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NAS WHITING FIELD
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FINAL RECORD OF DECISION FOR SITE 12 NAS WHITING FIELD FL
9/16/2005
TETRA TECH NUS

Comprehensive Long-term Environmental Action Navy

CONTRACT NUMBER N62467-94-D-0888



Rev. 1
09/16/05

Record of Decision for Surface and Subsurface Soils at Site 12, Tetraethyl Lead Disposal Area

**Naval Air Station Whiting Field
Milton, Florida**

USEPA ID No. FL2170023244

Contract Task Order 0369

September 2005



Southern Division

Naval Facilities Engineering Command

2155 Eagle Drive

North Charleston, South Carolina 29406

**RECORD OF DECISION
FOR
SURFACE AND SUBSURFACE SOILS AT
SITE 12, TETRAETHYL LEAD DISPOSAL AREA**

**NAVAL AIR STATION WHITING FIELD
MILTON, FLORIDA
USEPA ID No. FL2170023244**

**COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT**

**Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406**

**Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220**

**CONTRACT NO. N62467-94-D-0888
CONTRACT TASK ORDER 0369**

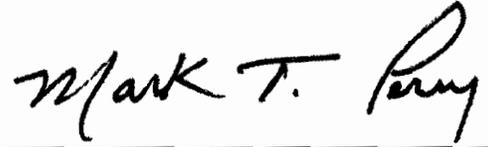
SEPTEMBER 2005

PREPARED UNDER THE SUPERVISION OF:

APPROVED FOR SUBMITTAL BY:



**TERRY HANSEN, P.G.
TASK ORDER MANAGER
TETRA TECH NUS, INC.
TALLAHASSEE, FLORIDA**



**DEBRA M. HUMBERT
PROGRAM MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA**

for



CERTIFICATION OF TECHNICAL DATA CONFORMITY

The Contractor, Tetra Tech NUS, Inc., hereby certifies, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-94-D-0888 are complete, accurate, and comply with all requirements of this contract. The work and professional opinions rendered in this report were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards of practice.

DATE: 30 September 2005

A handwritten signature in black ink, appearing to read "Terry J. Hansen".

NAME AND TITLE OF CERTIFYING OFFICIAL: Terry J. Hansen, P.G.
Task Order Manager

A handwritten signature in black ink, appearing to read "Michael O. Jaynes".

NAME AND TITLE OF CERTIFYING OFFICIAL: Michael O. Jaynes, P.E.
Task Technical Lead

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ACRONYMS

AVGAS	Aviation Gasoline
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Constituent of Concern
COPC	Constituent of Potential Concern
ERA	Ecological Risk Assessment
EE	Envirodyne Engineers, Inc.
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDER	Florida Department of Environmental Regulation
FS	Feasibility Study
FSA	Feasibility Study Addendum
ft	feet/foot
HHRA	Human Health Risk Assessment
HLA	Harding Lawson and Associates
IAS	Initial Assessment Study
IR	Installation Restoration
mg/kg	milligrams per kilograms
NACIP	Navy Assessment and Control of Installation Pollutants
NAS	Naval Air Station
Navy	United States Navy
NFA	No Further Action
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
PRG	Preliminary Remediation Goal
RA	Remedial Action
RfDs	Reference Doses
RI	Remedial Investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SCTL	Soil Cleanup Target Level
SERA	Screening Ecological Risk Assessment
SVOCs	Semi Volatile Organic Compounds
TtNUS	Tetra Tech, NUS, Inc.
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds

1.0 DECLARATION OF THE RECORD OF DECISION

1.1 SITE NAME AND LOCATION

Naval Air Station (NAS) Whiting Field is located approximately 5.5 miles north of the town of Milton, Florida in Santa Rosa County, about 25 miles northeast of Pensacola. Site 12, Tetraethyl Lead Disposal Area, is located in the southeastern section of the facility near the South Air Field, at NAS Whiting Field. The disposal area consists of six earth-covered sludge mounds within a fenced area of approximately 100 feet (ft) by 25 ft. The approximate location of Site 12 is shown on Figure 1-1.

1.2 STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedy for Site 12 as No Action for surface and subsurface soils. Groundwater at NAS Whiting Field has been identified as a separate site (Site 40, Basewide Groundwater) and will be addressed in a future decision document. The selected action was chosen by the United States Navy (Navy) and the United States Environmental Protection Agency (USEPA) in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Information supporting the selection of this action is contained in the Administrative Record for this site. The NAS Whiting Field Information Repository, including the Administrative Record, is located at the West Florida Regional Library, Milton Branch, 805 Alabama Street, Milton, Florida 32570, (850) 623-5565.

The Florida Department of Environmental Protection (FDEP) concurs with the selected remedy.

