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NAS PENSACOLA  
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April 16, 1993

U.S. Environmental Protection Agency  
Attn: Ms. Allison Drew  
345 Courtland Street, N.E.  
Atlanta, Georgia 30365

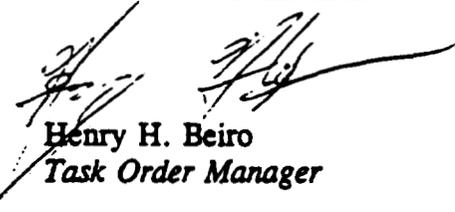
RE: Final Sampling and Analysis Plans, Category II: Sites 1, 25, 27, and 39, NAS-Pensacola,  
Contract # N62467-89-D-0318/059

Dear Ms. Drew:

Enclosed please find five copies of each Final Sampling and Analysis Plan, Remedial Investigation/Feasibility Study, for Category II: Sites 1, 25, 27, and 39 for the Naval Air Station Pensacola in Pensacola, Florida.

If you should have any questions or need any additional information regarding the plan, please do not hesitate to call me.

Sincerely,  
EnSafe/Allen & Hoshall



Henry H. Beiro  
Task Order Manager

Enclosure  
Final Sampling and Analysis Plans

EPA REGION IV  
TECHNICAL **REVIEW AND COMMENT**  
DRAFT **SAMPLING AND ANALYSIS PLANS**  
FOR CATEGORY 2 (SITE27 — RADIUM DIAL SHOP SEWER )  
NAVAL AIR STATION (NAS) PENSACOLA  
PENSACOLA, FLORIDA

**GENERAL COMMENTS**

Comment 1:

The following statement appears in Section 1.0 of each **SAP**: "This investigation **will** delineate the nature, magnitude and extent of any contamination identified in **work** previously conducted by E&E as Phase I of the Work Plan." These **SAPs** must **also** include a brief statement of the provisions/investigative approach which will **be** followed in characterizing and delineating any additional contamination identified in the upcoming field event.

Response:

Any additional sources **or** contamination previously not detected **will** be investigated **by** the collection **of** additional samples **from** any given media, sampling of additional media not included in the site-specific **SAP**, installation **of** additional monitoring wells to delineate extent and depth of contaminants, and performance of aquifer response tests to characterize subsurface hydrologic conditions. **Prior** to the initiation **of** additional field activities, a field change request will be submitted to the Navy for approval, and the **EPA** and FDER will be notified.

Comment 2:

Section 1.0 of each **SAP** must include a statement indicating that the RI **will** provide the basis(/supporting data) for completion of an **FS** and a BRA. Currently, only some of the **SAPs** contain such a statement.

Response:

Agreed. Change made.

Comment 3:

**As** recommended by EPA in previous correspondence and agreed by the Navy, an inventory of all existing wells is planned for the entire base. In order to assure the accessibility and validity of the groundwater sampling locations proposed in these **SAPs**, this inventory must be completed prior to initiating any additional field work. **This** will allow the Navy **to** reserve adequate time and resources for the installation of any additional temporary or permanent wells needed to complete the planned investigations.

Response:

Agreed. A well inventory **has** been completed to **assess** the accessibility and validity of the groundwater sampling locations. Any monitoring wells that are found to be in disrepair will be repaired or abandoned in accordance with Florida regulations. The abandoned monitoring wells will be replaced with additional monitoring wells **as necessary**.

Comment 4:

Section **4.0** of the **SAPs** includes the following statement: "Sample locations **are** presented on Figures...and are not expected to vary as they have been based **on data** collected during Phase I activities." Please amend this statement to include **a** reference to the paragraph which was inserted in Section 14.2 of each **RI/FS Work Plan** describing plans to adjust (e.g. redirect or expand) Phase II sampling activities as needed.

Response:

**Any** additional sources or contamination previously not detected will be investigated after **SOUTHDIV** has been notified. See Comment 1 of General Comments for a discussion of the **provisions/investigative** approach to be followed during the **upcoming** field investigation.

Comment 5:

The table entitled RI Sampling Analytical Requirements, which appears in **Section 4.0** of each **SAP**, must be expanded to include a column entitled "DQO Level" which provides the DQO analytical level (**I** through **V**) to be used in **analyzing** of each sample or **group** or samples.

