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FINAL INTERIM REMEDIAL ACTION COMPLETION REPORT OPERABLE UNIT 4 SITE 15  
PESTICIDE RINSATE DISPOSAL AREA REVISION 3 NAS PENSACOLA FL  
9/1/2014  
RESOLUTION CONSULTANTS

**FINAL  
INTERIM REMEDIAL ACTION COMPLETION REPORT  
OPERABLE UNIT 4  
SITE 15 — PESTICIDE RINSATE DISPOSAL AREA**

**NAVAL AIR STATION PENSACOLA  
PENSACOLA, FLORIDA**

**Revision: 3**

**Prepared for:**



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**Contract Number: N62470-11-D-8013  
CTO JM40**

**September 2014**

**FLORIDA PROFESSIONAL GEOLOGIST SEAL**

I have reviewed and approve this Interim Remedial Action Completion Report (I-RACR) for groundwater at Naval Air Station (NAS) Pensacola Operable Unit 4 (OU 4), Site 15, Pesticide Rinsate Disposal Area, and seal it in accordance with Chapter 492 of the Florida Statutes. In sealing this document, I certify the geological information contained in it is true to the best of my knowledge and the geological methods and procedures included herein are consistent with currently accepted geological practices.

Name: Brian E. Caldwell

License Number: 1330

State: Florida

Brian E Caldwell

Signature:

Sept 17 2014

Date:

**FLORIDA PROFESSIONAL ENGINEER SEAL**

I am registered to practice engineering by the Florida State Board of Professional Examiners. I certify, under penalty of law, that this Interim Remedial Action Completion Report (I-RACR) for groundwater at NAS Pensacola OU 4, Site 15, Pesticide Rinsate Disposal Area, was prepared in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, the information submitted is true, accurate, and complete, and the contents of this document are consistent with currently accepted engineering practices. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: David A. Myers  
License Number: 66483  
State: Florida

  
Signature:

09/17/2014  
Date:



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## Abbreviations and Acronyms

µg/L	microgram per liter
BRA	baseline risk assessment
COC	chemical of concern
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
CTO	Contract Task Order
DoD	Department of Defense
FDEP	Florida Department of Environmental Protection
FFA	Federal Facilities Agreement
I-RACR	Interim Remedial Action Completion Report
LTM	Long-Term Monitoring
LUC	Land Use Control
LUCAP	Land Use Control Agreement Plan
MCL	maximum contaminant level
NAS	Naval Air Station
NPL	National Priorities List
OU	Operable Unit
RAB	Restoration Advisory Board
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
U.S. EPA	United States Environmental Protection Agency
UST	underground storage tank



## **1.0 OVERVIEW**

### **1.1 Introduction and Purpose**

This Interim Remedial Action Completion Report (I-RACR) for groundwater documents that the remedy has been constructed and is in place and operating successfully at Operable Unit 4 (OU 4), Site 15, Pesticide Rinsate Disposal Area at Naval Air Station (NAS) Pensacola in Pensacola, Escambia County, Florida (Figure 1-1). Resolution Consultants has prepared this I-RACR under Contract No. N62470-11-D-8013, Comprehensive Long-term Environmental Action Navy (CLEAN), Contract Task Order (CTO) JM40 in accordance with Department of Defense (DoD) and United States Environmental Protection Agency (U.S. EPA) Joint Guidance entitled *Recommended Streamlined Site Closeout and National Priorities List (NPL) Deletion Process for DoD Facilities* (DoD/U.S. EPA 2006).

A Record of Decision (ROD) for OU 4 was issued by the Navy and U.S. EPA on 27 September 2000. The selected remedy addressed the sources of soil and groundwater contamination and included a removal action for contaminated soils with groundwater monitoring in conjunction with land use controls (LUCs) for groundwater (EnSafe 1999).

Following execution of the ROD, soil source removal actions were initiated at OU 4 on 26 April 2002 and completed on 6 May 2002. The results of the soil source area removal action were presented in the Remedial Action Completion Report at Site 15 — Operable Unit 4 (CH2M Hill 2006).

The purpose of this I-RACR is to document that the Remedy-In-Place milestone (i.e., construction is complete) has been achieved for groundwater. This I-RACR also documents that the following criteria have been met:

- The remedy is operating as planned to meet Remedial Action Objectives (RAOs) and remedial goals stated in the ROD will be met in the future.
- LLUCs are in place and are reviewed annually.
- Five-Year reviews are being completed.
- The site is protective of human health and the environment.

Groundwater monitoring activities and results will be presented in Annual Groundwater Monitoring Reports. LUC inspections will be documented in Annual LUC Inspection Reports.