1.3 ASSESSMENT OF THE SITE

The Remedial Investigation (RI) Report for Site 12 [Harding Lawson and Associates (HLA), 1999] identified four semi-volatile organic compounds (SVOCs), one pesticide, and 20 inorganic compounds in surface soil and one volatile organic compound (VOC), one SVOC, and 20 inorganic compounds in subsurface soil at Site 12. One pesticide, dieldrin, was identified as a constituent of potential concern (COPC) in surface soils in the RI; however, no constituents of concern (COCs) were identified for surface soils in the associated human health risk assessment (HHRA). No COPCs or COCs were identified for subsurface soils. Therefore, no human health risks were identified for exposure to surface and subsurface soils at Site 12. A summary of site risks is provided in Section 2.6 of this Record of Decision

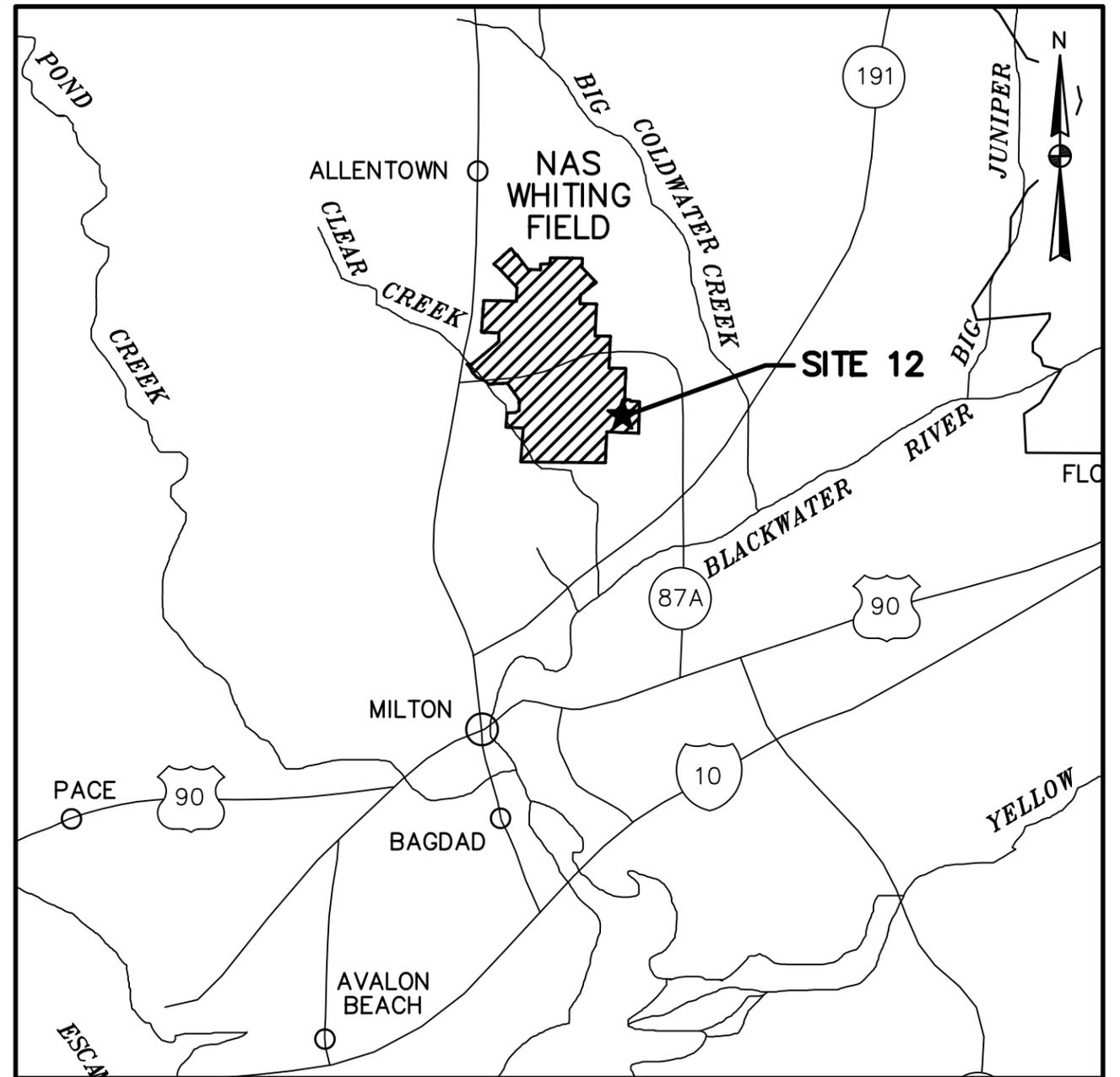
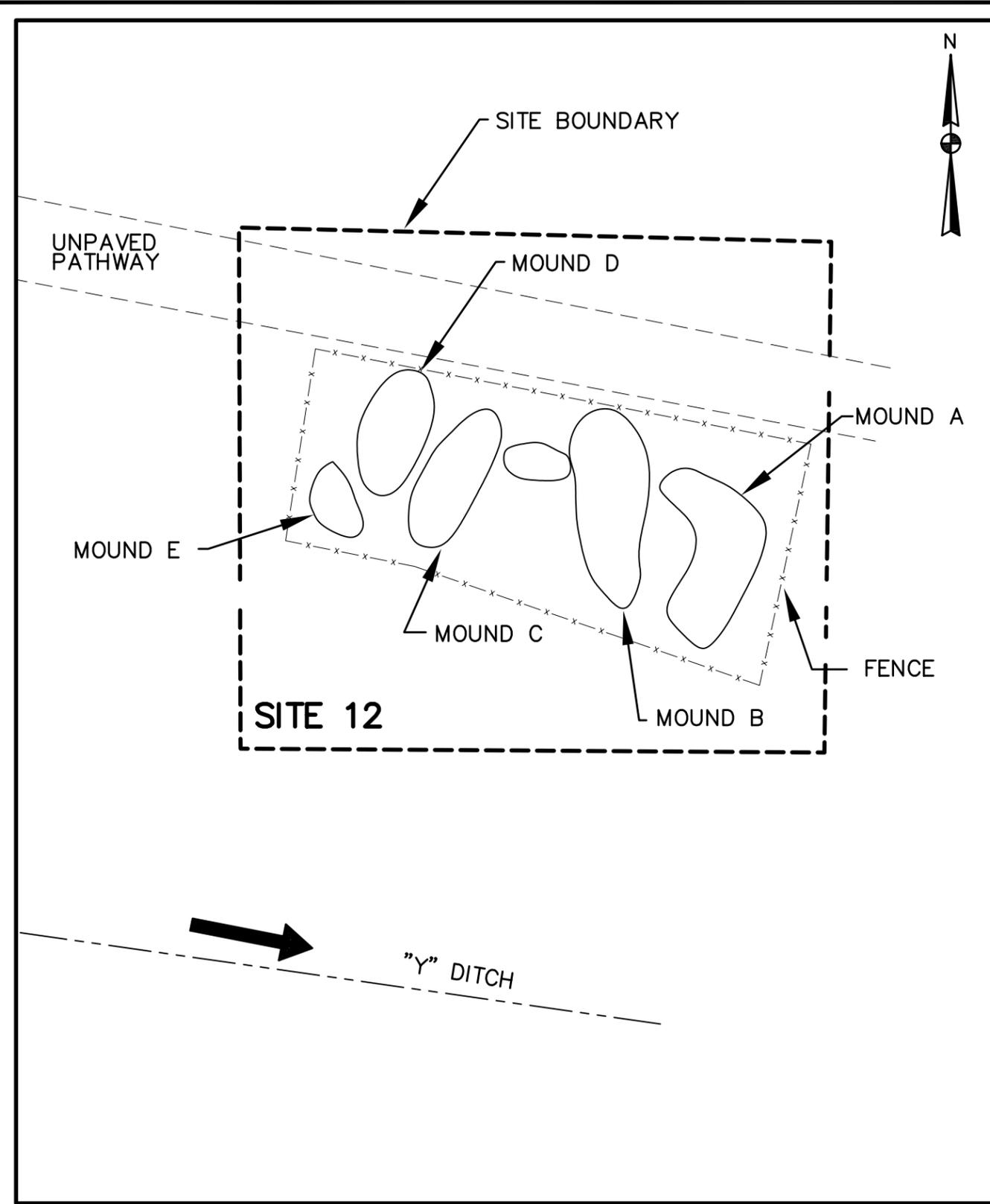


