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October 20, 1999

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NAS PENSACOLA
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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Commanding Officer,
Southern Division, NAVFACENGCOM
Attn: Mr. Bill Hill (code 1851)
P.O. Box 190010
North Charleston, South Carolina 29419-9010

SUBJ: Draft Technical Memorandum
Development of Remedial Goals
Operable Unit 3, Site 2
Naval Air Station Pensacola
EPA Site ID No. FL9170024567

Dear Mr. Hill:

The U. S. Environmental Protection Agency (EPA), has completed its review of the above subject document. Comments are enclosed, however, this document should not be finalized. The comments should be applied to developing remedial goals for Site 2 using the most recent data, (1999), if review of the data identifies impacted areas.

If you have any questions please contact me at (404) 562-8538.

Sincerely,

Deena D. Townsend

Senior Project Manager
Federal Facilities Branch

Enclosure

cc: Ron Joyner, NAS Pensacola
Brian Caldwell, Ensafe, Knoxville
Allison Dennon, Ensafe, Memphis
Joe Fugitt, FDEP

GENERAL COMMENTS:

1. The Technical Memorandum has correctly identified the toxic stations: H1, H3, I05 and F3. A no-further-action (NFA) decision has not been justified. The reasons given were species diversity, minimal spatial extent of impacts, and comparison to mean values of constituents of concern in Pensacola Bay (suggesting ongoing sources).

Reduced species diversity was observed at the four toxic stations identified, with a corresponding increase in the abundance of polychaete worms. Despite uncertainty, results clearly show detrimental changes in benthic community structure at the four toxic stations.

Minimal spatial extent of impacts has not been established because contamination is only partially delineated. The assumption of a 100-foot by 100-foot box around each location is arbitrary. Additional sampling is recommended to characterize the extent of toxicity or contamination. A small area to clean up can just as easily argue for taking action.

The average concentrations of site-related constituents in Pensacola Bay are not relevant to the remedial decision because the contamination, especially of PAHs, is highly localized in harbors such as Bayou Chico. Averages would be much lower if the samples from Bayou Chico were not included. The distribution of constituents in Pensacola Bay, as isolated occurrences in certain areas, suggests localized sources versus diffuse, non-point sources as suggested in the memorandum.

2. The toxicity tests are based on exposure to epibenthic organisms versus infaunal organisms. Infaunal organisms spend nearly all of their time buried in the sediments. The sheepshead minnow and the mysid shrimp are epibenthic. Epibenthic organisms live on the bottom and occasionally burrow into sediments. They are not obligated to stay in the sediments. The lifestyle of epibenthic organisms reduces their sensitivity to sediment-associated constituents, because they can avoid exposure by **staying** in the water column, away from contaminated sediment **deposits**. The epibenthic test organisms may have exhibited sediment avoidance during the toxicity test. This might explain why the highest sediment concentrations in the Port Ops. (Station A2) did not exhibit toxicity. The laboratory notes should be checked for sediment avoidance observations.

Testing should be repeated with another test organism, such as *Leptocheirus plumulosus* (growth and reproduction) or the sea urchin fertilization test.

3. Growth effects were observed in sheepshead minnows at most stations. Sub-lethal effects should not be ignored. Growth reduction can translate into significant reductions in populations or changes in community structure. Correlations between the percentage reduction in growth and the constituent concentrations may explain some of the observed toxicity. I recommend correlation analysis be performed on both the sheepshead minnow growth endpoint and the mysid mortality endpoint. To avoid spurious results, remedial goal options should only be developed for constituents exhibiting a positive correlation between the magnitude of toxicity and concentration.
4. Polycyclic aromatic hydrocarbon (PAH) contamination explains the observed toxicity among stations better than the metals and bis(2-ethylhexyl)phthalate (BEHP). If the anomalous results for Station A2 are excluded, there is a clear trend of increasing toxicity with increasing concentration for the PAHs. The rank in toxicity in the mysid bioassay is explained by the rank in PAH concentration. I recommend the cleanup goals be re-examined by eliminating the Station A2 results and that goals for PAHs or total PAHs be calculated.
5. Although the PAHs appear to best explain the toxicity observed in this data set, toxicity in fact is due to a mixture of constituents. Therefore, concentrations of constituents can be relatively low compared with NOAA's effects range concentrations. There may be other constituents that were not analyzed that are contributing to observed toxicity. The NOAA report (1997) suggests that toxicity in Pensacola Bay may be associated with nitro aromatic compounds.

SPECIFIC COMMENTS:

1. Section 2.0, Site Description, Page 2. In the second sentence change the phrase sewer outfall to stormwater outfall to be consistent with the remainder of the report. Describe sources in the catchment basin. Explain how certain operable units are drained by these outfalls.
2. Section 3.3, Total Organic Carbon (TOC) Content, Page 15, last paragraph. It is erroneous to conclude that bioavailability is limited when mysid bioassay results reveal mortality levels of 34 to 49 percent. Significant mortality in a toxicity test indicates that the constituents are bioavailable. The stations with approximately 50

percent mortality in mysids generally ranked the worst in terms of species diversity.

3. Section 5.0, Conclusions, Page 20, third paragraph. The Technical Memorandum states that the remedial goals for zinc and chromium are below the mean detected concentrations of those constituents in Pensacola Bay. The explanation of the toxicity by attributing it to zinc, cadmium, chromium, and BEHP is questioned. PAHs are also elevated at stations which exhibited toxicity. The focus of the RGOs is misdirected toward cadmium, copper, and zinc when PAH concentration better explains the observed trends of decreased survival with increased concentration. The comparison to average metal concentrations in Pensacola Bay is irrelevant.

REFERENCE:

NOAA 1997. *Magnitude and Extent of Sediment Toxicity in Four Bays of the Florida Panhandle: Pensacola, Choctawhatchee, St. Andrew and Apalachicola*. U.S. Department of Commerce, National Oceanic and Atmospheric Administration. NOAA Technical Memorandum NOS ORCA 117. October 1997. p 25.