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NAS PENSACOLA  
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LETTER REGARDING THE TRANSMITTAL OF THE FINAL FEASIBILITY STUDY FOR SITE  
43 NAS PENSACOLA FL  
11/25/2008  
TETRA TECH



**DATE:** November 25, 2008  
**TO:** NAS Pensacola Partnering Team  
**CC:**  
**FROM:** Gerry Walker, TtNUS  
**SUBJECT:** Site 43 Remedial Alternative Change/Discussion

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Following submittal of the Final Site 43 Feasibility Study (FS), TtNUS initiated work on the Proposed Plan to present the selected remedy for soil and groundwater at the site. During the discussions concerning the Site 43 Proposed Plan at the September 16, 2008 Partnering Team meeting NAVFAC suggested the possibility of modifying one of the groundwater alternatives (and selecting it as the preferred alternative) from **G-1, Land Use Controls (LUC) and Long Term monitoring to LUCs only**. It was suggested that the change could be made and still meet the Remedial Action Objectives.

For your convenience, a summary of the Site 43 FS is provided followed by a proposed modification to the remedial alternative for groundwater. Additionally, a suggested approach as to how to move forward is included for your revision and approval.

#### **Site 43 FS Summary**

##### **Remedial Action Objectives**

For Site 43, the Remedial Action Objectives were the following:

- ✓ Prevent unacceptable human health risk associated with exposure to soil containing lead, PAHs, and arsenic at concentrations greater than Florida SCTLs.
- ✓ Prevent unacceptable human health risk associated with the exposure to groundwater containing lead concentrations greater than the FDEP GCTL or USEPA Action Level.

The RAOs were design to support the current land use is industrial/commercial property and future potential land use could be residential.

##### **COCs**

The potential COC's for Site 43 are as follows:

- ✓ Surface soils
  - Above residential SCTL - carcinogenic PAHs, arsenic, barium, copper, lead, and vanadium
  - Above industrial SCTL - lead
- ✓ Subsurface soils
  - Above residential SCTL - carcinogenic PAHs, arsenic, barium, copper, lead, and vanadium
  - Above industrial SCTL - carcinogenic PAHs, lead
  - Recreational SCTL - carcinogenic PAHs
- ✓ Groundwater
  - Iron
  - Lead
  - Manganese



### **Existing Alternatives in the FS**

The following remedial alternatives were developed for soils, including No Action (S-0):

- **Alternative S-1: Excavation and Offsite Disposal to meet Florida Industrial/Commercial SCTLs, and LUCs**

In order to address the “hotspot” areas of soil contamination exceeding the Industrial SCTLs, this alternative would entail the removal of the minimum soil volume required to allow the continued use of the site as an industrial area without placing health and safety restrictions on the NAS Pensacola’s employees. However, the site would require Land Use Controls (LUCs) preventing residential land use because the residual contaminants would continue to exceed Residential SCTLs.

- **Alternative S-2: Excavation and Offsite Disposal to meet Florida Residential SCTLs**

To allow unrestricted use, this alternative would include the removal of all the soil that reported contaminants’ concentrations above the Residential SCTLs. No LUCs would be required. However, a portion of the soil that would be removed may fail TCLP and require treatment/disposal at a RCRA Subtitle C facility; and the remainder would be disposed of at a RCRA Subtitle D facility without treatment.

- **Alternative S-3: Limited Excavation and Off-site Disposal, and Maintenance of Pavement to meet Florida Industrial/commercial SCTLs; and LUCs.**

This alternative was developed to address the hot spots exceeding Industrial/commercial SCTLs by using the existing cover (pavement) as a barrier for site users, with a minimal excavation outside of the paved area. LUCs would be required because contamination would continue to exceed both Industrial/commercial and Residential SCTLs.

The following remedial alternatives were developed for groundwater, including No Action (G-0):

- **Alternative G-1: Land Use Controls (groundwater use restrictions) and Long-Term Monitoring**

This alternative would meet the minimum RAO requirements by monitoring groundwater concentrations for any attenuation and potential migration of the plume for an indefinite period of time or until site conditions become suitable for an exit strategy to be implemented. Administrative controls would be used to prohibit groundwater use.

- **Alternative G-2: In-situ Groundwater Treatment and Short-Term Land Use Controls (groundwater use restrictions) with Monitoring.**

To be able to eliminate long-term groundwater use controls and monitoring, this alternative includes the implementation of in-situ precipitation of lead. If the concentrations of lead can be shown to have decreased to less than the cleanup goal, then the groundwater use controls and monitoring would be terminated.

### **Proposed Alternative G-1 Modification**

After further analysis of the data from the RI, it appears the only COC exceeding GCTLs at Site 43 is **lead** (excluding secondary standards). At a single location, lead was reported to exceed the GCTL (primary criteria) in the sample collected from PEN-43-13S, which is located at the center of **Anomaly Area 11** (Figure 4-5 of the FS), where surface and subsurface soil samples had lead concentrations exceeding residential and industrial SCTLs.

It should be noted that that iron and manganese were identified as potential COCs for groundwater based on detected concentrations that exceeded Florida GCTLs specifically based on secondary standards. The Florida secondary standards - GCTLs are equivalent to USEPA



**Tetra Tech NUS, Inc.**

Secondary MCLs. These secondary standard MCLs are criteria based not on health effects but rather on aesthetic effects. Therefore, iron and manganese should not be retained as COCs.

