBD	Lethal RTV	HQ
Benzo (a) anthracene	2.3E-06			2.0E-05	1.2E+01	1.7E-06
Benzo (a) pyrene	2.6E-06			2.3E-05	1.2E+01	1.9E-06
Benzo (b) fluoranthene	2.9E-06			2.6E-05	1.2E+01	2.2E-06
Benzo (k) fluoranthene	2.7E-06			2.4E-05	1.2E+01	2.0E-06
Benzo (g,h,i) perylene	2.0E-06			1.8E-05	1.2E+01	1.5E-06
bis(2-Ethylhexyl) phthalate	5.2E-07			7.1E-06	1.6E+02	4.5E-08
Carbazole	3.4E-07			6.2E-06	1.0E+02	6.2E-08
Chrysene	2.6E-06			2.3E-05	1.2E+01	1.9E-06
Dibenzo (a,h) anthracene	1.7E-06			1.5E-05	1.2E+01	1.2E-06
Fluoranthene	2.3E-06			2.0E-05	4.0E+02	5.1E-08
Indeno (1,2,3-cd) pyrene	2.1E-06			1.9E-05	1.2E+01	1.6E-06
Phenanthrene	1.5E-06			1.4E-05	1.4E+02	9.8E-08
Pyrene	2.0E-06			1.8E-05	1.6E+02	1.1E-07
4,4-DDD	4.4E-07	1.2E+02	3.7E-09	5.5E-06	1.2E+01	4.6E-07
4,4-DDE	8.4E-07	1.2E+02	7.0E-09	1.0E-05	1.4E+02	7.2E-08
4,4-DDT	2.6E-07	1.2E+02	2.2E-09	2.9E-06	1.2E+01	2.4E-07
Aroclor-1254	2.4E-05	1.6E+01	1.5E-06	1.5E-04	1.5E+02	9.8E-07
Dieldrin	2.7E-06	1.2E+00	2.3E-06	3.2E-05	1.3E+01	2.4E-06
Aluminum	3.3E-02			5.7E-01	7.4E+02	7.7E-04
Arsenic	1.8E-05	3.6E+00	4.9E-06	2.7E-04	3.1E+00	8.6E-05
Barium	1.3E-04			1.8E-03	4.3E+01	4.2E-05
Cadmium	7.6E-03			3.2E-02	3.0E+01	1.1E-03
Chromium	5.8E-05	2.5E+01	2.3E-06	1.0E-03	4.0E+01	2.5E-05
Copper	1.5E-03			1.1E-02	1.9E+02	5.6E-05
Lead	3.9E-04	7.5E+01	5.2E-06	7.2E-03	6.0E+01	1.2E-04
Manganese	4.7E-04			7.2E-03	4.5E+01	1.6E-04
Mercury	4.1E-07	4.0E+00	1.0E-07	8.9E-06	4.4E+00	2.0E-06
Silver	7.6E-06			1.4E-04	6.8E+00	2.1E-05
Vanadium	6.6E-05	1.9E+01	3.4E-06	1.2E-03	6.2E+00	2.0E-04
Zinc	2.0E-02			1.2E-01	5.0E+02	2.5E-04
SUMMARY HAZARD INDEX			2.0E-05			2.8E-03

TBD = Total Body Dose (mg/kgBW-day).

RTV = Reference Toxicity Value (mg/kgBW-day); wildlife RTVs are presented in Appendix S, Table S-9.

HQ = Hazard Quotient (calculated by dividing TBD by RTV)

NA = Not Available

TABLE H-13
RISK FROM POTENTIAL SUBLETHAL EFFECTS FOR TERRESTRIAL RECEPTORS FROM CENTRAL TENDENCY
EXPOSURE CONCENTRATIONS OF ECPCs IN FOOD AND SURFACE SOIL

REMEDIAL INVESTIGATION REPORT
Naval Air Station Whiting Field-Site 16

CHEMICAL	Cotton mouse			Eastern Meadowlark			Short-tailed shrew			
	Sublethal			Sublethal			Sublethal			
	TBD	RTV	HQ	TBD	RTV	HQ	TBD	RTV	HQ	
Benzo (a) anthracene	7.5E-04	1.0E+01	7.5E-05	6.9E-05			5.9E-04	1.0E+01	5.9E-05	
Benzo (a) pyrene	8.6E-04	1.0E+01	8.6E-05	7.9E-05			6.7E-04	1.0E+01	6.7E-05	
Benzo (b) fluoranthene	9.7E-04	1.0E+01	9.7E-05	8.9E-05			7.6E-04	1.0E+01	7.6E-05	
Benzo (k) fluoranthene	9.0E-04	1.0E+01	9.0E-05	8.3E-05			7.0E-04	1.0E+01	7.0E-05	
Benzo (g,h,i) perylene	6.6E-04	1.0E+01	6.6E-05	6.1E-05			5.1E-04	1.0E+01	5.1E-05	
bis(2-Ethylhexyl) phthalate	3.6E-04	3.5E+00	1.0E-04	2.9E-05			2.4E-04	3.5E+00	6.9E-05	
Carbazole	6.4E-04			2.6E-05			2.1E-04			
Chrysene	8.6E-04	1.0E+01	8.6E-05	7.9E-05			6.7E-04	1.0E+01	6.7E-05	
Dibenzo (a,h) anthracene	5.6E-04	1.0E+01	5.6E-05	5.1E-05			4.3E-04	1.0E+01	4.3E-05	
Fluoranthene	7.6E-04	1.0E+01	7.6E-05	6.9E-05			5.9E-04	1.0E+01	5.9E-05	
Indeno (1,2,3-cd) pyrene	7.0E-04	1.0E+01	7.0E-05	6.4E-05			5.5E-04	1.0E+01	5.5E-05	
Phenanthrene	5.2E-04	1.0E+01	5.2E-05	4.7E-05			4.0E-04	1.0E+01	4.0E-05	
Pyrene	6.7E-04	1.0E+01	6.7E-05	6.2E-05			5.2E-04	1.0E+01	5.2E-05	
4,4-DDD	1.5E-04	2.0E-01	7.4E-04	3.0E-05	1.4E-01	2.2E-04	1.7E-04	2.0E-01	8.7E-04	
4,4-DDE	2.8E-04	2.0E-01	1.4E-03	5.4E-05	3.9E-01	1.4E-04	3.1E-04	2.0E-01	1.6E-03	
4,4-DDT	8.7E-05	2.0E-01	4.4E-04	1.4E-05	1.4E-01	1.0E-04	8.7E-05	2.0E-01	4.3E-04	
Aroclor-1254	3.0E-03	1.5E-01	2.0E-02	5.6E-04	9.0E-02	6.2E-03	3.1E-03	1.5E-01	2.1E-02	
Dieldrin	8.1E-04	6.5E-02	1.2E-02	1.7E-04			9.5E-04	6.5E-02	1.5E-02	
Aluminum	2.3E+01	4.3E+02	5.4E-02	2.5E+00			2.0E+01	4.3E+02	4.8E-02	
Arsenic	7.5E-02	5.8E-01	1.3E-01	8.8E-04	1.0E+00	8.8E-04	5.8E-03	5.8E-01	1.0E-02	
Barium	1.6E-01	2.0E+01	8.2E-03	6.2E-03			5.9E-02	2.0E+01	3.0E-03	
Cadmium	3.4E+00	2.2E+00	1.6E+00	4.8E-02	1.0E+00	4.8E-02	2.2E-01	2.2E+00	1.0E-01	
Chromium	3.7E-02	3.5E+00	1.1E-02	4.9E-03	2.0E+02	2.5E-05	3.5E-02	3.5E+00	1.0E-02	
Copper	2.2E+00	1.0E+01	2.2E-01	2.9E-02			1.5E-01	1.0E+01	1.5E-02	
Lead	2.9E-01	3.0E+01	9.6E-03	3.3E-02	4.6E+00	7.1E-03	2.6E-01	3.0E+01	8.7E-03	
Manganese	8.0E-01	1.4E+01	5.7E-02	2.6E-02			2.3E-01	1.4E+01	1.6E-02	
Mercury	1.7E-03	5.0E-02	3.5E-02	3.7E-05	6.4E-02	5.9E-04	2.6E-04	5.0E-02	5.1E-03	
Silver	1.4E-02			6.8E-04			4.7E-03			
Vanadium	4.9E-02	8.4E+00	5.8E-03	6.1E-03	1.1E+00	5.5E-03	4.5E-02	8.4E+00	5.4E-03	
Zinc	7.2E+00	2.0E+01	3.6E-01	4.3E-01			2.4E+00	2.0E+01	1.2E-01	
SUMMARY HAZARD INDEX			2.5E+00				6.9E-02			

TBD = Total Body Dose (mg/kgBW-day).

RTV = Reference Toxicity Value (mg/kgBW-day); wildlife RTVs are presented in Appendix S, Table S-9.

HQ = Hazard Quotient (calculated by dividing TBD by RTV)

NA = Not Available

TABLE H-13
 RISK FROM POTENTIAL SUBLETHAL EFFECTS FOR TERRESTRIAL RECEPTORS FROM CENTRAL TENDENCY
 EXPOSURE CONCENTRATIONS OF ECPCs IN FOOD AND SURFACE SOIL

REMEDIAL INVESTIGATION REPORT
 Naval Air Station Whiting Field-Site 16

CHEMICAL	Great-horned owl Sublethal			Red fox Sublethal		
	TBD	RTV	HQ	TBD	RTV	HQ
Benzo (a) anthracene	2.3E-06			2.0E-05	1.0E+01	2.0E-06
Benzo (a) pyrene	2.6E-06			2.3E-05	1.0E+01	2.3E-06
Benzo (b) fluoranthene	2.9E-06			2.6E-05	1.0E+01	2.6E-06
Benzo (k) fluoranthene	2.7E-06			2.4E-05	1.0E+01	2.4E-06
Benzo (g,h,i) perylene	2.0E-06			1.8E-05	1.0E+01	1.8E-06
bis(2-Ethylhexyl) phthalate	5.2E-07			7.1E-06	3.5E+00	2.0E-06
Carbazole	3.4E-07			6.2E-06		
Chrysene	2.6E-06			2.3E-05	1.0E+01	2.3E-06
Dibenzo (a,h) anthracene	1.7E-06			1.5E-05	1.0E+01	1.5E-06
Fluoranthene	2.3E-06			2.0E-05	1.0E+01	2.0E-06
Indeno (1,2,3-cd) pyrene	2.1E-06			1.9E-05	1.0E+01	1.9E-06
Phenanthrene	1.5E-06			1.4E-05	1.0E+01	1.4E-06
Pyrene	2.0E-06			1.8E-05	1.0E+01	1.8E-06
4,4-DDD	4.4E-07	1.4E-01	3.1E-06	5.5E-06	1.2E+01	4.6E-07
4,4-DDE	8.4E-07	3.9E-01	2.1E-06	1.0E-05	1.2E+01	8.5E-07
4,4-DDT	2.6E-07	1.4E-01	1.9E-06	2.9E-06	1.2E+01	2.4E-07
Aroclor-1254	2.4E-05	9.0E-01	2.6E-05	1.5E-04	9.6E-03	1.5E-02
Dieldrin	2.7E-06			3.2E-05	6.5E-02	4.9E-04
Aluminum	3.3E-02			5.7E-01	4.3E+02	1.3E-03
Arsenic	1.8E-05	1.0E+00	1.8E-05	2.7E-04	5.8E-01	4.6E-04
Barium	1.3E-04			1.8E-03	2.0E+01	9.1E-05
Cadmium	7.6E-03	1.0E+00	7.6E-03	3.2E-02	2.2E+00	1.5E-02
Chromium	5.8E-05	2.0E+02	2.9E-07	1.0E-03	3.5E+00	2.8E-04
Copper	1.5E-03			1.1E-02	1.0E+01	1.1E-03
Lead	3.9E-04	4.6E+00	8.4E-05	7.2E-03	3.0E+01	2.4E-04
Manganese	4.7E-04			7.2E-03	1.4E+01	5.2E-04
Mercury	4.1E-07	6.4E-02	6.4E-06	8.9E-06	5.0E-02	1.8E-04
Silver	7.6E-06			1.4E-04		
Vanadium	6.6E-05	1.1E+00	6.0E-05	1.2E-03	8.4E+00	1.5E-04
Zinc	2.0E-02			1.2E-01	2.0E+01	6.2E-03
SUMMARY HAZARD INDEX			7.8E-03			4.1E-02

TBD = Total Body Dose (mg/kgBW-day)

RTV = Reference Toxicity Value (mg/kgBW-day); wildlife RTVs are presented in Appendix S, Table S-9.