FIGURE 1-1
SITE 12 LOCATION AND AREA MAP
RECORD OF DECISION
NAS WHITING FIELD, MILTON, FLORIDA



(ROD). The results of the ecological risk assessment (ERA) presented in the RI indicate ecological risks at the site are acceptable, and further ecological study is unwarranted because the site is limited in the quantity and quality of habitat. Site 12 poses no risk to human health and the environment under a residential land use scenario.

Site 12 currently consists of vacant, unused land densely vegetated with native species. No permanent surface water sources exist at Site 12. Most importantly, the limited size and habitat of the site serves to restrict the amount of food available to upper trophic level organisms. A discussion of the potential ecological risk is presented in Section 2.6.2.

1.4 DESCRIPTION OF THE SELECTED REMEDY

This ROD presents the final action for surface and subsurface soils at Site 12 and is based on results of the RI (HLA, 1999), the Feasibility Study (FS) (HLA, 2001) and the Feasibility Study Addendum (FSA) [Tetra Tech NUS, Inc. (TtNUS), 2005a]. The selected remedy for Site 12 is No Action for surface and subsurface soils and ensures protection of human health and the environment.

This ROD only addresses surface and subsurface soil at Site 12. Consequently, this ROD does not address actual or potential groundwater contamination at the site. Groundwater at NAS Whiting Field has been identified as a separate site (Site 40, Basewide Groundwater) and will be addressed in a future decision document. Sediment and surface water are not present at Site 12. Current soil conditions at Site 12 are protective of human health and the environment under an unrestricted use, unlimited exposure scenario. No CERCLA action for surface and subsurface soils is necessary because the contaminants found do not pose a risk to human health and the environment based on an unrestricted use, unlimited exposure residential use scenario.

1.5 STATUTORY DETERMINATIONS

The No Action remedy selected for surface and subsurface soils at Site 12 is protective of human health and the environment, complies with federal and state requirements legally applicable or relevant and appropriate, and is cost effective. No remedial action (RA) is necessary to ensure protection of human health and the environment based on an unrestricted use/unlimited exposure scenario. Consequently, no active treatment or monitoring will be conducted at Site 12.