Response:

All sediment, surface water, groundwater and **soil** samples will be collected at Data Quality Objective Level **IV** protocol. A column **has** been added to the table entitled RI Sampling Analytical Requirements listing the DQO levels for the sample groups.

Comment 6:

According to Section 4.0 of each **SAP**, the Navy proposes to modify the surface soil sampling interval from 0-1' to 0-2'. As previously discussed and agreed **to** by the Parties, surface **soil** samples must be collected from 0-1' for **risk** assessment purposes.

Response:

Surface soil samples will be collected from 0-1' **using** a decontaminated hand auger or **Xitech** sampler prior to advancement of the soil boring. The remaining soil samples to be collected from the soil boring **will** be collected from **1-3', 3-5'**, etc. to reduce the risk of cross contamination by allocating one sample interval **per 2-foot** long split-barrel sampler.

Comment 7:

According to Section 4.0 of each **SAP**, soil samples collected from beneath the water table using Shelby tubes will not be analyzed for Full Scan Analysis (FSA). **This is generally acceptable.** However, FSA analyses should be run in cases where visual or other field evidence indicates that the sample collected could potentially serve as a contaminant source for the site. In such cases, the FSA analysis may prove useful in characterizing or delineating the source material.

Response:

If physical evidence of contamination **is** observed below the water table, a sample will be collected for **FSA** analyses for characterization and delineation of the source material.

Comment 8:

According to Section **4.5** of the **SAPs** for Category 3 sites, "A Portland cement grout will be used to construct all monitoring wells..". Available historical records for numerous hazardous waste sites indicate that use of a cement-based grout is highly likely to fully or partially compromise the integrity of PVC wells over time. In addition, **a bentonite grout will better seal** the annular space around the well casing, thereby reducing the potential for channelized downward contaminant migration. For these **reasons**, EPA strongly recommends the use of **a bentonite grout** during monitor well installation.

Response:

In accordance with Florida Administrative Code Chapter **40A-3**, neat cement grout **is** required in all monitoring well installations. Although bentonite grout might provide a better seal in most areas, bentonite grout should be avoided in **coastal** areas **such as NAS Pensacola** where concentrations of total dissolved **solids in** groundwater are high. In

addition, the neat cement grout provides additional protection from **storm** surge (hurricanes).

Comment 9:

A full scale aquifer test (minimum **48** hours) which is designed to evaluate the hydraulic properties of the aquifer and underlying aquitard, the leakage between the two more permeable zones of the Sand and Gravel Aquifer, and the radial influence of pumping and any boundary effects, must be performed for those sites where groundwater extraction and treatment is needed. A minimum of **48** hours of pumping will allow time to collect **data** which represents the instantaneous release of groundwater from the zone being tested and the effects of gravity drainage within the aquifer. The aquifer test must be preceded by the test needed to design and appropriate pumping test (i.e. (i) slug tests, to provide a rough estimate of aquifer characteristics, and (ii) specific capacity, or step-drawdown, tests to estimate the pumping rates which the aquifer can sustain for given levels of drawdown). The plans for all pumping tests must be provided to EPA for review and approval prior to commencement of these tests.

Pumping tests will be required for the site as soon as it is determined that groundwater remediation is needed at that site. Based on Phase I screening results, it appears highly likely that groundwater remediation will be required for several sites in Categories **2** and **3**. However, positive confirmation of this need will be obtained only through the collection of high quality **data** as scoped for Phase II. The Navy may therefore choose to submit pumping test plans now, as part of the present SAP, or defer preparation of these plans until receipt of the Phase II **data**. If the latter option is selected, the current **SAP** must be revised to state that a Technical Memorandum detailing full-scale pumping test plans **will** be submitted **as** soon **as** the need for groundwater remediation is determined based on analytical results. In either case, the **necessary data** must be collected in a timely manner which will not delay submittal of the Feasibility Study.