HQ = Hazard Quotient (calculated by dividing TBD by RTV)

NA = Not Available

APPENDIX I
AQUIRE DATA

Table I-1
AQUIRE Freshwater Toxicity Information (µg/L)
Site 16

Remedial Investigation
 NAS Whiting Field
 Milton, Florida

Chemical Name	Species	Age	Exposure	Effect	Effect Concentration		AQUIRE Reference Number	Year of Publication
					Lethal	Sublethal		
Inorganics								
Aluminum	Brachionus calyciflorus, Rotifer,	NEONATE	24 H	LC ₅₀	> 3,000		219385	91
	Myriophyllum spicatum, Water-milfoil,	4 CM APEX	32 D	EC ₅₀ GR		12,700	212262	74
	Myriophyllum spicatum, Water-milfoil,	4 CM APEX	32 D	EC ₅₀ BM *		7,600	212262	74
	Myriophyllum spicatum, Water-milfoil,	4 CM APEX	32 D	EC ₅₀ BM *		2,500	212262	74
	Myriophyllum spicatum, Water-milfoil,	4 CM APEX	32 D	EC ₅₀ GR		5,100	212262	74
	Salmo trutta; Brown trout,	ALEVIN	28 D	LC ₅₀	19		213472	90
	Salmo trutta; Brown trout,	ALEVIN	42 D	LC ₅₀	72		213472	90
	Salmo trutta, Brown trout,	ALEVIN	21 D	LC ₅₀	84 to 105		213472	90
	Salmo trutta; Brown trout,	ALEVIN	42 D	LC ₅₀	15		213472	90
	Salmo trutta, Brown trout,	ALEVIN	28 D	LC ₅₀	79		213472	90
	Salmo trutta, Brown trout,	FERT EGG	<4 MO	HAT		<677	213472	90
	Salvelinus fontinalis, Brook trout,	FRY	43.2 H	LC ₅₀	1,000		216632	80
	Salvelinus fontinalis, Brook trout,	FRY	7.3 D	LC ₅₀	630		216632	80
	Salvelinus fontinalis, Brook trout,	FRY	79.2 H	LC ₅₀	500		216632	80
	Salvelinus fontinalis, Brook trout,	ADULT, 25-30 CM	5 D	LET	320		216632	80
	Salvelinus fontinalis, Brook trout,	FRY	86.4 H	LT ₅₀	1,000		216632	80
	Salvelinus fontinalis, Brook trout,	FRY	11.5 D	LT ₅₀	100		216632	80
	Salvelinus fontinalis, Brook trout,	FRY, 22-23 MM	10.67 D	LT ₅₀	480		216188	80
	Salvelinus fontinalis, Brook trout,	FRY	4.7 D	LT ₅₀	650		216632	80
	Salvelinus fontinalis, Brook trout,	FRY, 22-23 MM	19.67 D	LT ₅₀	470		216188	80
	Salvelinus fontinalis, Brook trout,	FRY	5 D	LT ₅₀	1,000		216632	80
	Salvelinus fontinalis, Brook trout,	FRY, 22-23 MM	20.83 D	LT ₅₀	20		216188	80
	Salvelinus fontinalis, Brook trout,	FRY	50.4 H	LT ₅₀	500		216632	80
	Salvelinus fontinalis, Brook trout,	FRY, 22-23 MM	4.79 D	LT ₅₀	42		216188	80
	Salvelinus fontinalis, Brook trout,	FRY	67.2 H	LT ₅₀	500		216632	80
	Salvelinus fontinalis, Brook trout,	FRY, 22-23 MM	8.42 D	LT ₅₀	500		216188	80
	Salvelinus fontinalis, Brook trout,	EYED EGGS	5 D	MOR *	320		216632	80
	Salvelinus fontinalis, Brook trout,	FRY, 22-23 MM	>20.83 D	LT ₅₀	10		216188	80
	Salvelinus fontinalis, Brook trout,	0.2 G, 30 D	3 D	GRO *		268	213592	91
	Salvelinus fontinalis, Brook trout,	FRY, 22-23 MM	>20.83 D	LT ₅₀	500		216188	80
	Salvelinus fontinalis, Brook trout,	FRY	55.2 H	LT ₅₀	500		216632	80
	Salvelinus fontinalis, Brook trout,	FRY, 22-23 MM	>20.83 D	LT ₅₀	500		216188	80
	Salvelinus fontinalis, Brook trout,	FRY	38.4 H	LT ₅₀	500		216632	80
Salvelinus fontinalis, Brook trout,	0.2 G, 30 D	56 D	MOR *	268		213592	91	
Salvelinus fontinalis, Brook trout,	FRY	5.2 D	LT ₅₀	100		216632	80	
Salvelinus fontinalis, Brook trout,	RECENTLY HATCHED FRY	5 D	LET	320		216632	80	

Table I-1
AQUIRE Freshwater Toxicity Information (µg/L)
Site 16

Remedial Investigation
 NAS Whiting Field
 Milton, Florida

Chemical Name	Species	Age	Exposure	Effect	Effect Concentration		AQUIRE Reference Number	Year of Publication
					Lethal	Sublethal		
Aluminum chloride	Salvelinus fontinalis, Brook trout,	YEARLINGS, 13-17 CM	5 D	LET	320		216632	80
	Ambystoma opacum, Marbled salamander,	EGGS	8 D	LC ₅₀	2,280		216199	78
	Brachydanio rerio, Zebra danio, zebrafish;	LARVAE, 7-8 D POST-SPAWN	48 H	LC ₅₀	106,000		311199	85
	Brachydanio rerio, Zebra danio, zebrafish;	LARVAE, 7-8 D POST-SPAWN	48 H	LC ₅₀	80,000		311199	85
	Carassius auratus, Goldfish,	EGGS	7 D	LC ₅₀	150		215305	78
	Chilomonas paramecium; Cryptomonad,	NR	0.17 H	LET	2,400		212863	73
	Cyprinus carpio, Common, mirror, colored, carp;	7.5-8.5 CM, 10.5-12.5 G	24 H	MOR *	8,000		315166	81
	Cyprinus carpio, Common, mirror, colored, carp;	7.5-8.5 CM, 10.5-12.5 G	48 H	MOR *	2,000		315166	81
	Cyprinus carpio; Common, mirror, colored, carp;	7.5-8.5 CM, 10.5-12.5 G	24 H	MOR *	4,000		315166	81
	Cyprinus carpio; Common, mirror, colored, carp;	7.5-8.5 CM, 10.5-12.5 G	48 H	MOR *	2,000		315166	81
	Cyprinus carpio, Common, mirror, colored, carp;	7.5-8.5 CM, 10.5-12.5 G	24 H	MOR *	8,000		315166	81
	Cyprinus carpio, Common, mirror, colored, carp;	7.5-8.5 CM, 10.5-12.5 G	48 H	MOR *	8,000		315166	81
	Daphnia magna, Water flea;	12 H	21 D	EC ₅₀ IM ?		1,400	212022	72
	Daphnia magna; Water flea;	4 H	64 H	EC ₅₀ IM		1,400	212054	48
	Daphnia magna; Water flea;	12 H	48 H	EC ₅₀ IM ?		3,900	212022	72
	Daphnia magna, Water flea,	12 H	21 D	EC ₅₀ RE ?		680	212022	72
	Euglena gracilis, Flagellate euglenoid,	NR	3 H	MOR *	1,000,000		212863	73
	Gambusia affinis, Mosquitofish; Poeciliidae;	ADULT, FEMALE	48 H	LC ₅₀	27,500		210508	57
	Gambusia affinis, Mosquitofish; Poeciliidae,	ADULT, FEMALE	24 H	LC ₅₀	29,600		210508	57
	Gambusia affinis, Mosquitofish; Poeciliidae;	ADULT, FEMALE	96 H	LC ₅₀	27,100		210508	57
	Gambusia affinis, Mosquitofish; Poeciliidae;	ADULT, FEMALE	96 H	MOR * (Calc)	20,400		210508	57
	Microhyla carolinensis, Narrow mouthed frog;	EGGS	7 D	LC ₅₀	50		215305	78
	Micropterus salmoides; Largemouth bass;	EGGS	8 D	LC ₅₀	170		216199	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	EGGS	28 D	LC ₅₀	560		215305	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	FINGERLING, 6 WK	9.25 D	PHY *		5,140, 1,570	218830	73
	Oncorhynchus mykiss; Rainbow trout, donaldson trout;	EGGS	28 D	LC ₅₀	560		216199	78
	Oncorhynchus mykiss; Rainbow trout, donaldson trout;	FINGERLING, 6 MO	45 D	PHY *		514, 514	218830	73
	Oncorhynchus mykiss; Rainbow trout, donaldson trout,	FINGERLING, 11 WK	43.9 D	LC ₅₀	513		219328	71
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	FINGERLING, 6 WK	4.7 D	PHY *		5,200, 5,050	218830	73
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	FINGERLING, 6 MO	31.96 D	LT ₅₀	5,230		219328	71
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	FINGERLING, 6 WK	7.46 D	LT ₅₀	5,140		219328	71
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	FINGERLING, 6 MO	45 D	GRO *		516, 516	218830	73
Oncorhynchus mykiss, Rainbow trout, donaldson trout;	FINGERLING, 6 WK	71.52 H	LT ₅₀	5,200		219328	71	
Oncorhynchus mykiss, Rainbow trout, donaldson trout;	FINGERLING, 11 WK	45 D	GRO *		513	219328	71	
Oncorhynchus mykiss, Rainbow trout, donaldson trout;	FINGERLING, 6 MO	45 D	GRO *		514	219328	71	
Oncorhynchus mykiss, Rainbow trout, donaldson trout,	FINGERLING, 6 MO	45 D	GRO *		516	219328	71	
Oncorhynchus mykiss, Rainbow trout, donaldson trout,	FINGERLING, 11 WK	38.9 D	LT ₅₀	5,140		219328	71	
Peranema trichophorum, Flagellate;	NR	0.17 H	LET	>1,000,000		212863	73	

