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Florida Department of Environmental Prote

Marjory Stoneman Douglas
3900 Commonwealth Boulevard
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Virginia B. Wetherell
Secretary

December 28, 1993

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NAS PENSACOLA
5090.3a

Mr. Bill Hill
Code 18211
Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
North Charleston, South Carolina 29419-9010

Re: Naval Air Station Pensacola, National Priority List Site
1. Draft Final *Remedial Investigation/Feasibility Study Work Plan for Site 40 - Bayou Grande*, November 1993
2. Draft Final *Remedial Investigation/Feasibility Study Work Plan for Site 41 - NASP Wetlands*, November 1993
3. Draft Final *Remedial Investigation/Feasibility Study Work Plan for Site 42 - Pensacola Bay*, November 1993
4. Draft Final *Remedial Investigation/Feasibility Study Comprehensive Sampling and Analysis Plan*, December, 1993

Dear Mr. Hunt,

We have reviewed the above referenced documents, and offer the following comments:

1. RI/FS Work Plan for Site 40 - Bayou Grande
RI/FS Work Plan Site 41 - NASP Wetlands
RI/FS Work Plan for Site 42 - Pensacola Bay

Section 2.5 (Ecological Assessment)

The visual assessment performed during Phase I should reflect seasonal variations. Especially related to the Threatened and Endangered Species (TES), a survey should be performed in each season for which a species might inhabit the area of NASP.

2. RI/FS Work Plan for Site 40 - Bayou Grande
RI/FS Work Plan for Site 42 - Pensacola Bay

Section 4.2 (Habitat and Biota Survey)

On Page 4-5, the document mentions Bayou Texar as a possible reference/control location. We recommend locating a more pristine area, as this bayou is in a progressively eutrophic condition (Moshiri and Elawad, 1990; Stone and Morgan, 1990).

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3. RI/FS Work Plan for Site 40 - Bayou Grande
RI/FS Work Plan for Site 42 - Pensacola Bay

Section 4.2.2 (Sampling Strategy)

RI/FS Work Plan Site 41 - NASP Wetlands

Section 4.2.3 (Sampling Strategy)

These sections state, "If the hot spot samples exceed two times maximum background determined through a reference comparison and a particular bench mark for either surface water or sediment, then those areas may be sampled further using focused sampling." We recommend eliminating the word "background" and only use the term reference or control station.

Also, further sampling may be needed if only one the above criteria are met. This would not always be the case, as at times the bench mark standards and guidelines may stand alone as a determinant for further study. The reference location may also show elevated contamination, and therefore not be an adequate control point. A new reference site would then have to be determined.

4. RI/FS Work Plan for Site 40 - Bayou Grande
RI/FS Work Plan for Site 42 - Pensacola Bay

Section 4.4.1 (Phase IIA - Chemical Parameters)

RI/FS Work Plan Site 41 - NASP Wetlands

Section 4.4.2 (Evaluating Contaminant Levels)

a. Under the subheading, Evaluation Contaminant Levels, the document requires meeting both criteria mentioned above in Comment #3. At times these criteria may require interdependence.

b. Figure 4-2 should be changed to reflect the above mentioned comment. Also the portion of this figure concerning prediction of bio-accumulation should also include toxicity potentials. All contaminants do not bio-accumulate, but do have toxic effects (i.e., carcinogenic; teratogenic; mutagenic). Further sampling may be required base on toxicity factors alone.

c. We suggest changing the subheading "Background comparison" to either "Reference" or "Control."

5. **RI/FS Work Plan for Site 40 - Bayou Grande**

Appendix C (Rationale and Locations of Sites Potentially Impacting Bayou Grande)

RI/FS Work Plan **Site** 41 - **NASP** Wetlands

Appendix D (Sites Potentially Impacting NAS Pensacola Wetlands)

The appendix should match with Table 3-1 (Page 3-5) which is a more complete listing of the sites potentially impacting the bayou.

RI/FS Comprehensive *SAP*

1. Section 8.1 (Phase I - Habitat and Biota Survey)

This section states, "The ecologist will then observe how the ecosystem appears to be affected by site-specific contamination by noting any anomalous features such as stressed or absent vegetation, unusual odors, colors, or stains." The ecologist should also look for the absence or shortage of any expected fauna.

2. Section 8.2 (Phase II - Ecological Sampling)

Refer to Comments #3 and #4 for the RI/FS Work Plans for Sites 40, 41, and 42.

General Comments

concerning sediment sampling and analysis, the method of sample digestion should be discussed. We have included a separate page which discusses why the FDEP utilizes a total digestion technique.