1.6 AUTHORIZING SIGNATURES



Joan Platz
Captain, United States Navy
Commanding Officer, NAS Whiting Field

22 Sep 2005
Date



Alan Farmer
Acting Director, Waste Management Division
USEPA, Region IV

9/27/05
Date

2.0 DECISION SUMMARY

2.1 SITE NAME, LOCATION, AND DESCRIPTION

Site 12 is less than 0.1 acre in size and is located in the southeastern section of the facility. The disposal area consists of six earth-covered sludge mounds within a fenced area of approximately 100 ft by 25 ft. The mounds range from approximately 3 to 5 ft in height and 5 to 10 ft in diameter.

The approximate location of Site 12 is shown on Figure 2-1. There are currently no buildings at Site 12. No permanent surface water sources exist at Site 12. However, an unlined "Y" drainage ditch is located immediately adjacent to the southern border of the site and receives any surface runoff from the area. The drainage ditch ultimately discharges to Big Coldwater Creek, approximately 1.7 miles to the east.

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

2.2.1 NAS Whiting Field History

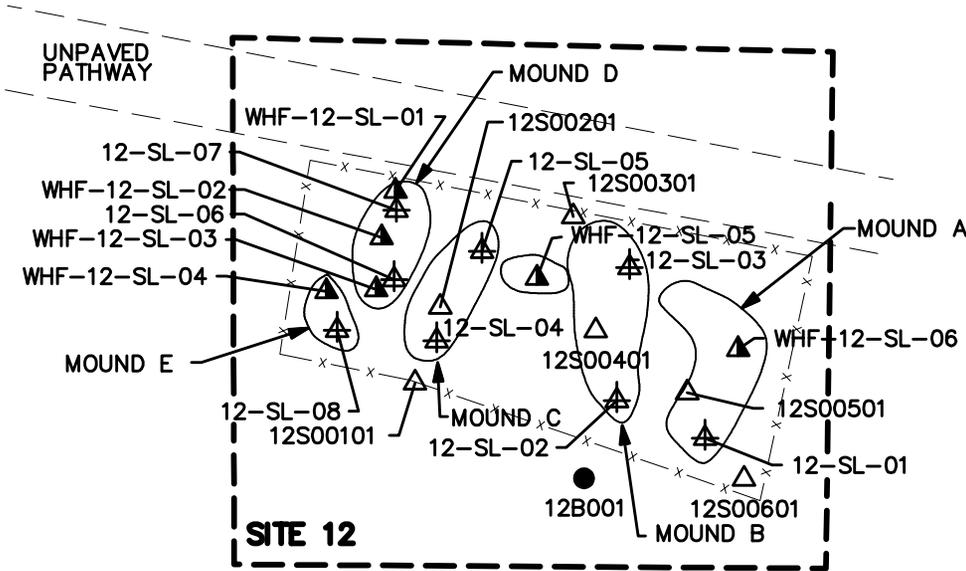
NAS Whiting Field was placed on the National Priorities List (NPL) by the USEPA in June 1994. Following the listing of NAS Whiting Field on the NPL, remedial response activities have been conducted pursuant to CERCLA authority.

The first environmental studies for the investigations of waste handling and/or disposal sites at NAS Whiting Field were conducted during the Initial Assessment Study (IAS) (Envirodyne Engineers, Inc. (EE), 1985). The record search indicated throughout its years of operation, NAS Whiting Field generated a variety of wastes related to pilot training, operation and maintenance of aircraft and ground support equipment, and facility maintenance programs.

NAS Whiting Field presently consists of two airfields (North and South Fields) and serves as a naval aviation training facility providing support facilities for flight and academic training. The current and anticipated future land use at Site 12 is nonresidential / recreational .

2.2.2 Site 12 History

Historical aerial photographs and engineering drawings, provided by the Navy, were evaluated during the planning phases of the RI. The objective of the evaluation was to determine the history of Site 12 and to verify earlier historical accounts.



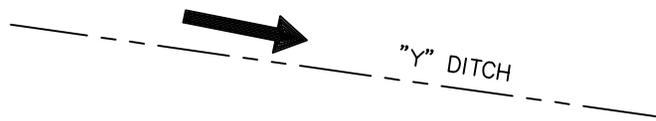
LEGEND:

- PHASE II SURFACE SOIL SAMPLE LOCATION AND DESIGNATION
- PHASE IIA SURFACE SOIL SAMPLE LOCATION AND DESIGNATION
- PHASE IIB SURFACE SOIL SAMPLE LOCATION AND DESIGNATION
- PHASE IIB SOIL BORING LOCATION AND DESIGNATION
- FENCE
- APPROXIMATE SITE BOUNDARY
- OUTLINE OF SOIL PILE
- FLOW DIRECTION



KEY:

NAS NAVAL AIR STATION



DRAWN BY DM	DATE 3/17/05
CHECKED BY	DATE
REVISED BY	DATE
SCALE AS NOTED	



**SITE 12 PLAN MAP
RECORD OF DECISION
NAS WHITING FIELD
MILTON, FLORIDA**

CONTRACT NO. 0008	
OWNER NO. 0000	
APPROVED BY	DATE
DRAWING NO. FIGURE 2-1	REV. 0

Site 12 was used as a disposal area for the disposal of an undetermined amount of aviation gasoline (AVGAS) tank bottom sludge waste. The disposal area consists of six earth-covered sludge mounds. Each sludge pile reportedly contained 200 to 400 gallons of sludge generated from cleaning the north and south aqua system fuel storage tanks and fuel filters. The piles are reported to be contaminated with tetraethyl lead, a component of AVGAS. The sludge was stockpiled at its current location in May 1968.