Table I-1
AQUIRE Freshwater Toxicity Information (µg/L)
Site 16

Remedial Investigation
 NAS Whiting Field
 Milton, Florida

Chemical Name	Species	Age	Exposure	Effect	Effect Concentration		AQUIRE Reference Number	Year of Publication
					Lethal	Sublethal		
Aluminum sulfate	Pimephales promelas, Fathead minnow,	LARVAE, <24 H	14 D	GRO *		66, 35	213070	89
	Pimephales promelas, Fathead minnow,	EMBRYO	4 D	HAT *		66, 35	213070	89
	Pimephales promelas, Fathead minnow,	30 D	to 109 D	HIS		30 to 60	213182	90
	Pimephales promelas, Fathead minnow,	12 D LARVAE	to 96 H	MOR	50 to 400		210836	89
	Pimephales promelas, Fathead minnow,	JUVENILE	to 96 H	MOR	50 to 400		210836	89
	Pimephales promelas, Fathead minnow,	1 D LARVAE	to 96 H	MOR	50 to 400		210836	89
	Pimephales promelas, Fathead minnow,	LARVAE, <24 H	14 D	MOR *	66, 35		213070	89
	Pimephales promelas, Fathead minnow,	ADULT	2 MO	REP *		66, 35	213070	89
	Tetrahymena pyriformis, Ciliate,	NR	0.17 H	LET	3,200		212863	73
	Tropisternus lateralis, Beetle,	ADULT	14 D	PHY * (Calc)		27,000	212868	69
	Asellus aquaticus, Aquatic sowbug,	ADULT, 7 MM, 1.5 MG DRY WT	48 H	EC ₅₀ IM ?		6,570	311972	86
	Asellus aquaticus, Aquatic sowbug,	ADULT, 7 MM, 1.5 MG DRY WT	72 H	EC ₅₀ IM ?		4,370	311972	86
	Biomphalaria glabrata, Snail,	ADULT, 4-4.5 SUTURE WHORL	24 H	STR *		100	212853	63
	Biomphalaria glabrata, Snail,	ADULT, 4-4.5 SUTURE WHORL	24 H	STR *		1,000	212853	63
	Cladocera, Water flea order,	NR	2 MO *	POP *		500	217183	78
	Crangonyx pseudogracilis, Amphipod,	ADULT, 4 MM, 0.2 MG DRY WT	48 H	EC ₅₀ IM ?		12,800	311972	86
	Crangonyx pseudogracilis, Amphipod,	ADULT, 4 MM, 0.2 MG DRY WT	96 H	EC ₅₀ IM ?		9,190	311972	86
	Crustacea, Crustacean class,	NR	2 MO *	ABD *		500	217183	78
	Cyprinus carpio, Common, mirror, colored, carp,	7.5-8.5 CM, 10.5-12.5 G	24 H	MOR *	8,000		315166	81
	Cyprinus carpio, Common, mirror, colored, carp,	7.5-8.5 CM, 10.5-12.5 G	24 H	MOR *	8,000		315166	81
	Cyprinus carpio, Common, mirror, colored, carp,	7.5-8.5 CM, 10.5-12.5 G	48 H	MOR *	2,000		315166	81
	Cyprinus carpio, Common, mirror, colored, carp,	7.5-8.5 CM, 10.5-12.5 G	48 H	MOR *	4,000		315166	81
	Cyprinus carpio, Common, mirror, colored, carp,	7.5-8.5 CM, 10.5-12.5 G	48 H	MOR *	4,000		315166	81
	Cyprinus carpio, Common, mirror, colored, carp,	7.5-8.5 CM, 10.5-12.5 G	48 H	MOR *	8,000		315166	81
	Daphnia magna, Water flea,	8 H, YOUNG	0.25 H *	LOC *		136,000	212171	44
	Fundulus heteroclitus, Mummichog,	NR	36 H	LC ₁₀₀ (Calc)	2,200		212865	15
	Fundulus heteroclitus, Mummichog,	NR	5 D	LC ₁₀₀ (Calc)	1,100		212865	15
	Gambusia affinis, Mosquitofish,	ADULT, FEMALE	24 H	LC ₅₀	69,000		210508	57
	Gambusia affinis, Mosquitofish,	ADULT, FEMALE	48 H	LC ₅₀	38,000		210508	57
	Gambusia affinis, Mosquitofish,	ADULT, FEMALE	48 H	MOR * (Calc)	< 28,000		210508	57
	Gambusia affinis, Mosquitofish,	ADULT, FEMALE	96 H	LC ₅₀ ? (Calc)	37,000		210508	57
	Micropterus dolomieu, Smallmouth bass,	13 8(12-17) MM, 32.5(9-59) MG	30 D	GRO *		251.6	312723	87
	Micropterus dolomieu, Smallmouth bass,	LARVAE	30 D	MOR *	251.6		312723	87
Micropterus dolomieu, Smallmouth bass,	LARVAE, 48 H POST-HATCH	96 H	MOR *	100		312723	87	
Micropterus dolomieu, Smallmouth bass,	LARVAE, 48 H POST-HATCH	96 H	MOR *	196		312723	87	
Micropterus dolomieu, Smallmouth bass,	LARVAE, 48 H POST-HATCH	96 H	MOR *	217		312723	87	
Micropterus dolomieu, Smallmouth bass,	LARVAE, 48 H POST-HATCH	96 H	MOR *	32		312723	87	
Micropterus dolomieu, Smallmouth bass,	LARVAE, 48 H POST-HATCH	96 H	MOR *	320		312723	87	

Table I-1
AQUIRE Freshwater Toxicity Information (µg/L)
Site 16

Remedial Investigation
 NAS Whiting Field
 Milton, Florida

Chemical Name	Species	Age	Exposure	Effect	Effect Concentration		AQUIRE Reference Number	Year of Publication
					Lethal	Sublethal		
	Micropterus dolomieu, Smallmouth bass;	LARVAE, 48 H POST-HATCH	96 H	MOR *	56		312723	87
	Micropterus dolomieu, Smallmouth bass;	LARVAE, 48 H POST-HATCH	96 H	MOR *	560		312723	87
	Notemigonus crysoleucas; Golden shiner;	NR	45 D	MOR *	100,000		312756	86
	Notemigonus crysoleucas, Golden shiner;	NR	45 D	MOR *	100,000		312756	86
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	118-355 G, 22-31 CM FORK LENGTH	24 H	MOR *	910		212508	88
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	118-355 G, 22-31 CM FORK LENGTH	24 H	MOR *	9,100		212508	88
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	118-355 G, 22-31 CM FORK LENGTH	48 H	LET	9,100		212508	88
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	118-355 G, 22-31 CM FORK LENGTH	48 H	MOR *	910		212508	88
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	118-355 G, 22-31 CM FORK LENGTH	72 H	MOR *	910		212508	88
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	118-355 G, 22-31 CM FORK LENGTH	96 H	HEM *		90	212508	88
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	118-355 G, 22-31 CM FORK LENGTH	96 H	HEM *		910	212508	88
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	118-355 G, 22-31 CM FORK LENGTH	96 H	HEM *		910	212508	88
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	118-355 G, 22-31 CM FORK LENGTH	96 H	MOR *	90		212508	88
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	118-355 G, 22-31 CM FORK LENGTH	96 H	MOR *	910		212508	88
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	50-80 MM	10 D	LC ₀	200,000		216520	80
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	50-80 MM	10 D	LC ₀	50,000		216520	80
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	50-80 MM	42 H	LC ₁₀₀	50,000		216520	80
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	50-80 MM	42 H	LC ₁₀₀	50,000		216520	80
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	50-80 MM	96 H	MOR *	50,000		216520	80
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	FINGERLING, 11 WK	45 D	PHY *		513	218830	73
	Salvelinus fontinalis, Brook trout;	14 MO, 210 MM, 130 G	24 H	LC ₅₀ ?	4,000		216115	75
	Salvelinus fontinalis, Brook trout;	14 MO, 210 MM, 130 G	24 H	LC ₅₀ ?	4,450		216115	75
	Salvelinus fontinalis, Brook trout;	14 MO, 210 MM, 130 G	24 H	MOR *	5,000		216115	75
	Salvelinus fontinalis, Brook trout;	14 MO, 210 MM, 130 G	24 H	MOR *	5,000		216115	75
	Salvelinus fontinalis, Brook trout;	14 MONTHS, 210 MM, 130 G	96 H	LC ₅₀ ?	3,600		216115	75
	Salvelinus fontinalis, Brook trout;	EYED EMBRYO - LARVAE	45 D	GRO *		283	312720	87
	Salvelinus fontinalis, Brook trout;	EYED EMBRYO - LARVAE	60 D	BEH *		283	312720	87
	Salvelinus fontinalis, Brook trout;	EYED EMBRYO - LARVAE	60 D	MOR *	283		312720	87
	Stizostedion lucioperca, Pikeperch;	11.5-16 MM	24 H	MOR *	400		212700	75
Barium	Daphnia magna; Water flea;	<= 24 H	24 H	LC ₅₀	> 530,000		215184	80
	Daphnia magna; Water flea;	<= 24 H	48 H	LC ₅₀	410,000		215184	80
	Daphnia magna; Water flea;	<= 24 H	48 H	MOR *	68,000		215184	80
	Lemna minor; Duckweed;	20 COLONIES OR 40 FRONDS	4 D	EC ₅₀ GR		26,000	311789	86
	Myriophyllum spicatum; Water-milfoil;	4 CM APEX	32 D	EC ₅₀ BM *		103,000	212262	74
	Myriophyllum spicatum; Water-milfoil;	4 CM APEX	32 D	EC ₅₀ BM *		41,200	212262	74
	Myriophyllum spicatum; Water-milfoil;	4 CM APEX	32 D	EC ₅₀ GR		113,000	212262	74
	Myriophyllum spicatum; Water-milfoil;	4 CM APEX	32 D	EC ₅₀ GR		83,800	212262	74