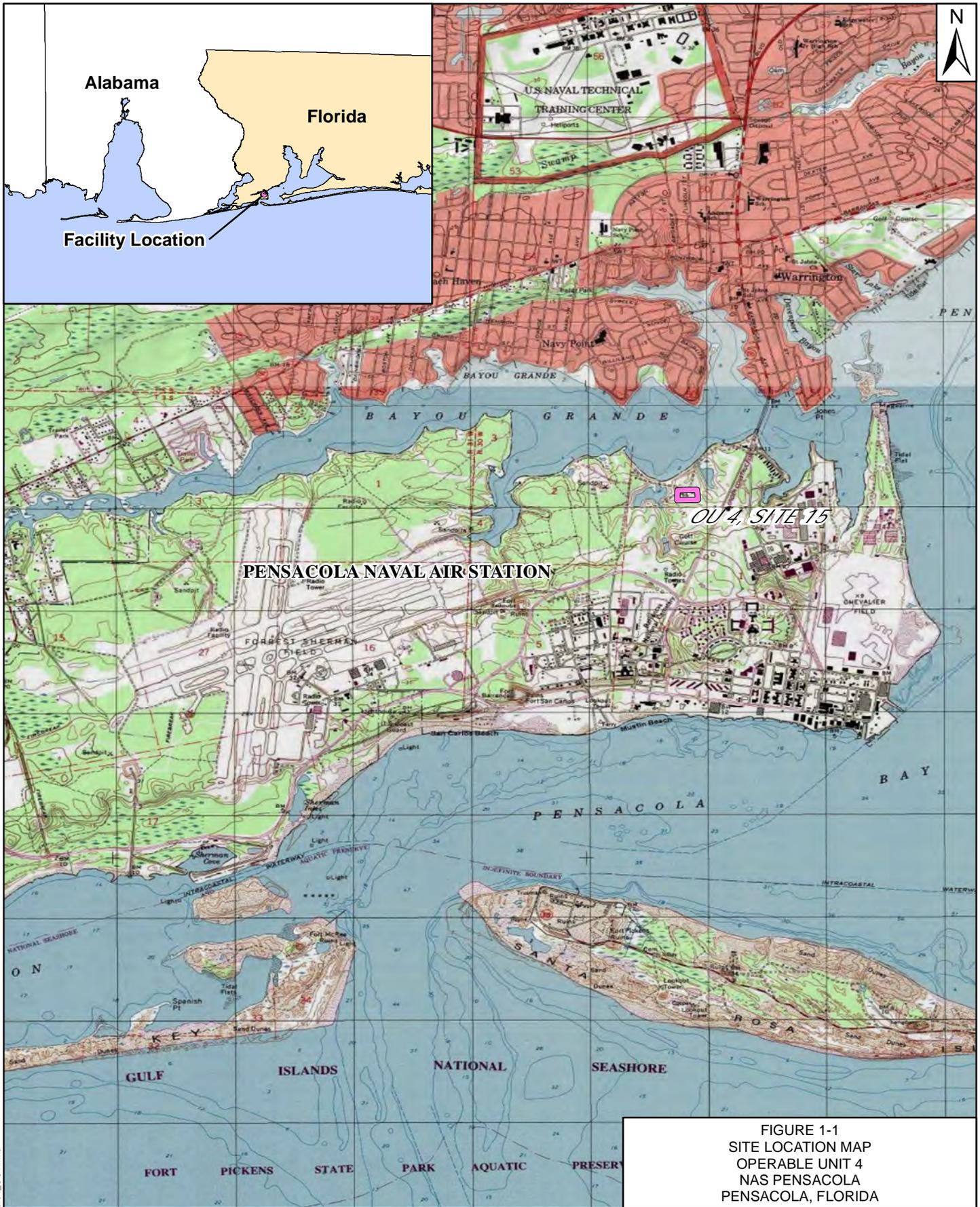


FIGURE 1-1  
 SITE LOCATION MAP  
 OPERABLE UNIT 4  
 NAS PENSACOLA  
 PENSACOLA, FLORIDA

**Legend**

 Site Boundary

0 0.25 0.5 0.75 1  
 Miles

Basemap Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013, USA Topo Maps



REQUESTED BY: A. BAILEY  
 DRAWN BY: A. ZIMMERMAN

DATE: 5/21/2013  
 PROJECT NUMBER: 0888812959

## **1.2 NAS Pensacola Background**

### **1.2.1 History and Physical Setting**

The United States Navy has maintained a presence in the Pensacola area since 1825 when a Navy yard was established on Pensacola Bay. Between 1828 and 1835, the Navy acquired approximately 2,300 acres as operations expanded. Several natural disasters in the early 1900s destroyed the yard and forced it into maintenance status in 1911. Three years later, the Navy's first permanent air station was established on the site of the old Navy yard.

The current 5,800-acre NAS Pensacola facility is on a peninsula surrounded to the south by Pensacola Bay and north by Bayou Grande (Figure 1-1). The terrain is generally flat with rolling undulations. Undeveloped areas, particular on the west side of the facility, are mostly wooded with pines and hardwoods, with intertidal marshes and salt-tolerant vegetation near the shores; the more developed south-central and eastern portions of the facility contain less native vegetation, especially in training and industrial complexes and on the sprawling A.C. Read Golf Course. The subtropical climate averages 60 inches of rainfall per year, some coming in heavy downpours and occasional hurricanes. The shallow geology consists of sand and silty sand, supporting a shallow, unconfined, highly transmissive surficial aquifer, in which shallow groundwater flow largely mimics topography (EnSafe 1997).

### **1.2.2 Mission**

The official mission of NAS Pensacola is to provide facilities, service, and support for the operation and maintenance of naval weapons and aircraft to operating forces of the Navy as designated by the Chief of Naval Operations. Some of the tasks required to accomplish this mission include operation of fuel storage facilities, performance of aircraft maintenance, maintenance and operation of engine repair facilities and test cells for aircraft engines, and support of weapon systems.

