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Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

January 19, 2000

Mr. Bill Hill
Code 1851
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
P.O. Box 190010
North Charleston, South Carolina 29419-9010

RE: Final Remedial Investigation Report, Site 40, NAS Pensacola

Dear Mr. Hill:

I have completed the technical review of the above referenced document dated January 20, 1999 (received January 22, 1999). Attached are comments received from the University of Florida, Center for Environmental and Human Toxicology. I also have the following comments that should be addressed in the addendum report.

1. Figure 4-2, Bottom Sediment Types Based on USCS Descriptions, Phase I: It is hard to differentiate the sediment types in this figure due to the small size of the symbols.

2. Figure 4-4, TOC in Bottom Sediments, Phase II: It is hard to differentiate the four categories of TOC concentrations in bottom sediments due to the small size of the symbols.

3. Table 4-1, NAS Pensacola Sites Relative to Assessment Zones in Bayou Grande: Site 15 should be included as a potential source site to Assessment Zone 3.

4. Figure 6-1, Bayou Grande Bathymetry: This figure should be revised so that bathymetry is illustrated clearly.

5. Pages 7-10, 7-18, and 7-27: DDD and DDE are known as metabolites of DDT.

6. **Figures 7-1** through 7-29, **Nature and Extent: The unit of measurement** (ug/kg or mg/kg) for the **concentration** values presented on these figures should be **indicated** and **presented** in similar units to the screening value for **comparison.** Many **concentration values "appear" tu** greatly exceed the screening values because of the manner in which they are **presented** on the figures.

7. Page 10-78, **Risk** Characterization: **This section** discusses **a potential** risk to level **4 (predatory)** fish **species** based on dietary exposure from level'3 fish **species. This** risk **may** be **underestimated** or overestimated depending on **the model** and assumptions **utilized to** determine **trophic** transfer coefficient (TTC) **values. The report** recommends a more **focused** literature search to produce more **realistic** TTC values. I recommend that the Navy collect appropriate level 4 **fish species** and perform **laboratory** analysis on the tissue **to** assess the risk at this **Level,**

8. Page **10-100,** Fish **Consumption:** The risk to humans **from** game fish **consumption** may be overestimated or underestimated based on the **assumptions used** in the assessment (Please *see* Comment 7 above). **I** recommend **that** the Navy **collect appropriate** game fish **species** and **perform laboratory analysis** on the **tissue to assess** the risk **at** this level.

A portion of Site 40, the area of **storm water discharge** adjacent to the Navy Boulevard Bridge, should be transferred tu the facility **compliance** program.

If I can be of any further assistance **with** this matter, please contact me **at** (850) 921-9989.

Sincerely,

Joseph F. Fugitt

Joseph F. Fugitt, P.G.
Remedial Project Manager

cc: Ron Joyner, **NAS** Pensacola
Gena Townsend, **USEPA** Region IV
Brian Caldwell, EnSafe, Knoxville
Allison Harris, EnSafe, Memphis
Tom Dillon, NOAA, USEPA, Region IV
Tom Lubozynski, FDEP **Northwest** District

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July 1, 1999

Ms. Ligia Mora-Applegate
Bureau of Waste Cleanup
Florida Department of Environmental Protection
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2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Ms. Mora-Applegate:

At your request, we have reviewed the Final Remedial Investigation *(RI)* Report for *Site* 40 at the Naval Air Station (NAS) in Pensacola, Florida. This RI report was prepared by EnSafe, Inc., and is dated January 20, 1999. Site 40, also known as Bayou Grande, encompasses an estuarine water body along the northern border of NAS Pensacola which is part of the larger Pensacola Bay System. Site 40 covers approximately 1.5 square miles and approximately 8.5 miles of coastline. The RI Report prepared by EnSafe contains a Baseline Risk Assessment (BRA) for human health and ecological effects. Based on our review we have the following comments.

Ecological *Baseline* Risk Assessment (Section 70.2)

The Ecological BRA prepared by EnSafe is generally consistent with ecological risk assessment guidance from the USEPA. For purposes of the risk assessment, Site 40 was divided into 4 Assessment Zones (AZs). The boundaries of these AZs are artificial but serve to delineate areas that may have been impacted by similar base-related activities, The characterization of Site 40 took place in several phases. In Phase I, sediment at Site 40 was analyzed for grain size and total organic carbon content. These data were used in the Phase IIA sampling in an effort to focus sample collection to those locations which had a greater potential for the accumulation of chemical contaminants. In Phase IIB/II, sediment samples were taken at 10 locations across site 40. These samples were used to assess sediment quality using a Sediment Quality Triad (SQT) approach which included 1) determination of the levels of contaminants present, 2) determination of the potential for toxicity and bioaccumulation in the food chain, and 3) an analysis of the benthic community structure. From the risk assessment, EnSafe concluded that while elevated hazard quotients based on the ratio of measured Contaminant levels with sediment screening levels (SSLs) indicated some risk to ecological receptors, results of the SQT analysis demonstrated that ecological receptors are not at risk from contaminants located at the site. This conclusion seems reasonable given the data presented in the report. However, we have identified several areas of concern with the ecological BRA:

1. Section 7 of the RI Report contains detailed sampling data for chemicals at Site 40. Tables 7-1 through 7-3 present the analytes detected at Site 40, the detection frequency, the range of detected values, and a comparison to SSLs. There are a number of contaminants for which no SSL was available, On this basis, it appears that these contaminants were eliminated from further evaluation (i.e., they are not presented or discussed in Section 10). Normally, screening values are used to "Screen out," rather than as a basis to include, chemicals as COPCs, and the absence of a screening value would lead to the continued inclusion of a chemical in the risk assessment. In this particular case, omission of these chemicals does not appear to have compromised the risk assessment, as toxicity bioassays and benthic community analyses conducted for Site 40 indicate that the sediment is relatively "healthy."

2. When tissue from fish collected at Site 40 was analyzed for contaminants, neither total mercury or methyl mercury was included as a target analyte. Given the fact that mercury is present at concentrations that exceed the SSL, the transfer of this contaminant to higher trophic levels in the food chain should be evaluated.

3. Fish tissue samples collected at site 40 are limited in nature. This affects the conclusions of the risk assessment in a number of ways. Section 5.2 explains that fish were collected over several days at only one location and that composite samples of 2 representative species of foraging fish (pinfish and killifish) were analyzed for contaminant concentrations. Four individual killifish and nine individual pinfish were included in the respective composite samples. Contaminant levels in higher trophic level fish were not measured, but rather were modeled based on the results in the few foraging fish that were analyzed. The ability of this approach to adequately assess contaminant burdens in fish, important both for the stated goal of "protecting fish viability" and for the human heatth risk assessment is highly questionable. Without additional sampling of fish, including fish at higher trophic levels, this is represents a significant weakness in the ecological risk assessment.

Human Health Risk Assessment (Section *10.3*)

For the human health portion of the Site 40 BRA, EnSafe evaluated four potential exposure scenarios, an adolescent swimmer, an adult swimmer, an adult commercial worker (lifeguard), and a recreational fisher. Due the limited nature of human contact with Site 40, these seem to be reasonable scenarios for evaluation. However, because of several shortcomings in data collection and exposure pathway evaluation, we are concerned that characterization of human health risks from Site 40 are inadequate. Specifically:

1. A portion of Site 40 is apparently used for recreational swimming. It is unclear from the information provided how well contamination in this area has been characterized. Additional description and discussion of contamination assessment in areas currently or likely to be used for recreational activities such as swimming needs to be added to the report. It is possible that soil and near shore sediment contaminant levels have not been adequately defined, in which case additional sampling would be warranted.

2. On page 10-93, the equation used to calculate the preliminary remediation goats (PRGs) for the adolescent/adult recreational swimmer and the lifeguard is shown. The pathways of exposure to contaminants at Site 40 by these receptors are limited to surface water ingestion and dermal contact. Dermal contact and ingestion of sediment by these receptors is considered by EnSafe tu insignificant pathways at

Site 40. Children playing in the near shore areas *will* come in contact with and probably ingest some sediment. Therefore, this exposure pathway should be evaluated.

3. Risk estimates to recreational anglers at Site 40 were calculated using the ratio of the Region III RBCs fur fish ingestion and the maximum tissue concentration of contaminants in prey fish (pinfish and killifish). The results of this calculation are displayed in Table 10-37. Cumulative cancer risk is estimated to be 7.4E-05. When modeled tissue concentrations in predatory fish that anglers would actually consume were compared to the Region III RBCs, cumulative risk was estimated to be 5.6E-04. 'These values are greater than the excess cancer risks generally accepted by FDEP. 'These values are calculated using a fish ingestion rate of 59 g/day based on a native American subsistence fisher, which may not be applicable at this site. The Exposure Factors Handbook lists a 95th percentile fish ingestion value of 26 g/day for recreational anglers on the Gulf Coast, which should be considered as an alternative, conservative estimate of fish ingestion rate. The greatest uncertainty with these risk estimates, however, lies in the estimates of contaminant levels in fish. This uncertainty could be reduced by actual measurement of contaminant levels in game fish through sampling.

We hope that you find these comments helpful. Should you have any further questions, please do not hesitate to contact us.

Sincerely,

Christopher J. Saranko, Ph.D.

Stephen M. Roberts, Ph.D.

cc: Joe Fugitt