Table I-1
 AQUIRE Freshwater Toxicity Information (µg/L)
 Site 16

Remedial Investigation
 NAS Whiting Field
 Milton, Florida

Chemical Name	Species	Age	Exposure	Effect	Effect Concentration		AQUIRE Reference Number	Year of Publication
					Lethal	Sublethal		
Barium chloride	<i>Austropotamobius pallipes</i> pall; Crayfish	19-32 MM	96 H	LC ₅₀	46,000		228813	73
	<i>Daphnia magna</i> ; Water flea	12 H	21 D	REP		8,900	228734	72
	<i>Daphnia magna</i> ; Water flea	12 H	48 H	IMM		14,500	228732	72
	<i>Echinogammarus berilloni</i> ; Scud	NR	24 H	LC ₅₀	336,000		307710	86
	<i>Gambusia affinis</i> ; Mosquitofish	ADULT, FEMALE	96 H	MOR	66,200		215457	57
	<i>Gambusia affinis</i> ; Mosquitofish	ADULT, FEMALE	24 H	LC ₅₀	2,910,000		215454	57
	<i>Gammarus pulex</i> ; Scud	NR	24 H	LC ₅₀	3,980,000		307706	86
	<i>Lemna minor</i> ; Duckweed	FRONDS	96 H	GRO		25,000	283261	88
	<i>Orconectes limosus</i> ; Crayfish	19-32 MM	96 H	LC ₅₀	78,000		228816	73
	<i>Salmo trutta</i> ; Brown trout	YEARLING	48 H	LC ₅₀	150,000		240072	74
Lead	<i>Astacus astacus</i> ; European crayfish;	8-10 CM	2 WK	ENZ *		20	210376	91
	<i>Astacus astacus</i> ; European crayfish;	8-10 CM	to 10 WK	HIS		20	210376	91
	<i>Barbus arulius</i> ; Barb;	1.24 G	4 D	HIS		200,000 to 400,000	219972	87
	<i>Brachionus calyciflorus</i> ; Rotifer;	NEONATE	24 H	LC ₅₀	> 4,000		219385	91
	<i>Brachydanio rerio</i> , Zebra danio, zebrafish;	DECHLORIONATED EGG	24 H			72	219870	80
	<i>Brachydanio rerio</i> , Zebra danio, zebrafish;	EGG	48 H			72	219870	80
	<i>Bufo arenarum</i> ; Toad;	EMBRYO	24 H	DVP *		1,000	213162	90
	<i>Bufo arenarum</i> ; Toad;	EMBRYO	24 H	MOR *	1,000		213162	90
	<i>Carassius auratus</i> ; Goldfish;	UNDERYEARLING	1 WK *	ENZ *		470	315460	77
	<i>Ceriodaphnia reticulata</i> ; Water flea;	< 4 H	48 H	LC ₅₀	530		311181	84
	<i>Daphnia magna</i> ; Water flea;	< 24 H	48 H	LC ₅₀	4,400		311181	84
	<i>Daphnia pulex</i> ; Water flea;	< 24 H	48 H	LC ₅₀	5,100		311181	84
	<i>Dugesia dorotocephala</i> ; Turbellarian, flatworm;	18-20 MM	1 H	BEH *		100 to 1,000	310581	91
	<i>Dugesia tigrina</i> ; Turbellarian, flatworm;	NR	96 H	LC ₅₀	160,000		218709	74
	<i>Hyalella azteca</i> ; Scud;	NR	5 D	LC ₁₀₀	5,000		219804	80
	<i>Lemna minor</i> ; Duckweed;	20 COLONIES OR 40 FRONDS	4 D	EC ₅₀ GR		8,000	311789	86
	<i>Lepomis gibbosus</i> ; Pumpkinseed;	> 1.75 YR	<=2 WK *	ENZ *		90	315460	77
	<i>Micropterus dolomieu</i> ; Smallmouth bass;	EGG	96 H	MOR *	<=15,900		312153	86
	<i>Micropterus dolomieu</i> ; Smallmouth bass;	FINGERLING	10 WK	LOC *		405	312153	86
	<i>Micropterus dolomieu</i> ; Smallmouth bass;	FINGERLING	90 D	GRO *		405	312153	86
	<i>Micropterus dolomieu</i> ; Smallmouth bass;	FINGERLING	90 D	HEM *		405	312153	86
<i>Micropterus dolomieu</i> ; Smallmouth bass;	FINGERLING	96 H	LC ₅₀	29,000		312153	86	
<i>Micropterus dolomieu</i> ; Smallmouth bass;	SAC FRY, 7 D POST-SPAWN	96 H	MOR *	<=15,900		312153	86	
<i>Micropterus dolomieu</i> ; Smallmouth bass;	SWIM-UP FRY, 17 D POST-SPAWN	96 H	LC ₅₀	2,800		312153	86	
<i>Micropterus dolomieu</i> ; Smallmouth bass;	SWIM-UP, FRY 17 D POST-SPAWN	96 H	LC ₅₀	2,200		312153	86	
<i>Micropterus salmoides</i> ; Largemouth bass;	NR	24 H	BEH *		1,500	311127	78	
<i>Micropterus salmoides</i> ; Largemouth bass;	NR	24 H	RES *		1,050	311127	78	

Table I-1
AQUIRE Freshwater Toxicity Information (µg/L)
Site 16

Remedial Investigation
NAS Whiting Field
Milton, Florida

Chemical Name	Species	Age	Exposure	Effect	Effect Concentration		AQUIRE Reference Number	Year of Publication
					Lethal	Sublethal		
	Myriophyllum spicatum, Water-milfoil,	4 CM APEX	32 D	EC ₅₀ BM *		363,000	212262	74
	Myriophyllum spicatum, Water-milfoil,	4 CM APEX	32 D	EC ₅₀ BM *		808,000	212262	74
	Myriophyllum spicatum, Water-milfoil,	4 CM APEX	32 D	EC ₅₀ GR		725,000	212262	74
	Myriophyllum spicatum, Water-milfoil,	4 CM APEX	32 D	EC ₅₀ GR		767,000	212262	74
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	10.5 G	32 WK	HIS *			310573	83
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	15 G	24 H	HEM *			130 315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	110		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	120		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	120		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	210		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	300		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	470		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	490		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	500		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	52		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	53		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	740		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	80		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	85		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	900		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	4 MO, 15 G	4 to 72 H	MOR *	910		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	53 G	1 WK	MOR *	1,000		315719	78
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	6-18 MO	<=2 WK *	ENZ *			10 315460	77
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	6.5 G	30 WK	HIS *			120 310573	83
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	NEWLY HAT, SAC FRY	189 D	ABN *			32 219830	80
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	NEWLY HAT, SAC FRY	189 D	ENZ *			100 219830	80
	Oncorhynchus mykiss, Rainbow trout, donaldson trout,	NEWLY HAT, SAC FRY	189 D	HEM *			100 219830	80
	Pimephales promelas, Fathead minnow,	JUVENILE	4 WK	PHY		500 to 1,000	210204	89
	Potamogeton crispus, Curled pondweed,	NR	NR	PSE *		25,000	217552	77
	Salvelinus fontinalis, Brook trout,	6-18 MO	<=2 WK *	ENZ *			90 315460	77
	Simocephalus vetulus, Water flea,	< 24 H	48 H	LC ₅₀	4,500		311181	84
Manganese	Algae, Algae, phytoplankton, algal mat,	NATURAL COLONY	38 D	POP *			280 212862	69
	Anabolia nervosa, Quiver fly,	LARVAE	7 D	LET	2,000,000		210725	57
	Chironomus thummi, Midge,	LARVAE	7 D	LET	1,000,000		210725	57
	Cyprinidae; Minnow, carp family,	1 SUMMER	2.25 H	LET *	1,000,000		210725	57
	Cyprinidae; Minnow, carp family,	1 SUMMER	24 H	LET *	2,000,000		210725	57
	Cyprinidae; Minnow, carp family,	1 SUMMER	25 H	LET *	1,800,000		210725	57

Table I-1
 AQUIRE Freshwater Toxicity Information (µg/L)
 Site 16

Remedial Investigation
 NAS Whiting Field
 Milton, Florida

Chemical Name	Species	Age	Exposure	Effect	Effect Concentration		AQUIRE Reference Number	Year of Publication
					Lethal	Sublethal		
	Cyprinidae; Minnow, carp family;	1 SUMMER	4.17 D	LET *	800,000		210725	57
	Cyprinidae; Minnow, carp family;	1 SUMMER	5.13 D	LET *	700,000		210725	57
	Cyprinidae; Minnow, carp family;	1 SUMMER	6.63 D	LET *	650,000		210725	57
	Cyprinidae; Minnow, carp family;	1 SUMMER	7 D	MOR *	600,000		210725	57
	Cyprinidae; Minnow, carp family;	1 SUMMER	78 H	LET *	900,000		210725	57
	Cyprinidae; Minnow, carp family;	2 SUMMERS	48 H	LET *	2,000,000		210725	57
	Gammarus roeseli; Scud;	NR	7 D	LET	70,000		210725	57
	Lemna minor, Duckweed;	20 COLONIES OR 40 FRONDS	4 D	EC ₅₀ GR		31,000	311789	86
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	1 SUMMER	10 H	LET *	700,000		210725	57
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	1 SUMMER	13 H	LET *	600,000		210725	57
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	1 SUMMER	34 H	LET *	300,000		210725	57
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	1 SUMMER	5 D	LET *	100,000		210725	57
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	1 SUMMER	7 D	MOR *	75,000		210725	57
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	1 SUMMER	77 H	LET *	150,000		210725	57
	Oncorhynchus mykiss, Rainbow trout, donaldson trout;	2 SUMMERS	34 H	LET *	600,000		210725	57
	Salvelinus fontinalis, Brook trout;	1 SUMMER	15 H	LET *	700,000		210725	57
	Salvelinus fontinalis, Brook trout;	1 SUMMER	23 H	LET *	600,000		210725	57
	Salvelinus fontinalis, Brook trout;	1 SUMMER	4.79 D	LET *	150,000		210725	57
	Salvelinus fontinalis, Brook trout;	1 SUMMER	66 H	LET *	300,000		210725	57
	Salvelinus fontinalis, Brook trout;	1 SUMMER	7 D	MOR *	100,000		210725	57
	Salvelinus fontinalis, Brook trout;	2 SUMMERS	41 H	LET *	600,000		210725	57
	Tinca tinca; Tench;	1 SUMMER	48 H	LET *	2,000,000		210725	57
	Tinca tinca; Tench;	1 SUMMER	6.75 D	LET *	1,500,000		210725	57
	Tinca tinca; Tench;	1 SUMMER	7 D	MOR *	1,200,000		210725	57
	Tinca tinca; Tench;	1 SUMMER	7 D	MOR *	1,300,000		210725	57
	Tinca tinca; Tench;	1 SUMMER	96 H	LET *	1,800,000		210725	57
	Tinca tinca; Tench;	2 SUMMERS	7 D	LET *	2,000,000		210725	57
	Tubifex tubifex, Tubificid worm;	NR	7 D	LET	700,000		210725	57
Zinc	Algae; Algae, phytoplankton, algal mat;	CLADOCERA, COPEPODA, ROTIFERA	2 WK	CLR *		15 to 30	311256	83
	Algae; Algae, phytoplankton, algal mat;	EXPO GRO PHASE	24 H	PSE		<=98100	213095	89
	Asellus communis; Aquatic sowbug;	NR	20 D	RSD *		0.11 to 0.12	312027	86
	Brachionus calyciflorus, Rotifer;	NEONATE	24 H	LC ₅₀	1,300		219385	91
	Canthocamptus sp, Copepod;	LARVAE	24 H	LET	1,250		311797	85
	Carassius auratus, Goldfish;	20-25 G	to 15 D	BIO *		500	219207	72
	Catostomus commersoni, White sucker;	JUVENILE, 142 MM, 28.7 G	1 WK	RSD		890	312412	87
	Ceriodaphnia reticulata, Water flea;	< 4 H	48 H	LC ₅₀	76		311181	84
	Channa punctatus, Snake-head catfish;	2.4 G, 58 MM	24 H	ENZ *		56,000	315190	81