### **1.2.3 Environmental Background**

Because of environmental investigation activities initiated by the Navy in 1983, 29 potential sources of contamination were identified as needing additional investigation. In December 1989, the base was placed on the NPL. The Federal Facilities Agreement (FFA), signed in October 1990, outlined the regulatory path to be followed at NAS Pensacola. NAS Pensacola must complete not only the regulatory obligations associated with its NPL listing, but it also must satisfy the ongoing requirement of an environmental Resource Conservation and Recovery Act (RCRA) permit issued in 1988.

### **1.3 OU 4 Background**

One of the sites identified as part of the NPL designation was OU 4 that is comprised of Site 15 in the northern portion of NAS Pensacola as shown on Figure 1-2. OU 4, Site 15, is accessible from the west by an unpaved road and includes portions of the golf course, the golf course maintenance facilities, three concrete wash-down pads, two asphalt wash-down pads, a former pesticide/drum storage building, an area that contained a now-removed underground storage tank (UST), equipment storage buildings, and several in-use buildings. The site is bordered by the golf course on its southern and eastern sides, natural vegetation to the west, and Bayou Grande approximately 665 feet to the north (EnSafe 1997).

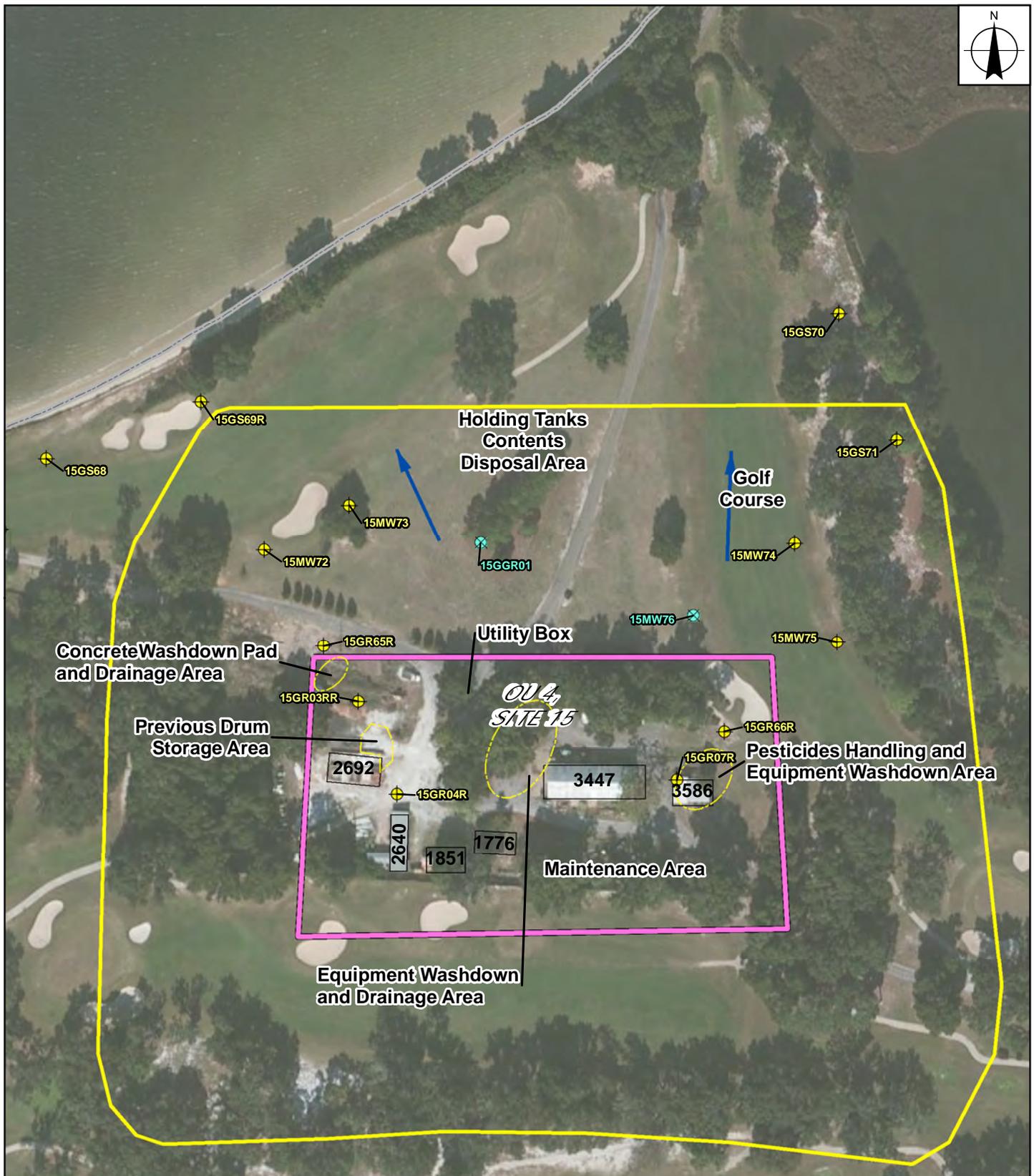
From 1963 to the present, fertilizer, pesticide, and herbicide materials for application at the golf course have been stored and mixed at the golf course maintenance facility. Application equipment such as tractors, sprayer tanks, and spreaders are also rinsed at the facility's wash-down pads, which are located northeast of Building 2692 and northwest of Building 3447. Before the construction of the wash racks, cleaning the equipment at the asphalt wash-down pad released dilute rinsate solutions directly onto the surrounding ground surface, where the materials infiltrated the soil (Geraghty and Miller 1984).