Past disposal of hazardous waste (described above) at Site 12, although acceptable at the time, had the potential to cause long-term problems through the release of hazardous constituents into the soil and groundwater. As part of the Installation Restoration (IR) Program and the Navy Assessment and Control of Installation Pollutants (NACIP), Site 12 was included in the IAS (EE, 1985) for NAS Whiting Field.

Four SVOCs, one pesticide, and 20 inorganic compounds were detected in the surface soil and one VOC, one SVOC, and 20 inorganic compounds were detected in the subsurface soil at Site 12 as presented in Section 2.5. The individual inorganic constituents, arsenic, aluminum, iron, manganese, and vanadium, detected at the site have no direct evidence of site-related use at Site 12 and the procedures at this site did not likely contribute to the presence of these inorganics in surface soil. Additionally, the site-specific concentrations of these inorganics are within the range of background levels found at NAS Whiting Field and naturally occurring levels throughout the southeastern United States. Considering the information presented above, arsenic, aluminum, iron, manganese, and vanadium were dropped from consideration as COPCs for Site 12 surface soils. Table 2-1 summarizes the Site 12 investigative history.

NAS Whiting Field presently consists of two airfields (North and South Fields) and serves as a naval aviation training facility providing support facilities for flight and academic training. The current and anticipated future land use at Site 12 is nonresidential / recreational .

2.3 HIGHLIGHTS OF COMMUNITY PARTICIPATION

The FSA and Proposed Plan (TtNUS 2005a and 2005b) for Site 12 were made available to the public for review in August 2005. These documents, and other IR program information, are contained within the Administrative Record in the Information Repository at the West Florida Regional Library, Milton, Florida.

The notice of availability of all site-related documents was published in the Santa Rosa Press Gazette on 30 July 2005 and the Pensacola News Journal on 31 July 2005 and targeted the communities

TABLE 2-1
INVESTIGATIVE HISTORY
RECORD OF DECISION
SITE 12, TETRAETHYL LEAD DISPOSAL AREA
NAVAL AIR STATION WHITING FIELD
MILTON, FLORIDA

Date	Investigation Title	Activities	Findings
1985	<i>Initial Assessment Study, NAS Whiting Field, Milton, Florida</i> (Envirodyne Engineers, Inc., 1985)	<ul style="list-style-type: none"> Review of historical records and aerial photographs Field inspections and personal interviews 	<ul style="list-style-type: none"> In the 1950s and 1960s, waste fuel was reportedly disposed at Site 12. Site 12 was recommended for additional investigation due to the presence of human and ecological receptors.
1986	<i>Verification Study, Assessment of Potential Groundwater Pollution at NAS Whiting Field, Florida</i> (Geraghty & Miller, Inc., 1986)	<ul style="list-style-type: none"> Collection and analysis of 2 composite soil samples Installation of one monitoring well and groundwater sampling 	<ul style="list-style-type: none"> Total lead was detected at 4 and 11 milligrams per kilogram (mg/kg) in soil samples. EP toxicity tests indicated lead below detection limit of 0.01 mg/kg. Lead was detected below Florida's primary drinking water standards.
1990 - 1999	<i>Remedial Investigation Report, Site 12, NAS Whiting Field, Milton, Florida</i> , [Harding Lawson Associates (HLA), 1999]	<ul style="list-style-type: none"> Geological assessment Hydrogeological assessment PCPT and BAT groundwater sampling Collection and analysis of 6 soil samples from waste piles Collection and analysis of surface and subsurface soil samples Installation of groundwater monitoring wells and groundwater sampling HHRA ERA 	<ul style="list-style-type: none"> The groundwater flow direction is to the southeast across the site. The HHRA determined the carcinogenic risk from exposure to surface soil was within USEPA's acceptable risk range for current and future receptors at Site 12. The total ELCR associated with exposure to surface soil by a hypothetical future resident (9×10^{-5}) exceeded FDEP's target level of concern (1×10^{-6}) due to the presence of arsenic. The non-cancer risk associated with ingestion and direct contact of soil under current and hypothetical future land-uses are below USEPA's and FDEP's target HI of 1.0. The ERA does not predict unacceptable risks to ecological receptors from chemicals present in surface and subsurface soil at Site 12.
2001	<i>Feasibility Study for Site 12, NAS Whiting Field, Milton, Florida</i> (HLA, 2001).	<ul style="list-style-type: none"> Evaluated remedial alternatives for site cleanup of COCs. 	<ul style="list-style-type: none"> Two COCs identified for surface soil, LUCs recommended.
2005	<i>Feasibility Study Addendum for Site 12, Waste Fuel Disposal Pit, NAS Whiting Field, Milton, Florida</i> (TtNUS, 2005a).	<ul style="list-style-type: none"> Evaluated remedial alternatives for site cleanup of COCs. 	<ul style="list-style-type: none"> No surface or subsurface soil COCs identified.
2005	<i>Proposed Plan, Site 12, Waste Fuel Disposal Pit, NAS Whiting Field, Milton, Florida</i> , (TtNUS, 2005b)	<ul style="list-style-type: none"> Established public comment period from August 01 through August 29, 2005. 	<ul style="list-style-type: none"> Proposed remedy: No Action for Site 12 surface and subsurface soils. No comments received.