Table I-1
AQUIRE Freshwater Toxicity Information (µg/L)
Site 16

Remedial Investigation
 NAS Whiting Field
 Milton, Florida

Chemical Name	Species	Age	Exposure	Effect	Effect Concentration		AQUIRE Reference Number	Year of Publication
					Lethal	Sublethal		
	Chironomidae; Midge family;	LARVAE	12 MO	POP		1,140	213176	88
	Chironomus riparius, Midge,	4TH INSTAR LARVAE	>10 D	RSD		50 to 100	212729	89
	Clarias lazera; Catfish,	IMMATURE, 12-15 G	2 to 96 H	BIO *		32,000	312716	87
	Clarias lazera, Catfish,	JUVENILE, 230 MM, 130 G	24 H	RSD *		15,000	312717	87
	Cyclops sp; Cyclopoid copepod,	ADULT	48 H	LC ₅₀	3,310		313255	88
	Cypris subglobosa; Ostracod;	NR	12 H	LC ₅₀	47,780		312365	88
	Cypris subglobosa; Ostracod,	NR	24 H	LC ₅₀	50,620		312365	88
	Cypris subglobosa; Ostracod;	NR	48 H	LC ₅₀	34,990		312365	88
	Cypris subglobosa; Ostracod;	NR	96 H	LC ₅₀	8,352		312365	88
	Daphnia lumholzi, Water flea;	NR	12 H	LC ₅₀	10,740		312365	88
	Daphnia lumholzi, Water flea;	NR	24 H	LC ₅₀	6,704		312365	88
	Daphnia lumholzi, Water flea;	NR	48 H	LC ₅₀	2,290		312365	88
	Daphnia lumholzi, Water flea;	NR	96 H	LC ₅₀	437.5		312365	88
	Daphnia magna, Water flea;	24-48 HR, NEONATE	21 D	GRO *		150	213950	91
	Daphnia magna; Water flea;	24-48 HR, NEONATE	21 D	MOR	50 to 150		213950	91
	Daphnia magna, Water flea;	24-48 HR, NEONATE	21 D	REP *		150	213950	91
	Daphnia magna, Water flea;	< 24 H	48 H	LC ₅₀	68		311181	84
	Daphnia pulex, Water flea;	< 24 H	48 H	LC ₅₀	107		311181	84
	Dugesia dorotocephala, Turbellarian, flatworm,	18-20 MM	1 H	BEH *		1,000 to 10,000	310581	91
	Dugesia tigrina, Turbellarian, flatworm;	NR	96 H	LC ₅₀	7,400		218709	74
	Gambusia affinis, Mosquitofish;	MIXED SIZES	to 30 D	RSD		50	312897	88
	Gambusia affinis, Mosquitofish;	NR	48 H	LC ₅₀ ?	116		315578	78
	Gammarus lacustris, Scud,	NR	96 H	LC ₅₀	2,240		313058	88
	Gomphonema parvulum, Diatom,	MIXED SPECIES	to 28 D	ABD *		1,000	212397	84
	Hyphessobrycon serpae, Serpa tetra,	JUVENILE & OLDER FISH	14 D	RSD		66,000	212709	78
	Invertebrates, Invertebrates;	CLADOCERA, COPEPODA, ROTIFERA	2 WK	POP *		17.1 to 89.6	311256	83
	Invertebrates, Invertebrates;	CLADOCERA, COPEPODA, ROTIFERA	2 WK	POP *		30 to 90	311256	83
	Lemna minor; Duckweed,	20 COLONIES OR 40 FRONDS	4 D	EC ₅₀ GR		10,000	311789	86
	Lepomis gibbosus, Pumpkinseed,	15-25 G	to 15 D	BIO *		500	219207	72
	Lepomis macrochirus; Bluegill,	NR	6 MO	MOR *	5,000		212143	73
	Limnodrilus sp; Sludge worm,	NR	14 D	RSD		1,000	311865	83
	Lophopodella carteri, Bryozoa,	ANCENSTRULAE, 2-3 D	96 H	LC ₅₀	5,630		216703	80
	Macrobrachium hensersodayanus, Prawn;	NR	96 H	OC *		7,870	311545	84
	Myriophyllum spicatum; Water-milfoil,	4 CM APEX	32 D	EC ₅₀ BM *		21,600	212262	74
	Myriophyllum spicatum; Water-milfoil;	4 CM APEX	32 D	EC ₅₀ GR		20,900	212262	74
	Myriophyllum spicatum; Water-milfoil,	4 CM APEX	32 D	EC ₅₀ GR		21,600	212262	74
	Mystus vittatus; Catfish;	80-100 MM, 6-10 G	96 H	LC ₅₀ ?	209,000		315793	82
	Oncorhynchus mykiss; Rainbow trout, donaldson trout;	20-50 G	6 H	PHY *		2,000	311200	82

Table I-1
AQUIRE Freshwater Toxicity Information (µg/L)
Site 16

Remedial Investigation
 NAS Whiting Field
 Milton, Florida

Chemical Name	Species	Age	Exposure	Effect	Effect Concentration		AQUIRE Reference Number	Year of Publication
					Lethal	Sublethal		
Zinc	Oncorhynchus mykiss; Rainbow trout, donaldson trout;	FINGERLING	12 D	RSD *		910 to 2,320	311689	86
	Oncorhynchus mykiss; Rainbow trout, donaldson trout;	JUVENILE	to 4 WK	BIO		44 to 140	310107	84
	Oncorhynchus mykiss; Rainbow trout, donaldson trout;	NR	48 H	LC ₅₀	2,600		310185	68
	Oncorhynchus mykiss; Rainbow trout, donaldson trout;	NR	48 H	LC ₅₀	2,800		218317	68
	Oncorhynchus mykiss; Rainbow trout, donaldson trout;	NR	48 H	LC ₅₀	3,500		218317	68
	Oncorhynchus mykiss; Rainbow trout, donaldson trout;	SAC-FRY	42 D	GRO *		430	310527	83
	Oncorhynchus mykiss; Rainbow trout, donaldson trout;	SAC-FRY	42 D	MOR *	120		310527	83
	Oncorhynchus mykiss; Rainbow trout, donaldson trout;	SAC-FRY	42 D	MOR *	430		310527	83
	Oncorhynchus mykiss; Rainbow trout, donaldson trout;	SAC-FRY	42 D	MOR * (Calc)	220		310527	83
	Oncorhynchus mykiss; Rainbow trout, donaldson trout;	SAC-FRY	42 D	MOR * (Calc)	80		310527	83
	Osteichthyes, Bony fish class;	ADULT GUPPY, 20-30 MM	48 H	LC ₅₀	2,630		212882	88
	Osteichthyes, Bony fish class;	ADULT GUPPY, 20-30 MM	96 H	LC ₅₀	1,860		212882	88
	Osteichthyes, Bony fish class;	JUVENILE GUPPY, 8-15 MM	48 H	LC ₅₀	1,970		212882	88
	Osteichthyes, Bony fish class;	JUVENILE GUPPY, 8-15 MM	96 H	LC ₅₀	1,360		212882	88
	Pectinatella magnifica; Bryozoa;	ANCENSTRULAE, 2-3 D	96 H	LC ₅₀	4,310		216703	80
	Phaenopsectra sp. Chironomid;	MIXED SPECIES	to 28 D	ABD *		10,000	212397	84
	Pimephales promelas; Fathead minnow;	NEWLY HAT, < 24 H	7 D	GRO *		184	311182	85
	Pimephales promelas; Fathead minnow;	NEWLY HAT, < 24 H	7 D	GRO *		85	311182	85
	Pimephales promelas; Fathead minnow;	NEWLY HAT, < 24 H	7 D	LC ₅₀	238		311182	85
	Pimephales promelas; Fathead minnow;	NEWLY HAT, < 24 H	96 H	LC ₅₀	238		311182	85
Pimephales promelas; Fathead minnow;	SUBADULT, 8-12 WK, <=250 MG	2 to 35 D	GRO *		600	210678	89	
Pimephales promelas; Fathead minnow;	SUBADULT, 8-12 WK, <=250 MG	96 H	LC ₅₀	2,540		210678	89	
Plumatella emarginata; Bryozoa;	ANCENSTRULAE, 2-3 D	96 H	LC ₅₀	5,300		216703	80	
Salmo trutta; Brown trout;	NR	2 to 40 D	RSD		366 to 832	311216	85	
Tilapia sparrmanii; Banded bream;	12-13-81.77-G	2 to 72 H	OC *		98,000	213066	89	
Tilapia zillii; Tilapia;	IMMATURE, 7-9 G	2 to 96 H	BIO *		22,000	312716	87	
Tubifex sp.; Tubificid worm;	NR	14 D	RSD		1,000	311865	83	

NOTES:

ABD = Abundance
 ABN = Abnormalities
 BCF = Bioconcentration factor
 BEH = Behavioral change
 BIO = Biochemical effect
 BM = Biomass
 BMS = Biomass
 C = Celcius

G = Grams
 GR = Growth
 GRO = Growth
 H = Hours
 HAT = Hatchability
 HEM = Hematological effect
 HIS = Histological effect
 IM = Immobilization

OC = Oxygen consumption
 PGR = Population growth
 PHY = Physiological effects
 POP = Population, species diversity
 PSE = Photosynthesis effect
 RE = Reproduction
 REP = Adverse effect to reproduction
 RES = Respiratory effects

APPENDIX J
NAVY RESPONSE TO COMMENT

**Response to Review Comments
Remedial Investigation Report
Site 16, Open disposal and Burning Area
NAS Whiting Field, Milton, Florida**

Florida Department of Environmental Protection

1. All contaminant data should be evaluated using the ground water, surface water and soil MCLs and SCTLs in Chapter 62-785, F.A.C. Until then, all tables, conclusions and other determinations (especially soil) cannot be adequately reviewed. This comment applies to many tables in the report and in the Appendix. All existing tables should be reviewed for applicability. References to the Soil Cleanup Goals for Florida, 1995 and the associated Applicability of Soil Cleanup Goals for Florida, 1996, should be removed as well as those to the 1994 Ground Water Guidance Concentrations. This is especially important in Section 6.0, Human Health Risk Assessment.

Response: Agree. All contaminant data will be evaluated using the values presented in Chapter 62-777, F.A.C. All references to the 1995 Florida Soil Cleanup Goals, the associated 1996 Applicability of Soil Cleanup Goals for Florida, and the 1994 Groundwater Guidance Concentrations will be deleted.

2. Soil contaminants should be evaluated with respect the leachability criteria in Table II of Chapter 62-785, F.A.C., including assessment of that possibility by use of the SPLP procedure in those instances where the leachability value may be exceeded. If the Navy intends to conduct the actual leaching evaluation from within the Basewide Groundwater Evaluation, it should so state; however, it seems to me that where such an evaluation may be needed, it should be stated in this report to properly document that need.

Response: Agree. Soil contaminants will be evaluated with respect to the leachability criteria in Chapter 62-777, F.A.C. A statement indicating the Navy intends to conduct the actual leaching evaluation from within the Basewide Groundwater Evaluation will be added to the RI.

3. In the manner of Figure 5-7, please present other contaminant data, where they exceed either the Federal or Florida screening numbers, especially for surface soil, on a figure in order that an appraisal can be made of the adequacy of areal contaminant assessment. I am particularly concerned about the areas west of soil samples 16-SL-03, 16S002 and 16S004, in addition to those areas where a high contaminant value is the existing "outer" sampling point.

Response: As suggested by the reviewer, contaminant data for soils will be included on a figure.

4. Please prepare a table that summarizes the contaminants when they exceed either a Federal or State screening level (MCL; SCTL) for each media. I am basically asking for the information presented in the Conclusions, Section 9.1, except in a form that is easily understood and used in evaluating the report and which includes only information where a regulatory level is exceeded. In that regard, I am attaching a suggested form for the table.

Response: A summary table providing a list of contaminants exceeding screening criteria will be included in the final report.

5. Does the Navy intend to incorporate the background evaluation that is currently being formulated into Section 6.2, where the various soil types are discussed and which were evaluated in the General Information Report? It seems that it may be appropriate to wait on the conclusion of the ongoing background evaluation.

Response: The background evaluation will be submitted as a separate report. For the purpose of the Site

Response to Review Comments
Remedial Investigation Report
Site 16, Open disposal and Burning Area
NAS Whiting Field, Milton, Florida

RI, information presented in the GIR will be used.

6. Be aware that Chapter 62-777, F.A.C. is currently being promulgated by the Department and could be adopted by late this Spring. When it is, all media contaminant values will be represented by the values in that rule. If the final remedy for Site 16 is not in place before that time, we will have to review the values, where different and determine if they affect any conclusions and recommendations that have been made.

Response: A comparison to Chapter 62-777, F.A.C will be included in the report.

7. Figures 6-2 through 6-13: several figures in this group have the risk lines in the wrong place and several give the FDEP Risk Level as a range. Please refer to Figure 6-10, which is correct. Please make the remaining figures the same as it for the risk level and for placement of the heavy line. Please add a "1" at the level of the heavy line on the ordinate of Figure 13.

Response: All figures in Chapter 6 will be reviewed for errors. FDEP risk level will be clearly identified instead of a range.

8. Table 6-12, page 6-47: please make sure the leaching values in the eleventh column are those from Chapter 62-785, F.A.C. or Chapter 62-777, F.A.C., depending on when the final document is submitted.

Response: Table 6-12 will be updated per values presented in Chapter 62-777.