In the past, a sink outside of Building 3586 and a floor drain in a concrete pad north of the building collected pesticide and herbicide residue wastes and discharged them into a UST. The contents were periodically pumped out by a contracted agent before its removal in 1993. The UST was removed in 1993 and the contents of the tank were spread across the ground surface, approximately 200 feet north-northwest of Building 3447 (EnSafe 1997).

The RI identified that arsenic commonly exceeded its federal Maximum Contaminant Level (MCL) of 50 micrograms per liter ( $\mu\text{g}/\text{L}$ ) and NAS Pensacola-specific reference concentration (background concentration) of  $2.8 \mu\text{g}/\text{L}$ ; it was the primary chemical of concern (COC) detected in shallow groundwater. Arsenic was not detected in intermediate depth groundwater samples above the MCL, indicating that arsenic has not migrated downward (EnSafe 1997).

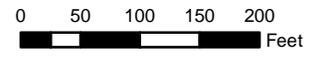
Three areas of MCL exceedances in groundwater were identified:

- Area immediately around the asphalt pad at Building 2640's northwestern corner
- Area north of Building 2692
- Area north of Building 3586



X:\Navy\Pensacola\Figure 1-2\_OU4.mxd

-  New Well
-  Existing Well
-  Groundwater Flow Direction
-  LUC Boundary
-  Site Features
-  Facility Boundary
-  Site Boundary



Service Layer Credits: Copyright:© 2012 Esri, DeLorme, NAVTEQ, TomTom, Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the

Note: 15GR03R was replaced with 15GR03RR

**FIGURE 1-2**  
**SITE MAP**  
**OPERABLE UNIT 4**  
**NAS PENSACOLA**  
**PENSACOLA, FLORIDA**




REQUESTED BY: A. BAILEY	DATE: 5/1/2013
DRAWN BY: A. ZIMMERMAN	TASK ORDER NUMBER: XXXX



The areas of the highest arsenic concentrations in shallow groundwater are north of Buildings 2692 and 3586, downgradient of areas where soil arsenic concentrations exceeded its remedial goal. The groundwater sampling results from the most downgradient monitoring wells, 15GS68 through 15GS71 adjacent to Bayou Grande and the tidal pond, indicate that arsenic concentrations above its MCL do not extend beyond the golf course to the north. As identified in the Remedial Investigation (RI), the distribution and magnitude of arsenic concentrations in groundwater above the MCL of 50 µg/L are limited to the site and immediately downgradient areas (EnSafe 1997). Be advised that the MCL for arsenic was reduced by U.S. EPA to 10 µg/L on 22 February 2002. As agreed by U.S. EPA, Florida Department of Environmental Protection (FDEP), and the Navy, monitoring has continued at the site using the U.S. EPA MCL of 10 µg/L instead of the remedial goal of 50 µg/L. The decrease in the MCL and change to the remedial goal will be documented in a later Explanation of Significant Differences.

The hazards presented by potential exposure to arsenic at OU 4 resulted in the performance of a baseline risk assessment (BRA). The BRA used the Florida risk threshold goals (10E-06 excess risk), which is more conservative than U.S. EPA's acceptable risk range (10E-06 to 10E-04) and associated Risk Assessment Guidance for Superfund information and identified unacceptable risks to human health and the environment associated with exposure to the COCs in the soil and groundwater (EnSafe 1997). Arsenic was identified as the only COC in groundwater.

## **2.0 REMEDIAL ACTION OBJECTIVE**

To address the risks identified in the BRA, a RAO for groundwater was identified during the development of the ROD. Additionally, the remedial goal for arsenic in groundwater is currently under revision to reflect the change of the federal MCL for arsenic from 50 µg/L to 10 µg/L. The decrease in the MCL and change to the remedial goal will be documented in a later Explanation of Significant Differences. The site groundwater RAO is 10 µg/L with the objective of monitoring groundwater to ensure contamination is not migrating off-site, achieve compliance with the remedial goal, and LUCs.

The ROD specified the following remedial components to achieve the RAO:

- Excavation and removal of contaminated soil posing a risk greater than  $1 \times 10^{-6}$ . Completion of this action was documented in the I-RACR (CH2M Hill 2006) which was approved by U.S. EPA and FDEP.
- LUCs were imposed in accordance with the land use control agreement plan (LUCAP) to restrict use of groundwater from the surficial zone of the Sand-and-Gravel aquifer within 300 feet of the site and to restrict site use to industrial. LUC implementation plans are in Appendix C of the NAS Pensacola Base Master Plan (NAS Pensacola 2009).
- Annual review of the LUCs and certification that the LUCs remain in place and are effective. Changes to LUCs will not be made without proper regulatory notice and concurrence.
- Implementation of a groundwater monitoring program, in accordance with the Groundwater Monitoring Plan (CH2M Hill 2004), to monitor progress towards achieving compliance with the designated remedial goal for arsenic and to ensure that groundwater contamination is not migrating offsite.

Even though preservation of the existing and future groundwater monitoring wells and/or remediation system is not mentioned as a specific RAO within the approved ROD, maintaining the site's existing and future groundwater monitoring wells is essential to the remedy. Monitoring well integrity and fitness is reviewed during ongoing semi-annual long-term monitoring (LTM) groundwater sampling. In the event a well is damaged or cannot be found, U.S. EPA and FDEP are notified of the deficiency and provide direction for continued monitoring.