Notes:

EP = extraction procedure
HLA = Harding Lawson Associates
BAT = Bengt-Arne-Torstensson
HHRA = human health risk assessment
ERA = ecological risk Assessment
HI = hazard index

FDEP = Florida Department of Environmental Protection
TtNUS = Tetra Tech NUS, Inc.
USEPA = United States Environmental Protection Agency
SCTLs = Soil Cleanup Target Levels
COC = Constituents of Concern

closest to NAS Whiting Field. The availability notice presented information on the RI, FS, and FSA at Site 12 and invited community members to submit written comments on the Proposed Plan.

A public comment period was held from 01 August through 29 August 2005, to solicit comments on the Proposed Plan. The comment period included an opportunity for the public to request a public meeting; however, a public meeting was not held because one was not requested. The site-related documents were placed in the Information Repository and made available for the public to review. Comments received during the public comment period are presented in the Responsiveness Summary in Appendix A.

2.4 SCOPE AND ROLE OF REMEDIAL ACTION SELECTED FOR SITE 12

Site 12, the subject of this ROD, addresses surface and subsurface soil contamination and presents the final response action as No Action. The groundwater at NAS Whiting Field has been designated as a separate site (Site 40, Basewide Groundwater) and is not addressed in this ROD.

2.5 SITE CHARACTERISTICS

Site 12, Tetraethyl Lead Disposal Area, is approximately 0.1 acres in size and is located along the southeastern facility boundary near the South Air Field, at NAS Whiting Field, Milton, Florida.

2.5.1 Nature and Extent of Contamination

As part of the RI conducted for Site 12, data were collected to determine the nature and extent of releases of site-derived contaminants in surface and subsurface soil, to identify potential pathways of migration in surface and subsurface soil, and to evaluate risks to human and ecological receptors.

The Proposed Plan recommended No Action for surface and subsurface soils at Site 12. This ROD documents the selected RA for Site 12 as a No Action for surface and subsurface soils. The groundwater at NAS Whiting Field has been designated as a separate site (Site 40, Basewide Groundwater) and is not addressed in this ROD.

2.5.1.1 Surface Soil

Surface soil sampling was conducted at Site 12 to determine the nature and extent of contamination at the site and to assess whether or not surface soil could potentially serve as an exposure pathway to human or ecological receptors. Constituents detected in surface soil at Site 12 included four SVOCs, one pesticide, and 20 inorganic analytes. One COPC, dieldrin, was identified, however, it was not retained as

a COC following the HHRA and the ERA. Therefore, no human health risks were identified for exposure to surface soils at Site 12.

A complete list of all constituents sampled and their detected concentrations in surface soil is available in the RI report (HLA, 1999).

2.5.1.2 Subsurface Soil

Subsurface soil sampling was conducted at Site 12 to determine the nature and extent of contamination at the site and to assess whether or not subsurface soil could potentially serve as an exposure pathway to human or ecological receptors. Constituents detected in subsurface soil at Site 12 included, one VOC, one SVOC, and 20 inorganic analytes. No COPCs were identified and no human health risks were identified for exposure to subsurface soils at Site 12.

A complete list of all constituents sampled and their detected concentrations in subsurface soil is available in the RI report (HLA, 1999).

2.5.2 Ecological Habitat

Site 12 is limited in the quantity and quality of habitat for ecological receptors. More importantly, the limited size and habitat of the site serves to restrict the amount of food available to upper trophic level organisms.

2.5.3 Migration Pathways

No COCs were identified for exposure to surface and subsurface soils at Site 12; therefore, the leaching of constituents from the soil to groundwater, is not a concern.

2.5.4 Current and Potential Future Land Use

The current and anticipated future land use at Site 12 is nonresidential / recreational.

2.6 SUMMARY OF SITE RISKS

A risk assessment was completed for Site 12 to predict whether the site would pose current or future threats to human health or the environment. Both a HHRA and an ERA were performed for Site 12. These risk assessments evaluated the constituents detected in site soil during the RI and evaluated the COPCs.

The HHRA and the ERA provides the basis for selecting the remedial alternative for Site 12. This section of the ROD summarizes the results of the HHRA and the ERA for Site 12.

2.6.1 **HHRA**

A revised HHRA was conducted at Site 12 to characterize the risks associated with potential exposures to site-related contaminants for human receptors. The revised HHRA is provided in Chapter 6.0 of the *Risk Assessment Re-evaluation of Soils at Sites 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18* report (TtNUS, 2004).

One COPC, dieldrin, was evaluated and based on the HHRA, no COCs were identified and; therefore, no human health risks were identified for surface or subsurface soils at Site 12 under a residential land use scenario.