Under these conditions, if the preferred alternative selected to address soil involves one of the excavation alternatives (likely S-1 or S-3) that specifically includes complete excavation of surface and subsurface soil to meet residential SCTLs at **Anomaly Area 11**, then it should follow that without a potential continuing source in soil, the lead "groundwater plume" in that area would be stable, if not minimized, and a modified alternative G-1 (LUCs only) for groundwater would meet the RAOs for the site.

#### **Requested Action**

Following USEPA guidance, TtNUS has determined that a Feasibility Study Addendum would likely be required to fully explain and document the proposed action. However, prior to initiating this procedure, NAVFAC is requesting NAS Pensacola Partnering Team approval that a modified **Alternative G-1 "LUCs only"** for groundwater; if initiated with a **Alternative S-1: Excavation and Offsite Disposal to meet Florida Industrial/Commercial SCTLs, and LUCs** or **Alternative S-3: Limited Excavation and Off-site Disposal, and Maintenance of Pavement to meet Florida Industrial/commercial SCTLs; and LUCs**, is appropriate.

**TABLE E-1  
SUMMARY OF COMPARATIVE ANALYSIS OF SOIL REMEDIAL ALTERNATIVES  
SITE 43 FEASIBILITY STUDY REPORT  
NAS PENSACOLA  
PENSACOLA, FLORIDA**

Evaluation Criteria	Alternative GW-0: No Action	Alternative G-1: Land Use Controls (groundwater use restrictions) and Long-Term Monitoring	Alternative G-2: In-situ Groundwater Treatment and Short-Term Land Use Controls (groundwater use restrictions) with Monitoring
Overall Protection of Human Health and Environment	Not protective	Protective	More protective
Compliance with Chemical-Specific ARARs and TBCs	Would not comply	Would eventually comply	Would comply
Compliance with Location-Specific ARARs and TBCs	Would not comply	Would comply	Would comply
Compliance with Action-Specific ARARs and TBCs	Not applicable	Would comply	Would comply
Long-Term Effectiveness and Permanence	Not effective	Effective	More effective than G-1
Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment	None	None	Reduces toxicity
Short-Term Effectiveness	No relevant issues to address	Would be effective. Minimum potential for short-term risks. The RAO would be met immediately and eventual compliance with the cleanup goal would be determined by monitoring.	Would be effective. Short-term risks can be adequately addressed. The RAO would be met immediately. Treatment goals would be attained within 2 years.
Implementability	Nothing to implement	Readily implementable, although long-term administrative controls would be required.	Somewhat more difficult to implement technically compared to G-1. However, no long-term administrative concerns exist.
Costs:			
Capital	\$0	\$ 114,000	\$ 286,000
NPW of O&M	\$0	\$92,000	\$21,000
NPW	\$0	\$206,000	\$327,000

**NOTES:**

O&M  
ARARs

Operation and maintenance  
Applicable or Relevant and Appropriate Requirements

LUCs Land use controls  
TBCs To be considered (criteria)

NPW Net present worth

**TABLE E-2  
SUMMARY OF COMPARATIVE ANALYSIS OF GROUNDWATER REMEDIAL ALTERNATIVES  
SITE 43 FEASIBILITY STUDY REPORT  
NAS PENSACOLA  
PENSACOLA, FLORIDA**

<b>Evaluation Criteria</b>	<b>Alternative S-0: No Action</b>	<b>Alternative S-1: Excavation and Off-site Disposal to Meet Florida Industrial/Commercial SCTLs and LUCs</b>	<b>Alternative S-2: Excavation and Off-site Disposal to Meet Florida Residential SCTLs</b>	<b>Alternative S-3: Limited Excavation and Off-site Disposal and Maintenance of Pavement to Meet Florida Industrial/Commercial SCTLs; and LUCs</b>
Overall Protection of Human Health and Environment	Not protective	Protective	More protective than Alternative S-1	Would be somewhat less protective than Alternative S-1
Compliance with Chemical-Specific ARARs and TBCs	Would not comply	Would comply	Would comply	Would comply
Compliance with Location-Specific ARARs and TBCs	Would not comply	Would comply	Would comply	Would comply
Compliance with Action-Specific ARARs and TBCs	Not applicable	Would comply	Would comply	Would comply
Long-Term Effectiveness and Permanence	Not effective	Effective	More effective than Alternative S-1	Somewhat less effective than Alternative S-1
Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment	None	Treatment of a portion of soil determined to be hazardous	Treatment of a potentially greater volume of hazardous soil	Treatment of a smaller portion of soil determined to be hazardous compared to Alternative S-1
Short-Term Effectiveness	No relevant issues to address	Would be effective. Minimum potential for short-term risks. Would attain RAOs in 6 months.	Would be effective. Greater potential for short-term risks than Alternative S-1. Would attain RAOs in 6 months.	Would be effective. Least potential for short-term risks among all alternatives. Would attain RAOs in 6 months
Implementability	Nothing to implement	Poses long-term administrative concerns	Poses short-term technical concerns	Poses long-term administrative and maintenance concern
Costs:				
Capital	\$0	\$348,000	\$706,000	\$180,000
NPW of O&M	\$0	\$77,000	NA	\$96,000
NPW	\$0	\$425,000	NA	\$276,000

**NOTES:**

ARARs      Applicable or Relevant and Appropriate Requirements  
LUCs        Land use controls  
NPW        Net present worth

O&M        Operation and maintenance  
RAOs       Remedial Action Objectives  
TBCs       To Be Considered (criteria)