Compliance with the groundwater remedial goal, as defined above, is currently monitored and assessed on a semi-annual basis through the LTM program. While the remedial goal for arsenic of



10 µg/L has not been met in two current LTM wells, 15GR03RR and 15GR66R, which are near former source areas, all other LTM wells including all of the most downgradient wells have met the groundwater remedial goal. Therefore, the ongoing LTM program has provided the necessary evidence for the Navy to ensure that arsenic impacted groundwater is not migrating offsite and that the groundwater remedy is operating as planned to meet the project RAO in the future.

### **3.0 REMEDIAL ACTIONS**

As discussed previously, a remedial action was completed for the soil at OU 4. Therefore the remedy for soil has been documented separately and will not be discussed further in this document. Implementation of the interim groundwater remedy was completed in accordance with the ROD for OU 4 and consisted of LUCs and groundwater monitoring.

#### **3.1 LUCs**

The LUCAP specifies the LUCs required by the OU 4 ROD including that OU 4, Site 15 will be available only for industrial use (residential use of the site is prohibited). Groundwater use is prohibited within 300 feet of the site. LUC implementation plans are in Appendix C of the NAS Pensacola Base Master Plan (NAS Pensacola 2009). The Navy has and will conduct an annual review of the site's LUCs and provide certification of LUC implementation until such time that LUCs are no longer required to protect human health and environment. The *2013 Annual Land Use Control Report* is provided in Appendix A. Changes to the LUCs will not be made without proper notification and approval by U.S. EPA and FDEP. These reporting and certification requirements for the LUCs are incorporated into the LUCAP between the Navy, U.S. EPA, and FDEP.

#### **3.2 Groundwater Monitoring**

Groundwater monitoring was initiated at OU 4 in accordance with the Groundwater Monitoring Plan (CH2M Hill 2004), which specified sampling of specific wells at a semi-annual frequency. Groundwater samples were designated for collection at site monitoring wells including 15GR03, 15GR04, 15GR07, 15GR65, 15GR66, 15GS68, 15GS69, 15GS70, 15GS71, 15MW72, 15MW73, 15MW74, 15MW75, and 15MW76. Baseline groundwater sampling was conducted in November and December 2001, and two semi-annual sampling events were completed in June 2002 and January 2003. In preparation of LTM, the monitoring wells at Site 15 were evaluated to document construction deficiencies. As a result, 14 monitoring wells that were damaged or improperly constructed were abandoned. Five monitoring wells were replaced (15GR03R, 15GR04R, 15GR65R, 15GR66R, and 15GS69R), and one new monitoring well (15GR07R) was installed adjacent to 15GR07, a previously abandoned monitoring well (CH2M Hill 2004). Monitoring well 15MW76 could not be located for sampling following the March 2006 event.

The monitoring well with the highest previous arsenic concentrations (15GR03R) was not sampled after March 2006 because the well could not be located (Aerostar 2008); therefore, at the direction of the Navy, Aerostar replaced monitoring well 15GR03R in July 2008 with monitoring well 15GR03RR.



Based on sampling results which contained no detections greater than the laboratory method detection limit of 5.0 µg/L for at least four consecutive sampling events, Aerostar recommended reducing the sampling plan to only include monitoring wells 15GR03RR, 15GR04R, 15GR65R, and 15GR66R and the excluded monitoring wells be properly abandoned. On 31 December 2009, FDEP issued a letter to the Naval Facilities Engineering Command Southeast stating that they agreed with reducing the sampling plan, but that the excluded monitoring wells should still be used for determining the groundwater flow direction.

At the NAS Pensacola Partnering meeting conducted on 30 June 2010, FDEP stated that monitoring wells 15MW72 and 15MW74 needed to be included in the sampling plan as compliance wells and upgradient monitoring well 15GR04R could be removed from the sampling plan. At the NAS Pensacola Partnering meeting conducted on 22 September 2010, U.S. EPA, FDEP and the Navy determined that arsenic concentration exceedances should be based on the federal MCL of 10 µg/L instead of the remedial goal of 50 µg/L.

In December 2012, Tetra Tech installed two additional monitoring wells (15GR01 and 15MW76) at the site. As decided during the 6 December 2012 Partnering Team meeting, monitoring well 15MW76 was reinstalled at a new location, approximately 300 feet west of the original location using the same monitoring well identification number. These additional wells were incorporated into the groundwater monitoring plan during the March 2013 sampling event.

Groundwater monitoring wells currently approved for sampling by U.S. EPA, FDEP, and the Navy as part of the LTM program for this site include 15GR03RR (vicinity of former source area), 15GR65R (downgradient), 15GR66R (vicinity of former source area), 15MW72 (downgradient), 15MW74 (downgradient), and newly installed monitoring wells 15GR01 (downgradient) and relocated 15MW76 (downgradient).



#### 4.0 DEMONSTRATION TOWARDS COMPLETION

Demonstration towards attainment of the remedial objectives through implementation of LUCs and installation and sampling of monitoring wells is made through comparison of the RAOs for OU 4 to the interim remedial action results presented in Table 4-1. Groundwater monitoring wells have been installed, and well construction information is provided in Table 4-2. Table 4-3 presents groundwater results for arsenic in the LTM events. The most recent analysis of the LTM monitoring data is included in the *2012/2013 Annual Groundwater Monitoring Report* (Aerostar 2013).