2.6.1.1 **Risk Characterization**

For the risk characterization at Site 12 potential risks were estimated for five receptors (the hypothetical future resident, the typical industrial worker, the construction worker, the maintenance worker, and the recreational user/trespasser). Potential risks were calculated for dieldrin using the methodology presented in Section 2.0 of the *Risk Assessment Re-evaluation of Soils at Sites 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18* report (TtNUS, 2004). Dieldrin was the only chemical detected at concentrations in excess of the direct contact, risk based COPC screening levels and consequently was retained as a COPC. The detected concentration exceeded the simple apportioned Preliminary Remediation Goal (PRG) and Soil Cleanup Target Level (SCTL) but was less than the non-apportioned PRG and SCTL.

COPCs for the Site 12 were selected using available background concentrations for soil. Aluminum, arsenic, iron, and vanadium in surface soil and aluminum, arsenic, iron, manganese, and vanadium in subsurface soil were eliminated as COPCs, in part, on the basis of background concentrations. Tables 2-2 and 2-3 provide a qualitative risk evaluation of these metals by comparing the maximum detected concentrations to their respective FDEP residential SCTLs.

The SCTLs presented for aluminum, iron, manganese, and vanadium are based on the potential for non-cancer health effects. Reference doses (RfDs) for aluminum and iron are based on allowable intakes rather than on adverse effect levels; consequently, an exceedance of the SCTL is not a definitive indication of the potential for adverse non-cancer health effects. The maximum detected concentration of vanadium in surface soil is approximately 1.8 times greater than its SCTL, and the maximum detected concentration in subsurface soil is approximately 2.8 times greater than the SCTL. The residential SCTL for vanadium is based on acute exposures to soil by a child; as a point of comparison, a residential SCTL

TABLE 2-2
OCCURRENCE, DISTRIBUTION, AND COC SELECTION - SURFACE SOIL
RECORD OF DECISION
SITE 12, TETRAETHYL LEAD DISPOSAL AREA
NAVAL AIR STATION, WHITING FIELD
MILTON FLORIDA

CAS No.	Constituent of Potential Concern	Maximum Concentration (1)	Exposure Point Concentration (2)	Non-Apportioned FDEP Residential SCTL- Direct Contact (3)		Ratio (Maximum/Non-Apportioned SCTL) Is Ratio > 1?	Site above Background? (4)	Is Constituent a COC? (5)	Rationale/Comments
Pesticides PCBs (mg/kg)									
60-57-1	DIELDRIN	0.013	0.013	0.07	C	1.9E-01	NA	No	maximum < SCTL
Inorganics (mg/kg)									
7429-90-5	ALUMINUM	15300	15300	72000	N	2.1E-01	no	No	maximum < SCTL
7440-38-2	ARSENIC	3.8	3.8	0.8	C	4.8	no	No	(7)
7439-89-6	IRON	9200	9200	23000	N	4.0E-01	no	No	(7)
7440-62-2	VANADIUM	26.8	26.8	15	N	1.8	no	No	(7)

Footnotes:

- 1 Sample and duplicate are counted as two separate samples when determining the maximum detected concentration.
- 2 Exposure point concentrations (EPCs) are maximum concentrations or 95 % upper confidence limits (UCLs) on the arithmetic mean as determined by statistical tests and calculations performed by the USEPA's ProUCL software.
- 3 Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C., Florida Department of Environmental Protection (FDEP), April 2005.
- 4 If the site data to background data comparisons determine that the site concentrations of a constituent were not significantly different from background, that chemical was not selected as a potential COC.
- 5 A chemical is selected as a potential COC if the maximum concentration exceeds the non-apportioned SCTL and, for metals, if the site concentrations exceed background levels.
- 6 NA - Not Applicable. According to proposed Florida Rule 62-780 only naturally occurring (inorganic) constituents are considered in the background evaluation.
- 7 These metals are not known to be associated with past practices or processes at Site 12 and the concentrations in soil at the site are considered to be naturally occurring or representative of anthropogenic background levels. Therefore, these constituents are not selected as potential COCs for the site.

Definitions:

- C = Carcinogen.
CAS = Chemical abstract services.
COC = Constituent of concern.
N = Noncarcinogen.
NA = Not applicable/not available.

TABLE 2-3
OCCURRENCE, DISTRIBUTION, AND COC SELECTION - SUBSURFACE SOIL
RECORD OF DECISION
SITE 12, TETRAETHYL LEAD DISPOSAL AREA
NAVAL AIR STATION, WHITING FIELD
MILTON FLORIDA

CAS No.	Constituent of Potential Concern	Maximum Concentration (1)	Exposure Point Concentration (2)	Non-Apportioned FDEP Residential SCTL- Direct Contact (3)		Ratio (Maximum/Non-Apportioned SCTL) Is Ratio > 1?	Site above Background? (4)	Is Chemical a Potential Level 1 COC? (5)	Rationale/Comments
Inorganics (mg/kg)									
7429-90-5	ALUMINUM	25400	13400	72000	N	3.5E-01	no	No	maximum < SCTL
7440-38-2	ARSENIC	5.3	2.2	0.8	C	6.6	no	No	(6)
7439-89-6	IRON	16100	8180	23000	N	7.0E-01	no	No	(6)
7440-62-2	VANADIUM	41.7	25.4	15	N	2.8	no	No	(6)