Response:

In accordance with the site-specific **SAPs** and work plans, slug tests will be performed at selected monitoring wells. If groundwater remediation will be required, the results of the slug tests will be used to design the appropriate pumping tests. Pumping tests (up to **48** hours) will be performed at each site with the objective of evaluating the hydraulic properties of the aquifer and underlying aquitard, the leakage between the two more permeable zones of the Sand and Gravel Aquifer, the radial influence of pumping, and **any** boundary effects. Pumping tests will continue until the above listed objectives are achieved. The **EPA** and **FDER** will be kept apprised of the investigation **as** it progresses, and **will** be notified prior to conducting full-scale pumping tests. The Navy **will** take technical responsibility for the design and implementation of these tests. Pumping tests will be performed in accordance with the procedures provided in Section **9.6.2** of the Comprehensive Sampling and Analysis Plan (CSAP).

## SPECIFIC COMMENTS

### **SITE 27** (Radium Dial Shop Sewer)

Comment 1: Page **5**, Figure 4-1

- A. The upcoming field effort must focus on characterizing the potential source area for this site, namely, the waste **line connecting** former Building **709** to the sewer. It is unclear whether the proposed soil sampling locations will adequately characterize this source **area** and permit an effective evaluation of the associated **risks**. In order to fully characterize the radium contamination and determine its migration potential, it may be **necessary** to remove the overlaying asphalt and/or to excavate the sewer line and sample the adjacent soils. The problem lies in determining whether disturbing the surface will **cause** more contamination and/or migration of the radium. The means for addressing and resolving these problems must be presented in the **SAP**.
- B. The highest concentrations of RA-226 and/or organics were detected at Phase I locations TW010 and TW015 (proximate to Phase II locations 3 and 19). Permanent wells **are** needed at the corresponding Phase II locations and at Phase II location **1** (background). Groundwater at all other locations should be monitored first using one of the temporary methods recommended, since there is no definite indication of groundwater contamination at these locations.

Response:

A. Figure **4-1** and corresponding text and tables have been amended to provide additional soil borings along the waste line connecting to the sewer. Several additional borings also have been located near key drain **lines** under the concrete building foundation in order to address the possibility of multiple sources of contamination (e.g., from the plating shop versus the carburetor shop).

Since the source(s), extent, nature, and magnitude of the contaminants in **this** area have not been adequately characterized, excavation of **soils** and the sewer **lines** should follow this RI work rather than be included in the work at this time. Soil borings should provide the required **data** for locating excavations, if **required**, and should help evaluate the associated **risks** outlined in your comment.

The revised **SAP** also includes additional borings in two **parts** of the site. Borings sited along the sewer line will characterize contamination in **soils** along the full extent of the sewer line, and will also address the possibility of contamination from sources outside Site **27**. The revised **SAP** calls for more borings south of the building foundation near radiation anomalies. **This** is in response to a reconnaissance surface radiation **check** performed by

E/A&H in February 1993. This check revealed three local gamma anomalies. The **strongest** of these, located near Phase I location TW015, **is** larger **in** surface area than previously indicated. The Navy has been notified of these recent **findings** and the **need** to restrict access to the strongest anomaly. All three anomalies have **been** delineated on the ground with spray paint. With a maximum gamma anomaly of **40** times background, additional borings have been sited to delineate these **sources**. These borings will also investigate potential **PCB** leaks from the old transformers in the area. Several additional wells have been placed to the south to characterize the effect, **if** any, on groundwater.

**B.** The choice of permanent **versus** temporary wells was made according to the **following** rationale. Radium and/or metals contamination have **been confirmed** in several wells at site **27** and all wells at site **25**. The contaminant levels exceed **EPA MCLs** and State of Florida drinking water standards. This suggests that a remediation program may **occur** at both sites following the RI/FS study. In addition, to collect representative samples for total metals analyses (e.g., **unfiltered** samples), proper well construction and development are essential in reducing the amount of entrained sediment in the groundwater sample. Both Hydropunch and temporary monitoring wells do not meet both of these criteria, thus causing a high bias in the detected concentrations of metals. The installation of permanent wells will establish a network of **sampling** locations which can be used for a consistent sampling program before, during, and after remediation. **This** will provide a contiguous historical data base to establish the effectiveness of cleanup. Since the **cost** difference between temporary wells and permanent wells is relatively small, we conclude that the **cost-benefit tradeoff** between permanent and temporary wells favors **installing** permanent wells at the outset.