<b>Table 4-1</b> <b>Demonstration Towards Attainment of Groundwater RAO</b> <b>OU 4, Site 15, Pesticide Rinsate Disposal Area</b> <b>Naval Air Station Pensacola, Pensacola, Florida</b>	
Remedial Action Objective	Interim Remedial Actions
Monitor groundwater to ensure contamination is not migrating off-site, achieving compliance with the remedial goal, and LUCs.	Groundwater monitoring shows the COC is not moving offsite and should achieve compliance with the remedial goal for arsenic of 10 µg/L through semi-annual monitoring in the future. The OU 4 groundwater monitoring results are documented in Monitoring Reports that have been prepared from 2005 - 2013. This I-RACR addresses ROD remedial component 4.
	LUCs have been implemented through the LUCAP to restrict use of groundwater from the surficial zone of the sand and gravel aquifer within 300 feet of the site. LUC implementation plans are in Appendix C of the NAS Pensacola Base Master Plan (NAS Pensacola 2009). This I-RACR addresses ROD remedial component 2.
	Annual review/certification of LUCs has been conducted. Proper regulatory notification and approval will be obtained before changes are implemented. This I-RACR addresses ROD remedial component 3.

**Notes:**

- COC = Chemical of concern
- I-RACR = Interim remedial action completion report
- ROD = Record of decision
- LUC = Land use control
- LUCAP = Land use control agreement plan
- RAO = Remedial action objective
- µg/L = Micrograms per liter



**Table 4-2**  
**Monitoring Well Construction Details**  
**OU 4, Site 15, Pesticide Rinsate Disposal Area**  
**Naval Air Station Pensacola, Pensacola, Florida**

Well ID	Screened Interval (ft)	Total Depth (ft)	Top of Casing Elevation (ft msl)
15GGR01	10 — 20	20	18.42
15GR03R*	7.13 — 17.13	17.13	14.03
15GR03RR	11.03 — 21.03	21.13	18.25
15GR04R	7.81 — 17.81	17.81	15.21
15GR07R	6.00 — 16.00	16.00	14.40
15GR65R	7.21 — 17.21	17.21	14.90
15GR66R	6.40 — 16.40	16.40	14.30
15GS68	2.61 — 12.61	12.61	5.55
15GS69R	10.16 — 20.16	20.16	14.69
15GS70	7.13 — 17.13	17.13	8.93
15GS71	2.55 — 12.55	12.55	5.56
15MW72	11.94 — 21.94	21.94	19.03
15MW73	12.09 — 22.09	22.09	19.49
15MW74	5.70 — 15.70	15.70	13.11
15MW75	6.57 — 16.57	16.57	12.32
15MW76	7 — 17	17	14.41

**Notes:**

ft = feet

msl = mean sea level

\* = monitoring well destroyed

15GGR01 and 15MW76 are 1.5 inch diameter monitoring wells. All other wells are 2-inch diameter.



**Table 4-3**  
**Arsenic Concentrations In Groundwater**  
**OU 4, Site 15, Pesticide Rinsate Disposal Area**  
**Naval Air Station Pensacola, Pensacola, Florida**

Date	15GR01 <sup>1</sup>	15GR03R <sup>2</sup>	15GR03RR <sup>2</sup>	15GR04R	15GR07R	15GR65R	15GR66R	15GS68	15GS69R	15GS70	15GS71	15MW72	15MW73	15MW74	15MW75	15MW76 <sup>1</sup>	15MW76 <sup>1</sup>
ROD MCL = 50 µg/L; Current MCL = 10 µg/L																	
1/21/2004	NA	<b>150</b>	NA	<b>22</b>	5.0 U	<b>13</b>	<b>35</b>	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NA
6/28/2004	NA	<b>160</b>	NA	<b>47</b>	5.0 U	<b>10</b>	<b>29</b>	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NA
3/14/2005	NA	<b>160</b>	NA	8.3	4.0 U	9.4	<b>38</b>	5.3	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	NA
9/13/2005	NA	CNL	NA	<b>19</b>	3.1 B	<b>12</b>	<b>26</b>	9.2	3.2 B	2.9 B	4.7 B	3.0 B	5.0 U	4.5 B	5.0 U	NS	NA
3/9/2006	NA	2.5	NA	<b>13</b>	5.0 U	7.1	<b>25</b>	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NA
9/19/2006	NA	CNL	NA	4.8	10.0 U	10.0 U	<b>17</b>	10.0 U	10.0 U	<b>24</b>	10.0 U	CNL	NA				
10/08/2006	NA	CNL	NA	<b>20</b>	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	CNL	NA
3/22/2007	NA	CNL	NA	5.6 I	3.0 U	3.0 U	<b>10</b>	3.0 U	3.0 U	3.0 U	3.0 U	4.41	3.0 U	3.0 U	3.0 U	CNL	NA
10/08/2007	NA	CNL	NA	NS	5.0 U	5.1 I	<b>35</b>	5.4 I	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	CNL	NA
4/23/2008	NA	CNL	NA	<b>15</b>	5.0 U	5.0 U	<b>18</b>	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	CNL	NA
9/11/2008	NA	NA	<b>870</b>	<b>16</b>	5.0 U	5.0 U	<b>19</b>	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	CNL	NA
11/12/2008	NA	NA	<b>100</b>	<b>11</b>	5.0 U	5.2 I	<b>18</b>	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	CNL	NA
9/25/2009	NA	NA	<b>110</b>	7.1 I	5.0 U	5.0 U	<b>17</b>	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	CNL	NA
3/31/2010	NA	NA	<b>71</b>	9.7 I	NS	<b>14</b>	<b>15</b>	NS	NS	NS	NS	NS	NS	NS	NS	CNL	NA
9/28/2010	NA	NA	<b>65</b>	NS	NS	<b>10</b>	<b>15</b>	NS	NS	NS	NS	4.0 U	NS	4.0 U	NS	CNL	NA
3/25/2011	NA	NA	<b>92</b>	NS	NS	<b>12</b>	<b>15</b>	NS	NS	NS	NS	4.0 U	NS	4.0 U	NS	CNL	NA
9/21/2011	NA	NA	<b>110</b>	NS	NS	7.9	<b>16</b>	NS	NS	NS	NS	4.0 U	NS	4.0 U	NS	CNL	NA
3/21/2012	NA	NA	<b>110</b>	NS	NS	7.4	<b>16</b>	NS	NS	NS	NS	4.0 U	NS	4.0 U	NS	CNL	NA
9/19/2012	NA	NA	<b>72</b>	NS	NS	7.6	<b>22</b>	NS	NS	NS	NS	4.0 U	NS	4.0 U	NS	CNL	NA
3/14/2013	4.0 U	NA	<b>66</b>	NS	NS	7.0	<b>53</b>	NS	NS	NS	NS	4.0 U	NS	4.0 U	NS	NA	9.5