9. Section 6.8, Summary of Human Health Risk Assessment: the sixth "bullet" discusses the background values of arsenic. Unless those data are presented and discussed in the report, that statement should not be a part of the summary and should be deleted. Additionally, I find it disturbing that the Navy only discusses the presence of PAHs in the context of "other non-site related anthropogenic sources." It would be interesting if the Navy would elaborate on and discuss some of those other sources. The Navy should recognize that, in the absence of a valid reason to believe otherwise, it is likely that waste disposal practices are responsible for the presence of these materials at Site 16, especially since the name of the site is given as an "open disposal and burning area." This is an example of a continuing pattern of downplaying the importance of analytical information. This is reinforced by the statement in the same section regarding beryllium in surface water and the accompanying discussion that apparently is intended to cast doubt on the data in which it states "that this ELCR is based on only one sample." I suggest that that Navy should take additional samples instead of denigrating data that it has collected at great cost and which should be valid.

Response: The arsenic statement in Section 6.8 will be removed. All data collected at Site 16 will be reevaluated before the RI is finalized to ensure appropriate conclusions have been made.

10. Section 7.4.1, page 7-20, Section 7.4.4, page 7-27, Section 7.6.4, page 7-35 and Section 9.1, page 9-5: the use of a 10-fold attenuation factor to evaluate risks to aquatic receptors is not entirely valid. The Navy should also present an evaluation of undiluted ground water to aquatic receptors as a realistic "worst case" scenario. This should not come as a surprise, since the State of Florida has been consistent in not allowing dilution factors to be a part of ground water evaluations.

Response: The undiluted groundwater at Site 16 will be evaluated as a worse case exposure scenario for aquatic receptors. The results of this evaluation will be incorporated into the existing text. In addition, an ERA is going to be conducted for Clear Creek, focusing on surface water and sediment collected from the creek.

**Response to Review Comments
Remedial Investigation Report
Site 16, Open disposal and Burning Area
NAS Whiting Field, Milton, Florida**

11. Section 7.6.4, page 7-38, last paragraph: the discussion regarding salmonid fish species is questionable in that no data are presented to show that they “do not occur in Clear Creek downstream of Site 16.” It could be postulated, using Navy data, that they do not occur downstream of Site 16 *because* of the discharge of high iron content ground water. Irrespective, the point is that if the discharge is high in iron, it is, *ipso facto*, something which should be addressed on a rational basis by the Navy.

Response: Additional data will be collected to address the reviewers comment during the investigation of Clear Creek and its tributaries as a separate site (Site 39).

12. References: please update the FDEP references to reflect the newer and current regulations and guidance documents.

Response: References will be updated as recommended.

General Comment:

1. Although these comments are few in numbers, they will necessitate considerable rewrite of the document and changes in many of the tables. In effect, a new report will be produced. I request that the Navy incorporate the changes with respect to the Florida-based content prior to submitting any future reports since they cannot be adequately reviewed in the absence of the newer information.

Response: Future reports will include evaluations based on the latest guidance.

**Response to Review Comments
Remedial Investigation Report
Site 16, Open disposal and Burning Area
NAS Whiting Field, Milton, Florida**

USEPA SPECIFIC COMMENTS:

1. **Page IV, Second Bulleted Item.** Please note that the memo accompanying the EPA Region III Risk-Based Concentration (RBC) table from Roy L. Smith, toxicologist, clearly states that generally the RBC table should not be used to set cleanup levels. As such, the RBCs should not be referred to as residential soil cleanup goals.

Response: As suggested by the reviewer, RBCs will not be referred to as residential soil cleanup goals.

2. **Page xvi, Glossary.** The definition for IRIS in the glossary is unreadable. Please revise in subsequent versions of the report.

Response: Page xvi will be revised.

3. **Page 3-6, Table 3-1 and Appendix C.** Table 3-1 presents a Summary of Monitoring Well Construction Details and Appendix C contains individual monitoring well and test pit logs. However, many of the well logs listed in Table 3-1 are not presented in Appendix C. Also, monitoring well logs WHF-16-2D and WHF-16-6I are presented in Appendix C, but are not listed in Table 3-1. Additionally, several monitoring well logs (WHF-15-3I, 15-3D, 15-4S, 15-5S, WHF-16-3II) in Appendix C are missing pages and monitoring well logs WHF-15-15-4S, WHF-15-5S and WHF-1466-6S appear to be mislabeled. These discrepancies should be corrected in the RI Report.

Response: Discrepancies identified by the reviewer will be corrected. However, a monitoring well was not installed at soil boring location WHF-16-2D. Therefore it was not included in Table 3-1.

4. **Page 5-6, Section 5.2, Hydraulic Conductivity and Seepage Velocity.** The text states, "The average hydraulic conductivity values for individual monitoring wells at Site 16 ranged from 0.27 feet per day (ft/day) (9.5×10^{-2} centimeters per second [cm/sec]) for WHF-16-3D to 46.5 ft/day (1.64×10^{-5} cm/sec) for WHF-16-3II. The geometric mean of the hydraulic conductivity values for Site 16 is 22.2 ft/day (7.8×10^{-4} cm/sec) or approximately 8,000 feet per year." However, the centimeters per second values appear to have been incorrectly converted from the values in feet per day. The values 0.27 ft/day should be 9.5×10^{-5} cm/sec, 46.5 ft/day should be 1.64×10^{-2} cm/sec and 22.2 ft/day should be 7.8×10^{-3} cm/sec. The calculations should be verified and corrected in the text if necessary.

Response: Calculations will be verified and corrected.

5. **Page 5-11, Table 5-2.** As indicated on Table 5-2, the distance between monitoring wells WHF-16-2S and WHF-16-4S and between wells WHF-16-6S and WHF-16-3S are 900 feet and 495 feet, respectively. However, according to the scale presented on Figures 5-5 and 5-6, the distances are 930 and 540 feet, respectively. This amount of difference in the distances between wells would change the hydraulic gradient calculations; therefore the correct well distances should be used in calculating the hydraulic gradients and should be corrected in the text as well as the table.

Response: Discrepancies between the figure and the table will be corrected. If necessary, the hydraulic gradients will be revised.

6. **Page 5-15, Section 5.3.** The text states that a mounded feature was associated with a *significant* total magnetic anomaly and a conductivity anomaly. However the text does not elaborate further as to the nature of the anomalies. Has the potential existence of buried drums been investigated? The text also states, "An attempt was made to determine the depth of the fill at Site 16 using DC resistivity. Results

Response to Review Comments
Remedial Investigation Report
Site 16, Open disposal and Burning Area
NAS Whiting Field, Milton, Florida

were inconclusive, however, and the survey was not completed (ABB-ES, 1993).” The text should provide additional information stating why the results were inconclusive and why the survey was not completed.

Response: The text will be revised to read as follows.

A mounded feature located at grid coordinates 680E, 190S (Figure B-1, Appendix B of this report) was associated with a high amplitude magnetic anomaly and a conductivity anomaly. This suggests a pit may have been dug at this location and filled with ferromagnetic metal subsequently covered. The survey grid was extended to the east in an attempt to extend past all the anomalies. But after three attempts, it was discontinued because these isolated anomalies appeared to be not associated with the Open Disposal activities at Site 16.

The potential for the existence of buried drums at this location was not investigated further.

7. **Page 5-23, Figure 5-9.** Figure 5-9 presents interpreted total volatile organic compounds (VOC) isopleth lines. Soil gas sample location numbers 35 and 45 are, according Figure 5-9, near the total VOC concentration line which indicates greater than 5000 parts per million (ppm). If soil gas sample locations 35 and 45 have concentrations greater than 5000 ppm, the actual concentrations at these locations should be stated in the text of the RI Report.

Response: The actual concentrations for soil gas location numbers 35 and 45 are >5,000 and >5,000 respectively. The instrument has a range of 0 to 5,000 ppm and therefore the concentrations are presented as >5,000 ppm.

8. **Page 5-40, Section 5.5.** When comparing site related data to the EPA Region III RBCs, the text should clearly state whether industrial or residential values were exceeded. This comment also applies to other locations within the report where data is screened against the RBCs.

Response: As suggested by the reviewer, the text will clarify if residential or industrial values are exceeded.

9. **Page 5-43, Table 5-12.** The semi-volatile constituent presented in Table 5-12, as methylnaphthalene should be corrected to be 2-methylnaphthalene.

Response: The text will be revised as recommended by the reviewer.

10. **Page 5-49, Section 5.7.** The text should clearly state the intent behind comparing site-related data for surface water to the Florida Groundwater Guidance Concentrations.

Response: Rationale for comparing the surface water to the Florida GCTLs will be included in this section.

11. **Page 5-60, Section 5.8.2.** In the last paragraph on this page, the text should state that aluminum exceeded the Federal and State **secondary** MCL in two monitoring wells. The comment applies elsewhere in the report where aluminum exceedances in groundwater are being reported.

Response: The text will be revised as recommended by the reviewer.

12. **Page 5-72, Table 5-24.** Several of the Federal Maximum Contaminant Levels (MCLs) and Florida Guidance concentrations for the associated constituents appear to be incorrect. For example, the Federal MCL and Florida groundwater guidance for 1,2-dichloroethene (total) should both be 70 micrograms per

**Response to Review Comments
Remedial Investigation Report
Site 16, Open disposal and Burning Area
NAS Whiting Field, Milton, Florida**

liter ($\mu\text{g/l}$). However, Table 5-24 lists these concentrations as 55 $\mu\text{g/l}$ and 7 $\mu\text{g/l}$ respectively. These guidance numbers should be checked and verified prior to performing the feasibility study.

Response: Table 5-24 will be revised and values from Chapter 62-777 FAC will be incorporated.

13. **Page 5-76, Section 5.8.2.** According to the EPA Region 4, Environmental Investigations Standard Operating Procedures and Quality Assurance Manual, May 1996, as a standard practice, ground water samples will not be filtered for routine analysis. Filtering will usually only be performed to determine the fraction of major ions and trace metals passing the filter and used for flow system analysis and for the purpose of geochemical speciation modeling. Filtration is not allowed to correct for improperly designed or constructed monitoring wells, inappropriate sampling methods, or poor sampling technique. When samples are collected for routine analyses and are filtered, such as under conditions of excessive turbidity, both filtered and non-filtered samples will be submitted for analyses. With this in mind, this section of the report should address the findings of the non-filtered sample analysis followed by a discussion of the filtered samples. The text should also address discrepancies between non-filtered versus filtered samples.

Response: The text will a discussion of filtered and unfiltered analytical results and identify any discrepancies between filtered and unfiltered samples.

14. **Page 5-78, Section 5.8.2.** Please verify the federal MCL for 1,2-dichloroethene as reported in the third paragraph.

Response: MCL for 1,2-dichloroethene will be verified.

15. **Appendix C, Monitoring Well and Test Pit Logs.** The boring log for monitoring well WHF-15-71 lists "OVA" under the column for drilling method. OVA is incorrect, the correct drilling method should be either mud rotary, hollow stem auger or other drilling method as appropriate. The boring log should be corrected to reflect the proper drilling method. Also, several well logs have the well development date omitted. This information should be added to the well logs that do not have this information. The test pit lithologic description logs do not have the name of the individual who logged the excavation. This information should be included on the test pit logs.

Response: All available information will be included in the boring logs.

16. **Appendix E, Surface Water Analytical Data.** A duplicate set of groundwater analytical data, presented as Appendix G was included in Appendix E, Surface Water Analytical Data. This duplicate data set should be removed from the RI.

Response: The duplicate data set will be deleted.