Also, our sediment research group has learned from prior sediment survey experience that sediment and soil samples may contain high concentrations of organic compounds, both natural and anthropogenic. We have observed that such samples can present a problem for some analytical labs due to interference effects. The result is much higher levels of detection for such samples. By performing sequential extractions using organic solvents, such

problems can be reduced to some degree.

This research group has also just finished a sediment chemical (trace metals and organic compounds) and toxicity survey (1993) in the Pensacola Bay system. Three stations were in Bayou Grande. Elevated levels of metals were detected in two of the three stations. Although the results are still arriving from this survey (organics and toxicity studies still underway), there was no toxicity determined in an amphipod test. However, the one station closest to the NASP facility detected toxicity from a series of sea urchin egg fertilization and embryological development tests.

Thank you for the ability to comment. If you have any questions, please call (904) 488-7454.

Sincerely,

John Mitchell
Natural Resource Trustee
Project Manager
Office of Intergovernmental
Programs

cc: Pat Kingcade, FDEP
Eric Nuzie, FDEP
Waynon Johnson, NOM
Jim Lee, DOI
Ron Joyner, USN
Allison Drew, EPA
Henry Beiro, E/AH

References

Moshiri, G.A. and S. Elawad. 1990. *Physical, chemical and biological characteristics of the water column and sediments.* Escambia County, Florida: Institute for Coastal and Estuarial Research, University of West Florida. (Physical, Biological and Environmental Studies of Bayou Texar; Volume 11)

Stone, G.W. and J.P. Morgan. 1990. *Sedimentation, Bathymetric Changes and Tidal Variability* in *Bayou Texar.* Escambia County, Florida: Institute for Coastal and Estuarial Research, University of West Florida. (Physical, Biological and Environmental Studies of Bayou Texar; Volume I)

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Special Notice from the FDEP Contaminated Sediment Management Group

The metal to aluminum tool, as outlined in the 1988 FDEP publication *A Guide to the Interpretation of Metal Concentrations in Estuarine Sediments*, requires use of a "total" digestion technique of the sediment, which employs hydrofluoric (HF), nitric (HNO_3), and a strong oxidizing acid. Total digestion of the sample is necessary in order to effectively use the metal to aluminum normalization method. Proper use of HF acid insures dissolution of the silicate minerals in the sediment. To liberate trace metals bound to organic molecules requires a *strong* oxidizing dissolution stage, which *can* be accomplished through the use of either perchloric acid ($HClO_4$), *or* aqua regia, which is a mixture of HNO_3 and HCl acid. Organic molecules *on* sedimentary particle surfaces enhance adsorption of toxic organic compounds, therefore sediments with high total organic carbon (TOC) concentrations have greater capacity to bond with organic contaminants.

Given variation in other acid digestion techniques, such as different dissolution times, different normality and type of acid wed to dissolve the sediment, or variable temperatures at which dissolution occurs, the FDEP strongly discourages the use of other sample digestion techniques, commonly referred to as "weak," "partial," or "preferential" digestion. In addition to not allowing reliable use in calculating "excess" metals according to the aluminum normalization approach, these techniques may not produce comparable sediment *chemistry* data

It has come to our attention that commercial labs do not always conduct total digestion procedures. The laboratory procedures section in QA plans must be reviewed to insure the plan contains a requirement of total digestion of sediment sampler. Directly question the lab to make sure they are employing HF to digest mineral phases, and aqua regia or perchloric acid to digest organic matter.

Perhaps most importantly, ask your laboratory to analyze standard reference materials (e.g. the NIST-SRM 1646 estuarine sediment standard or the NIST-SRM 2704 Buffalo River sediment standard) to insure the accuracy of data from your own samples. If you *can* send it in as a "blind" standard, that is even better. The use of reference materials provides the only adequate means of judging analytical accuracy because it allows assessment of digestion efficiency as well as instrument calibration.

The FDEP conducted an intercalibration laboratory exercise in 1990-1991, which illustrated the variability of sediment data from different analytical laboratories. Four laboratories participated in the exercise, which assessed accuracy and precision of reported metals data from "real-world" samples, as well as sediment reference materials (standards). The laboratories selected for the study represent facilities that typically report environmental data to federal, state, county, or municipal agencies. Results of the exercise indicate that sediment trace metal data from different labs are usually not comparable, due to different sample digestion techniques, and that laboratories must utilize standard reference materials as quality control *check* Conclusions of the FDEP *study* are supported by results of an international intercalibration exercise for trace metals analysis in sediments. Please contact FDEP (Tom Seal or Gail Sloane) at 904-488-0784 if you have any questions.

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