Footnotes:

- 1 Sample and duplicate are counted as two separate samples when determining the maximum detected concentration.
- 2 Exposure point concentrations (EPCs) are maximum concentrations or 95 % upper confidence limits (UCLs) on the arithmetic mean as determined by statistical tests and calculations performed by the USEPA's ProUCL software.
- 3 Soil Cleanup Target Levels (SCTLs) for Chapter 62-777, F.A.C., Florida Department of Environmental Protection (FDEP), April 2005.
- 4 If the site data to background data comparisons determine that the site concentrations of a constituent were not significantly different from background, that chemical was not selected as a potential COC.
- 5 A chemical is selected as a potential COC if the maximum concentration exceeds the non-apportioned SCTL and, for metals, if the site concentrations exceed background levels.
- 6 These metals are not known to be associated with past practices or processes at Site 12 and the concentrations in soil at the site are considered to be naturally occurring or representative of anthropogenic background levels. Therefore, these constituents are not selected as potential COCs for the site.

Definitions:

C = Carcinogen.
CAS = Chemical abstract services.
COC = Constituent of concern.
N = Noncarcinogen.

based on chronic exposures is 510 milligrams per kilograms (mg/kg). The SCTL presented for arsenic is based on the potential for cancer effects and represents the 1×10^{-6} (one-in-one million) cancer risk level (the values are the COPC screening levels used in this HHRA). SCTLs representing the 1×10^{-5} and 1×10^{-4} cancer risk levels would be 10 and 100 times, respectively, greater than the value presented for the 1×10^{-6} cancer risk level. Consequently, the maximum detected concentrations of arsenic in surface and subsurface soil exceed the 1×10^{-6} cancer risk level but not the 1×10^{-5} and 1×10^{-4} risk levels.

Also (as discussed above in Section 2.2.2), although concentrations of aluminum, arsenic, iron, and vanadium in surface and subsurface soil exceed respective screening criteria, these inorganics are not known to be associated with past practices or processes at any NAS Whiting Field sites. Soils associated with NAS Whiting Field landfills are composed of natural soil covers and do not reflect subsurface landfill contents. Therefore, these inorganics were not retained as COPCs for direct contact exposures to soil at Site 12.

2.6.1.2 Uncertainty Analysis

General uncertainties associated with the risk estimation process and site-specific uncertainties are discussed or referenced in the RI.

2.6.2 ERA

A screening ecological risk assessment (SERA) was performed for Site 12. Several organic and inorganic compounds were detected in surface soil at concentrations exceeding conservative screening levels and, therefore, were selected as COPCs. These COPCs were assessed in a less conservative Step 3A evaluation.

The results of the Step 3A analysis indicate the constituents detected in the surface soil at Site 12 do not pose unacceptable risks to ecological receptors and was not be evaluated further. Therefore, no COCs were identified at Site 12 based on the ERA.

2.6.3 Risk Summary

No unacceptable human health risks have been identified for Site 12 surface and subsurface soils under a residential land use scenario and risks to ecological receptors are acceptable.

2.7 DOCUMENTATION OF SIGNIFICANT CHANGES

No significant changes have occurred at Site 12 since the public comment period for the Proposed Plan.

REFERENCES

Envirodyne Engineers, Inc. (EE), 1985. *Initial Assessment Study, NAS Whiting Field, Milton, Florida*. Final Report. Prepared for Naval Energy and Environmental Support Activity, Port Hueneme, California.

Harding Lawson Associates (HLA), 1999. *Remedial Investigation Report for Site 12, Surface and Subsurface Soil, Naval Air Station Whiting Field, Milton, Florida*. Prepared for NAVFAC EFD SOUTH, North Charleston, South Carolina. June.

HLA, 2001. *Feasibility Study for Site 12, Surface and Subsurface Soil, Naval Air Station Whiting Field, Milton, Florida*. Prepared for NAVFAC EFD SOUTH, North Charleston, South Carolina. July.

Tetra Tech NUS, Inc. (TtNUS), 2004. *Risk Assessment Re-evaluation for Soils at Sites 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18, Naval Air Station Whiting Field, Milton, Florida*. Prepared for NAVFAC EFD SOUTH, North Charleston, South Carolina. October.

TtNUS, 2005a. *Feasibility Study Addendum for Site 12, Tetraethyl Lead Disposal Area, Surface and Subsurface Soil, Naval Air Station Whiting Field, Milton, Florida*. Prepared for NAVFAC EFD SOUTH, North Charleston, South Carolina. September.

TtNUS, 2005b. *Proposed Plan for Site 12, Tetraethyl Lead Disposal Area, Naval Air Station Whiting Field, Milton, Florida*. Prepared for NAVFAC EFD SOUTH, North Charleston, South Carolina. July.

APPENDIX A

**COMMUNITY RELATIONS
RESPONSIVENESS SUMMARY**

**Responsiveness Summary
Site 12, Tetraethyl Lead Disposal Area
Naval Air Station Whiting Field
Milton, Florida**

A public comment period on the Site 12 Proposed Plan was held from 01 August 2005 through 29 August, 2005. No public comments were received, and because a public meeting was not requested one was not held.