** The following comments relate to the human health and ecological risk review sections of the Site 16 RI Report:

GENERAL COMMENTS:

17. Section 6.4 of the report presents the human health toxicity assessment for Site 16. The text states that Appendix G contains brief toxicity summaries for human health contaminants of potential concern (COPCs) identified in surface soil, subsurface soil, surface water, and groundwater at the site. However, Appendix G does not presently contain this information. In addition, toxicity profiles are not included in the ecological risk assessment (ERA) for compounds that are present at concentrations greater than their ecological screening value. This information should be included as part of the ecological toxicity

**Response to Review Comments
Remedial Investigation Report
Site 16, Open disposal and Burning Area
NAS Whiting Field, Milton, Florida**

evaluation. In order to evaluate the toxic potential of the contaminants identified in the media at this site, toxicological information should be presented for each of the contaminants identified as human health and ecological chemicals of concern.

Response: Missing information identified in the comment will be included in the final RI report.

18. The step-wise procedure that is used to identify Contaminants of Concern (COCs) at Site 16 (illustrated in Figure 7-3, Page 7-10) does not follow the step-wise procedure delineated in *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessment* ("Process Document", 1997). EPA Region IV has stated that all ERAs that have not been finalized must follow the procedures described in the Process Document, which supersedes all prior guidance. The most significant difference between the procedures used in this ERA and the Process Document is that in this ERA, compounds are compared to frequency, background levels, and role as essential nutrients before being compared to ecological screening levels. The initial step identified by the Process Document is the comparison of compound concentrations to ecological screening levels, so that the potential for risk is determined before mitigating factors are considered. Refer to the Process Document and the December 1998 Region IV memorandum for additional guidance on revising the ERA.

Response: The Site 16 ERA will be reviewed to determine whether the conclusions presented in this report would be altered by using the most recent *Process Document* approach. If it is determined the qualitative conclusions of the ERA would have been affected, additional information will be included in the final RI report.

19. The method that is used to quantify risk in this ERA is not in accordance with current EPA and Region IV guidance. Food chain modeling based solely on soil concentrations, which is the approach used in this ERA, is strongly discouraged in the new guidance. Instead, the actual exposure of primary consumers (such as the mouse, shrew, and meadowlark) to compounds that are present in environmental media at concentrations greater than their ecological screening and background values is to be determined by sampling and analysis of earthworms/insects and plants at the site. This approach reduces much of the uncertainty associated with former procedures, including the issues of bioavailability and soil-to-organism transfer rates. Since it appears that all of the samples from this site were collected prior to the release of the new guidance (1996 and earlier), the lack of biological samples to support the ERA is understood. However, it is strongly recommended that the procedures for conducting ERAs at other Whiting Field sites be revised so that they are in closer agreement with the Process Document and the most recent Region IV guidance.

Response: The reviewers comment is noted and the Navy will follow the procedures provided in the *Process Document* and Region IV guidance for future ERAs conducted at Whiting Field.

20. The Dutch soil screening levels that are used as ecological screening values for Site 16 [Beyer. 1990. Evaluating soil contamination. US Fish and Wildlife Service, Biological Report 90(2)] may not be sufficiently protective of ecological receptors. Region IV issued ecological screening levels for soil in December 1998 and has stated that screening levels used in ERAs that have not been finalized should be comparable to the values that have been adopted. When the two sets of screening values were compared, it was determined that the screening values used for arsenic and chromium in this ERA are much higher than those adopted by Region IV. The recommended screening value for arsenic is 10 mg/kg rather than 20 mg/kg and for chromium is 0.4 mg/kg rather than 100 mg/kg. If the Region IV values had been used in this ERA, neither compound would have been screened out and the risks both compounds would have been calculated. Potential risks from arsenic and chromium must be addressed in the ERA.

Response to Review Comments
Remedial Investigation Report
Site 16, Open disposal and Burning Area
NAS Whiting Field, Milton, Florida

Response: The new Region IV ecological screening values will be incorporated into the Site 16 ERA and the results will be revised accordingly.

21. An assessment of risks from subsurface soil (below a depth of 1 foot) to ecological receptors is not included in the ERA. Although it is unlikely that birds and mammals will have consequential contact with subsurface soil, the root zone of many shrubs and trees such as pine trees will include subsurface soil. Also, soil invertebrates such as earthworms and fire ants can be expected to burrow into deeper than 1 foot into the subsurface soil. A qualitative assessment of risks in subsurface soil to these receptor groups should be included in the ERA.

Response: An assessment of the analytes detected in subsurface soil will be conducted and the potential for risks to deep rooted trees and soil invertebrates will be evaluated. This information will be included in the revised report.

22. Hazard Quotients (HQs) for contaminants at Site 16 are calculated using the 95% Upper Confidence Limit (UCL) rather than the maximum site concentration. Region IV has stated that 95% UCLs should not be used in ERA. Rather, to show the potential risk at the site, HQs should be determined using the following combinations: maximum site concentration/NOAEL, average site concentration/NOAEL, maximum site concentration/LOAEL, and average site concentration/LOAEL. For Site 16, the perceived maximum risks are, in general, increased less than four-fold if the maximum concentration is used rather than the 95% UCL. The Hazard Indices for most receptors remain less than 1. No changes are requested in the Site 16 ERA regarding to the use of the 95% UCL, but future submissions should not use the 95% UCL to calculate risk.

Response: All future ecological exposure assessments will use average and maximum concentrations terms.

SPECIFIC COMMENTS:

23. **Table 6-3.** The table presents the selection of human health chemicals of potential concern. An asterisk is presented in the table in the "Detected Concentrations Range" column of the table. However, the endnotes on this table do not provide any information regarding the intended meaning of this notation. The endnotes should indicate the definition of the asterisk.

Response: Table 6-3 will be revised as suggested by the reviewer.

24. **Page 7-1, Section 7.0, Paragraph 1.** Six documents are described as current guidance for ERAs at Superfund sites. However, the Process Document (*Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessment, 1997*) supercedes the 1989, 1992, and 1996 guidance documents, and EPA has stated these older documents should not be used in the preparation of risk assessments. Region IV Supplemental Guidance has been superceded by the December 1998 memorandum; this memorandum may not have been available at the time this ERA was prepared. Since food chain modeling is not included in the Process Document, it will be necessary to cite some of the older documents in the text. In order to bridge the old and new guidance, the text should be revised so that it is clear that the older documents do not represent current guidance and stating why the superceded guidance documents are being used in this ERA.

Response: The text will be revised to clarify which documents represent current guidance and why superceded documents were used in the ERA.

**Response to Review Comments
Remedial Investigation Report
Site 16, Open disposal and Burning Area
NAS Whiting Field, Milton, Florida**

25. **Page 7-5 through 7-7, Section 7.2.2; and Page 7-6, Figure 7-2.** The Conceptual Site Model (CSM) presented in the ERA is too general. Four broad groups of ecological receptors are identified—wildlife, terrestrial plants, terrestrial invertebrates, and aquatic receptors. As per guidance in the Process Document, the CSM should distinguish between exposure routes for different groups of wildlife receptors such as herbivorous birds and mammals, primary carnivores/omnivores, and secondary carnivores. A CSM should illustrate the food web and the relationship between the specific receptors that are being modeled. The CSM for Site 16 should be revised, or a second Figure illustrating the food web relationship between different receptors should be added to the ERA.

Response: A more detailed conceptual site model will be generated included in the final RI report.

26. **Page 7-6, Figure 7-2.** The meaning of the bullets that appear in various receptor/exposure route boxes is not provided in either the figure or the text. It cannot be assumed that the reader will know that the bulleted boxes indicate complete exposure pathways. This information should be added to the figure.

Response: Footnotes will be added to this figure to clarify the meaning of the bullets and shading.

27. **Page 7-7, Section 7.2.2, Paragraph 1.** The text states that dermal adsorption is considered a negligible exposure pathway. This statement is generally qualified, since dermal adsorption can present a significant risk in areas that are heavily contaminated with particular compounds. The text should be modified to read that dermal adsorption is considered to be a negligible exposure pathway for receptors at this site relative to ingestion because the presence of fur and feathers is likely to prevent extensive direct contact with the skin. Also, the exclusion of the dermal adsorption and inhalation pathways from the ERA should be included as a source of uncertainty in the Uncertainty Analysis (Section 7.7).

Response: The text will be modified to read, dermal adsorption is considered to be a negligible exposure pathway for ecological receptors based on the presence of fur and feathers and the likelihood they would prevent direct contact to the skin. An uncertainty will be added to Section 7.7 to further discuss the type and magnitude of ECPCs detected at the site, and the likelihood they are not present at concentrations high enough to generate a dermal or inhalation risks.

28. **Page 7-7, Section 7.2.2, Paragraph 2.** The text states that no burrowing animals were observed as Site 16 during characterization. This does not mean that burrowing animals will not inhabit Site 16 in the future, since the area appears to be desirable to ecological receptors. The text should be modified to state that although no burrowing animals were seen at Site 16, the site does provide acceptable habitat for burrowing animals.

Response: The last sentence of the second paragraph on page 7-7 will be modified to include a statement regarding the suitability of Site 16 for burrowing animals. "...although this habitat may be suitable to these receptors."

29. **Page 7-9 through 7-20, Section 7.3, Figure 7-3.** The selection process for ecological COCs has been changed in the Process Document. The most significant change is that the soil sampling data should first be screened against ecological screening levels. Only after screening are compounds present at concentrations greater than their ecological screening levels evaluated regarding frequency of detection, background levels, and role as essential nutrients. The selection process in this ERA for Site 13 should be revised to be in agreement with the new guidance.

Response: Please refer to USEPA Comment # 18.

Response to Review Comments
Remedial Investigation Report
Site 16, Open disposal and Burning Area
NAS Whiting Field, Milton, Florida

30. **Page 7-11, Section 7.3, Paragraph 3, and Table 7-2.** The Dutch soil screening values from Beyer that were used, as ecological screening values for Site 16 are out-of-date. Region IV has recently adopted soil screening values based on more recent screening values developed by the Netherlands, the Canadian Council of Ministers of the Environment, and Oak Ridge National Laboratory. The recommended screening value for arsenic is 10 mg/kg rather than 20 mg/kg and for chromium is 0.4 mg/kg rather than 100 mg/kg. Screening values for iron and silver have adopted. The ERA should acknowledge the new guidance and include some discussion as to whether the use of the newly adopted values would have altered the conclusions presented in the ERA.

Response: The new Region IV ecological screening values will be incorporated into the Site 16 ERA and the results will be revised accordingly.

31. **Page 7-13, Table 7-2.** The 95% UCL for aluminum is 11,271 mg/kg. This number is difficult to read since the first "1" is printed on the column line. The table should be revised so that the number is clearly printed.

Response: Table 7-2 will be revised as suggested by the reviewer.

32. **Page 7-20, Section 7.4.1, Paragraph 7.** The text states that a 10-fold attenuation factor was applied to the RME concentration of constituents in groundwater in order to derive an exposure concentration for constituents in groundwater potentially reaching Clear Creek. No justification was provided in the ERA for the selection of 10 as the attenuation factor. The rationale for selecting this attenuation factor should be included in the ERA.

Response: The 10-fold attenuation factor is a conservative estimate of the attenuation occurring between groundwater and surface water exposure.

33. **Page 7-21, Section 7.4.2 and Page 7-25, Table 7-7.** The calculated risks to avian primary consumers are based solely on the Eastern Meadowlark, which consumes approximately 75% of its diet as invertebrates and 20% as plant materials. Because of differences in biouptake and bioaccumulation, the concentrations of contaminants in invertebrates and plants are generally disproportionate. The percentage of invertebrates and plants in the diet will alter the calculated risks to the receptor. This dietary difference is addressed for small mammals with the inclusion of both herbivorous and insectivorous primary consumers. In lieu of the inclusion of a herbivorous avian receptor, it is recommended that differences in diet be identified and discussed as a source of uncertainty in the ERA.

Response: A discussion of the differences in the diet of herbivorous and insectivorous birds and the ramifications on the calculated risks for avian receptors will be provided in Section 7.4.2.