**Notes:**

All results are reported in micrograms per liter (µg/L) or parts per billion (ppb).

U = Indicates that the parameter was analyzed for but not detected.

B = Indicates the result is between the reporting detection limit and the minimum detection limit.

I = Indicates the reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

NA = Not Applicable

NS = Aerostar recommended these monitoring wells be removed from future sampling events because arsenic had not been detected in at least four sampling events. The regulatory agencies agreed (31 December 2009) and Aerostar continued sampling of 15GR03RR, 15GR04R, 15GR65R, and 15GR66R to monitor extent and migration of arsenic. At the NAS Pensacola Partnering meeting conducted on 30 June 2010, FDEP stated that monitoring wells 15MW72 and 15MW74 needed to be included in the sampling plan as compliance wells and upgradient monitoring well 15GR04R could be removed from the sampling plan.

According to the Record of Decision, the Maximum Contaminant Level (MCL) for arsenic is 50 µg/L. The MCL has been subsequently reduced to 10 µg/L. The decrease in the MCL will be documented in an Explanation of Significant Difference.

CNL = Could not locate

MCL exceedances are shown in **bold**.

Monitoring well locations 15GR07R, 15GS68, 15GS69R, 15GS70, 15GS71, 15MW73, and 15MW75 have not been sampled since September 2009. Monitoring well 15MW76 has not been located since March 2005.

<sup>1</sup> Monitoring wells 15GR01 (same location) and 15MW76 (new location) were replaced/installed in December 2012. The wells were previously lost or destroyed.

<sup>2</sup> Monitoring well 15GR03R was not sampled since September 2006 because the well could not be located (Aerostar, 2008). Aerostar installed a replacement monitoring well, 15GR03RR in July 2008 and reinstated groundwater sampling at this location. Monitoring well 15GR03R has been removed from the monitoring well network.



## **5.0 ONGOING ACTIVITIES**

The Navy will continue to inform the U.S. EPA and FDEP of the post-ROD activities in accordance with the LUCAP and statutory Five-Year Reviews will be conducted to ensure the remedy continues to remain protective of human-health and the environment. A long-term monitoring plan has been approved by U.S. EPA and FDEP that specifies groundwater monitoring location and frequency (CH2M Hill 2004). Results will be compared to pertinent Applicable or Relevant and Appropriate criteria. The groundwater monitoring program will continue until a Five-Year Review concludes that the alternative has achieved continued attainment of the remedial goals and remains protective of human health and the environment. The LUCs for groundwater will be maintained until groundwater contamination is at such levels to allow for unlimited use and unrestricted exposures (UU/UE).

Groundwater monitoring wells currently approved for sampling by U.S. EPA, FDEP, and the Navy as part of the LTM program for this site include 15GR03RR (vicinity of former source area), 15GR65R (downgradient), 15GR66R (vicinity of former source area), 15MW72 (downgradient), 15MW74 (downgradient), and newly installed monitoring wells 15GR01 (downgradient) and relocated 15MW76 (downgradient). The current LTM program includes semi-annual sampling for arsenic in the noted monitoring wells and measuring depth-to-water in monitoring wells 15GR01, 15GR03RR, 15GR04R, 15GR07R, 15GR65R, 15GR66R, 15GS68, 15GS69R, 15GS70, 15GS71, 15MW72, 15MW73, 15MW74, 15MW75, and relocated 15MW76.



## **6.0 COMMUNITY RELATIONS**

The Navy provides information regarding the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) activities at NAS Pensacola to the public through a community relations program, which includes a Restoration Advisory Board (RAB), public meetings, the Administrative Record File for the site, the information repository, and announcements published in local newspapers. The RAB was formed in June 1995 and meetings are held annually. The RAB has been apprised of all environmental activities related to the site. After approval by the Partnering Team, this I-RACR will be presented in the next RAB meeting.