34. **Pages 7-35 through 7-39, Section 7.6.4.** Much of the discussion of risks from groundwater discharging to Clear Creek is inappropriate in the context of a risk assessment. Five compounds, bis(2-ethylhexyl)phthalate, 4,4'-DDT, aluminum, iron, and zinc are theoretically present in the groundwater at concentrations higher than screening criteria. It must therefore be assumed that there is a potential for risk. However, within the context of the risk assessment, these compounds are excluded as COCs for a variety of reasons, including frequency of detection, background concentrations, the presence of suspended solids in groundwater samples, and toxicity to resident species. These reasons are more properly part of the risk management process, and their discussion should be separate from the risk assessment. It is the responsibility of the risk manager and the trustees of the site working with the risk assessor to the significance of this information. The text should be revised so that the risk assessment and risk

Response to Review Comments
Remedial Investigation Report
Site 16, Open disposal and Burning Area
NAS Whiting Field, Milton, Florida

management discussions are separate and clearly identified.

Response: As suggested by the reviewer, for all future reports the consideration of the frequency of detection, background concentrations, use of unfiltered data, and relative toxicity will be included in a separate section.

35. **Page 7-36, Table 7-12.** A value of 50 ug/L is cited as the AQUIRE Lowest Reported Adverse Effect concentration. The value is for the narrow mouth frog. However, based on the AQUIRE values presented in Appendix I, the lowest reported adverse effect concentration is 15 ug/L for brown trout. The text (Page 7-38) correctly identifies 15 ug/L as the lowest value. The table entry should be corrected.

Response: The value of 50 ug/L, for the narrow mouth frog was used in Table 7-12, as this species is more likely to be present in a black water stream than a salmonid species (i.e., brown trout). The narrow mouth frog is more representative of the aquatic receptors present at the site. Changing this value to 15 ug/l does would not have an affect on the outcome of the risk assessment. Please refer to response to general comment #11.

36. **Page 7-38, Section 7.6.4, Paragraph.** The text states that aquatic receptors in Clear Creek downgradient of Site 16 are likely to be more tolerant of aluminum than larval trout. No evidence is presented to corroborate the validity of this statement. Additional discussion including the identification of species present in Clear Creek (or alternatively a reference to where the species list is located) and relevant toxicity data must be included to the text to support the statement that aluminum is less toxic to receptors in Clear Creek than indicated by the lowest AQUIRE value.

Response: The text states, the receptors likely to be present in the stream, are more tolerant to exposure to aluminum, than larval trout. Please refer to comment #35. In addition, text will be included in this section to support the statement; receptors down gradient from the site are more tolerant to exposure to aluminum.

37. **Page 7-39, Section 7.7, Paragraph 6.** The text states that risks to amphibians and reptiles species from the surface soil were not estimated because bioaccumulation and toxicity data are lacking. Since quantitative exposure data are not available, a brief qualitative discussion as to whether risks to these groups are anticipated should be included in the Uncertainty Analysis. The qualitative discussion might include information such as the general toxicity of the compounds present (i.e., are any known to be unusually toxic to these receptor groups in other media), their probable bioavailability, and whether the amphibian and reptile populations at this site show signs of stress.

Response: As recommended by the reviewer, a discussion of the risks to amphibian and reptile species will be added to the uncertainty section.

38. **Page 7-41, Section 7.8, Paragraph 3.** The text states that risks to aquatic receptors in Clear Creek are not expected, based on the screening evaluation of groundwater. This is not correct; refer to Specific Comment 9. Five compounds, bis(2-ethylhexyl)phthalate, 4,4'-DDT, aluminum, iron, and zinc are theoretically present in the groundwater discharging into Clear Creek at concentrations higher than screening criteria. Their exclusion as COCs is based on a weight-of-evidence risk management discussion. In the ERA, these five compounds should be identified as having a potential to cause risk.

Response: The text will be revised to state, the analytes listed in the comment were detected at concentrations exceeding ecological screening benchmarks. However, it is unlikely, these analytes would pose a risk to ecological receptors based on the arguments presented in Section 7.6.4. In addition, please refer to comment #11.

**Response to Review Comments
Remedial Investigation Report
Site 16, Open disposal and Burning Area
NAS Whiting Field, Milton, Florida**

39. **Page 9-5, Section 9.1, Paragraph 3; and Page viii, Executive Summary, Paragraph 2.** The text states that risks were not identified for terrestrial wildlife resulting from exposure to compounds in surface soil or surface water, and that therefore reductions in the survivability, growth and reproduction of wildlife populations is not anticipated. This is incorrect. Sublethal risks associated primarily with cadmium, lead, and zinc in the surface soil were identified for small mammals, small birds, and predatory birds. Sublethal risks include reductions in growth and reproduction. This is correctly stated in Paragraph 7 on Page 9-5 and Paragraph 6 on Page viii. The text should be corrected.

Response: The text will be revised.

40. **Page 9-5, Section 9.1, Paragraph 6; and Page viii, Executive Summary, Paragraph 5.** The text states that risks to aquatic receptors in Clear Creek are not expected based on the screening evaluation of groundwater. This is not correct; refer to Specific Comment 9. Five compounds, bis(2-ethylhexyl)phthalate, 4,4'-DDT, aluminum, iron, and zinc are theoretically present in the groundwater discharging into Clear Creek at concentrations higher than screening criteria. The text should be corrected.

Response: Please refer to comment #38.

41. **Appendix H.** Spreadsheets showing the intermediate steps in the calculation of Potential Dietary Exposure (PDE) are not included. Data such as the calculated dietary exposure from each food item should be included.

Response: The spreadsheets will be reviewed and any missing tables will be included in the updated report.

42. **Appendix H, Table H-6.** For the Great-Horned Owl, a dietary exposure of 9% sediment is identified. This value causes the dietary percentages for the owl to total 108%. In Table 7-7 (Page 7-25), there is no mention of the ingestion of sediment by the owl, and the incidental ingestion of soil is reported to comprise 1% of the diet. There is no reference for the source of the sediment ingestion rate. The apparent discrepancy between Table H-6 and Table 7-7 should be resolved.

Response: Please refer to comment #41.

APPENDIX K

**EVALUATION OF BACKGROUND CONCENTRATIONS
FOR COVERED LANDFILL SITES**

Evaluation of Background Arsenic Concentrations for Covered Landfill Sites

Naval Air Station (NAS) Whiting Field, Milton, Florida

At NAS Whiting Field nine soil types, as identified by the U. S. Department of Agriculture, Soil Conservation Service (USSCS), are present. The Remedial Investigation (RI) sites at NAS Whiting Field are associated with seven of the nine soil types. The background surface soil data set for each RI site was initially determined to be comprised of background surface soil samples from the same USSCS soil types as occur on the individual sites. However, available information and review of historical aerial photographs indicated that in the construction of landfills at the facility, a borrow pit was dug to an approximate depth of 10 to 15 feet below land surface (bls) and the excavated soil was piled to the side. Following landfill operations, the borrow materials comprised of undifferentiated surface and subsurface soils, were used for the landfill cover. Any additional soils required to complete the landfill cover are believed to have been obtained from other borrow pits located at the facility.

If a mix of surface and subsurface soils were used in the cover for landfills, it would be appropriate to use the combined data set of surface and subsurface soil samples as the background screening value. However in order to be protective of human health and the environment, it is proposed that the background surface and subsurface data set be combined to a single value as be used as the "Industrial Use Soil Cleanup Goal". This modified "Industrial Use Soil Cleanup Goal" is specifically limited to the covered landfill sites including: Site 1, 2, 9, 10, 11, 13, 14, 15, and 16 and to the inorganic analyte arsenic.

Tables 3-8 through 3-18 in the General Information Report present the detected concentrations and summarize the analytical data for the individual background soil samples collected at NAS Whiting Field. A summary of the arsenic background data set and the modified "Industrial Use Soil Cleanup Goal" for arsenic is presented Table I-1. As indicated on the table the modified "Industrial Use Soil Cleanup Goal" for arsenic to be used at covered landfill sites is 4.62 mg/kg.

**Table A-1
 Summary of Arsenic Detected in
 Surface and Subsurface Background Soil Samples**

Feasibility Study
 Site 12, Tetraethyl Lead Disposal Area
 Naval Air Station Whiting Field
 Milton, Florida

Analyte	Frequency of Detection Surface Soil Samples ¹	Mean of Detected Concentrations Surface Soil Samples ²	Frequency of Detection Sub-surface Soil Samples ¹	Mean of Detected Concentrations Subsurface Soil Samples ²	Frequency of Detection Surface and Subsurface Soil Samples ¹	Mean of Detected Concentrations Surface and Subsurface Soil Samples ²	Surface and Subsurface Soil Background Screening Concentration (modified Industrial Use Cleanup Goal)
Inorganic Analytes (mg/kg)							
Arsenic	15/15	1.54	14/14	3.14	29/29	2.31	4.62
¹ Frequency of detection is the number of samples in which the analyte was detected divided by the total number of samples analyzed. ² The mean of detected concentrations is the arithmetic mean of all samples in which the analyte was detected. It does not include those samples in which the analyte was not detected. Note: mg/kg = milligrams per kilogram.							

**Table A-2
 Comparison of Detected Arsenic Concentrations in Surface and Subsurface Soil Samples
 to Florida Soil Cleanup Goals**

Feasibility Study
 Site 12, Tetraethyl Lead Disposal Area
 Naval Air Station Whiting Field
 Milton, Florida

Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Mean of Detected Concentrations	Soil Cleanup Target Levels for Florida (Residential) ¹	Soil Cleanup Target Levels for Florida (Industrial) ¹	Surface and Subsurface Soil Background Screening Concentration (modified Industrial Use Cleanup Goal) ²
Inorganic Analyte (mg/kg)						
Arsenic	0.52	6.3	2.31	0.8	3.7	4.62

¹ Source: Chapter 62-785, Florida Administrative Code.
² The modified Industrial Use Cleanup Goal for arsenic is the Florida Department of Environmental Protection approved site specific cleanup goal for Perimeter Road sites at Naval Air Station, Whiting Field.

Note: mg/kg = milligrams per kilogram.



Department of Environmental Protection

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Tallahassee, Florida 32399-2400

Virginia E. Wetmore
Secretary

April 27, 1998

Ms. Linda Martin
Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive, PO Box 190010
North Charleston, SC 29419-9010

file: arsenic1.doc

RE: Request for Site-Specific Arsenic Soil Cleanup Levels: Covered Landfill Sites, NAS
Whiting Field

Dear Ms. Martin:

I have reviewed the request for approval of a site-specific Soil Cleanup Goal for arsenic at the "covered landfill sites" at NAS Whiting Field from Mr. Gerald Walker, ABB Environmental Services, dated April 22, 1998 (received April 22, 1998). Based on the prior presentation to Department Staff and the summary information furnished in the letter and the attached Appendix I, the request is granted to utilize a site-specific Soil Cleanup Goal for arsenic of 4.62 mg/kg at Sites 1, 2, 9, 10, 11, 12, 13, 14, 15 and 16., with the following conditions:

1. The sites may be utilized for activities that involve less than full-time contact with the site. This may include, but is not limited to, a.) parks b.) recreation areas that receive heavy use (such as soccer or baseball fields) or, c.) agricultural sites where farming practices result in moderate site contact (approximately 100 days/year, or less).
2. The Navy must assure adherence to the land use by incorporating the site and conditions in a legally binding Land Use Control agreement.
3. The above Soil Cleanup Goal shall not be utilized at any other site without specific Department approval.

If you have questions or require further clarification, please contact me at (904) 921-4230.

Sincerely,

James H. Cason, P.G.
Remedial Project Manager

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

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