In accordance with Sections 113 and 117 of CERCLA, the Navy provided a public comment period from 23 August to 6 October 1999, for the OU 4 Proposed Plan detailing the preferred remedy for the site through a public notice that was placed in the *Pensacola News Journal* on 21 August 1999. This announcement encouraged public participation in the remedy selection and notified the public of the location and availability of applicable documents. Although the opportunity for a public meeting was provided, one was not requested. However, during the public comment period, one written question was received asking if the proposed actions for soil and groundwater provided the best tradeoff between safety and costs. A response was provided indicating that the Navy, in coordination with U.S. EPA and FDEP, reviewed the alternatives and their associated costs and that the selected preferred alternatives were the most cost effective ways to protect human health and the environment. The response explained that the baseline risk assessment concluded that there was no unacceptable risk to industrial users of the site after removal of the selected areas and that any excavation work would be monitored to prevent unacceptable exposure to site workers. The response also provided details of how groundwater use would also be restricted in the OU 4 area to prevent unacceptable risk to industrial users and groundwater will be monitored to ensure contamination is not moving offsite.

The Proposed Plan, ROD, and pre-ROD investigation reports are available to the public in the Information repository for the Administrative Record maintained at:

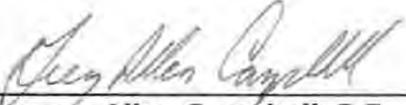
Department of Public Works  
Attn: Mr. Greg Campbell, PE  
Naval Air Station Pensacola  
310 John Tower Road  
Pensacola, Florida 32508-5000  
850-452-3131, extension 3007

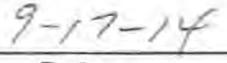
Post-ROD documents are not maintained in the Administrative Record file, but are available in the information repository at the above location.



**7.0 CONCLUSION AND CERTIFICATION STATEMENT**

The remedy for groundwater at OU 4, Site 15 as described in the ROD has been constructed and is in place and operating successfully. I certify that this I-RACR for groundwater documents that the remedy is in place and demonstrates that all remedial actions have been taken to meet the RAOs.

  
\_\_\_\_\_  
**Gregory Allen Campbell, P.E.**  
**Remedial Project Manager**  
**Naval Air Station Pensacola**

  
\_\_\_\_\_  
**Date**



## **8.0 REFERENCES**

Aerostar. *Third Quarter, Year 2008 Monitoring Report* Operable Unit 04, Site 15, Pesticide Rinsate Disposal Area, Naval Air Station Pensacola, Florida. Prepared for Naval Facilities Engineering Command Southeast, Jacksonville, Florida. September 2008.

— *Year 2012/2013 Annual Groundwater Monitoring Report* Operable Unit 04, Site 15, Pesticide Rinsate Disposal Area, Naval Air Station Pensacola, Florida. Prepared for Naval Facilities Engineering Command Southeast, Jacksonville, Florida. June 2013.

CH2M Hill. *Groundwater Monitoring Plan* for Operable Unit 4, Site 15, Naval Air Station Pensacola, Florida. 2004.

— *Remedial Action Report* for Operable Unit 4, Site 15, Naval Air Station Pensacola, Florida. 2006.

Department of Defense and U.S. Environmental Protection Agency. *Recommended Streamlined Site Closeout and NPL Deletion Process for Department of Defense Facilities*. January 2006.

EnSafe Inc. *Final Remedial Investigation Report*, Operable Unit 4 Site 15, Naval Air Station Pensacola, Florida. December 1997.

— *Final Record of Decision*, Operable Unit 4, Naval Air Station Pensacola, Florida. November 1999.

Geraghty and Miller, Inc. *Verification Study, Assessment of Potential Ground-Water Pollution*, Naval Air Station Pensacola, Florida. 1984.

Naval Air Station Pensacola. *Naval Air Station Pensacola Base Master Plan*. March 2009.

— *2013 Annual Land Use Control Report* — Naval Air Station Pensacola, Florida. December 2013.

**Appendix A**  
**2013 Annual Land Use Control Report**

## Site 15 (OU 4) Annual LUC Compliance Certificate

Naval Air Station Pensacola  
FL9170024567

Property Owner: NAVAL AIR STATION PENSACOLA

Property Address: NAS PENSACOLA - PENSACOLA, FLORIDA

Is evaluation for all or a portion of the OU 4 property? \_\_\_\_\_

If evaluating only a portion of the site, attach a figure identifying the portion being evaluated.

This evaluation covers the period from **1 January** \_\_\_\_\_ **through 31 December** \_\_\_\_\_.

Form shall be submitted by **1 March** of the year following the reporting period.

### Certification Checklist

	In Compliance	Non-Compliance	See Comment
1) Restrict use of groundwater from the surficial zone of the Sand-and-Gravel Aquifer within 300 feet of the site.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Restrict site use to industrial.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I, the undersigned, hereby certify that I am an authorized representative of the above named property owner and that the above described Land Use Controls have been complied with for the period noted. Alternately, any known deficiencies and owner's completed or planned actions to address such deficiencies are described in the attached Explanation of Deficiency(ies).

  
\_\_\_\_\_  
Signature - Greg Campbell (Navy)

12-3-13  
Date

  
\_\_\_\_\_  
Signature - Patty Whittemore (Navy)

12/3/13  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date