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LETTER AND COMMENTS FROM U S NAVY IN RESPONSE TO NATIONAL OCEANIC AND
ATMOSPHERIC ASSOCIATION COMMENTS TO FINAL REMEDIAL INVESTIGATION
REPORT SITE 41 NAS PENSACOLA FL
3/22/2001
NAS PENSACOLA

**Response to NOAA Comments on Final Remedial Investigation Report
Site 41 (Operable Unit 16), NAS Pensacola Wetlands
NAS Pensacola
Dated March 22, 2001**

NOAA Comment 1:

The conclusion to pursue No Further Action at most Site 41 wetlands is not supported by results in the RI Report.

The report concludes no further action under the Navy's IR Program is warranted at most Site 41 wetlands. Chemistry and toxicity results do not report this blanket conclusion. Toxicologically important chemicals are elevated, i.e., double and triple-digit Hazard Quotients (HQs), in sediments and surface waters of many wetlands. (See Attached for specific examples.) Significant toxicity is frequently observed. EPA guidance suggests that when these conditions exist, unacceptable levels of ecological risk may be present and future evaluation and/or remedial action is warranted.

The report has not fully developed a conceptual site model for individual wetlands or for clusters of wetlands that share common drainage pathways. Significantly, sources of contaminant release have not been linked to elevated chemistry. Elevated surface water concentrations strongly suggest a high potential for on-going release and transport among wetlands and out to Bayou Grande and Pensacola Bay. The report should discuss this transport potential and whether the proximal source is sediments and/or groundwater. An Attachment is provided with observations to help develop the conceptual site model(s). Providing a single figure with the color-coded wetlands, surface water flow and IRP sites would greatly aid in conceptual model development.

Response:

The Site 41 RI Report has been entirely reformatted and modified since the previous version has been reviewed. The Final Site 41 RI Report has re-evaluated the ecological risk and human health risk associated with all the Site 41 Wetlands. The final report also includes new figures which will provide the reader with both an over-view and detailed information concerning wetlands and nearby IR sites which may be influencing them. Additional analysis of the data is conducted using TOC normalization for PAHs and VOCs, mean ERM quotients, and food chain modeling of pesticides, PCBs, and mercury. Additional sampling at selected wetlands has also been completed and incorporated into this report.

The Final Site 41 RI has incorporated conceptual models for the following: 1) 'clusters' of wetlands that share common drainage pathways; 2) individual wetlands and the nearby ecological systems they may impact due to contamination; 3) fate and transport of contaminants into the wetland system; and 4) conceptual models which include base-wide stormwater conduits, groundwater influences, sediment transport, and soil transport.

The Final Site 41 RI identifies the sources of contaminants, and discusses their increase/decrease over the time as detected through sampling phases for each wetland and wetland cluster.

The Navy believes that the Final Site 41 RI will address all the issues and concerns pointed out in NOAA's Comment 1.

NOAA Comment 2

Analysis and treatment of basewide DDTx levels in Site 41 wetland is a technical success story which merits greater attention in the RI report.

Like most DOD facilities in the southeast, DDT was extensively used at Pensacola NAS. Not surprisingly, DDT and its persistent degradation products (DDE and DDD) are found throughout the base. DDTx concentrations appear problematic throughout Site 41 wetlands.

To address this issue, all Site 41 sediment data were ranked and histograms prepared for DDT, DDE, and DDD. The Pensacola NAS team examined these histograms, identified inflection points and agreed to concentrations which we believe represent base-wide DDTx levels. Those concentrations and their corresponding HQs are shown below. Independently gathered DDTx information indicate similar concentrations found in the Pensacola Bay area. The histograms, independent data and approach used by the team is a technical success story and should be highlighted in the RI report. The approach is immediately applicable to other DOD facilities in the southeast.

DDT 20 ppb (HQ=17)

DDE 40 ppb (HQ=20)

DDD 50 ppb (HQ=41)

Response:

The Final Site 41 RI uses the base-wide DDT, DDE and DDD concentrations developed as a tool for refinement in the ERAs (Sections 8, 10, 11, 12, 13, 14, and 15) and as a comparison in the Nature and Extent (Section 6). In addition, the evaluation is provided in Appendix J.

GENERAL OVERVIEW

NOAA Comment 3

The numerous Site 41 wetlands cluster into three areas: 1) Chevalier Field/Magazine Point, 2) Site 1 Landfill, and 3) Forrest-Sherman Field.

Wetland Cluster 1

The Chevalier Field/Magazine Point cluster contains many IRP sites, 4 red-coded wetlands (64 5A, 10, 12) and 2 orange-coded wetlands (6, 63A). This cluster is located in the most developed portion of the base. Individual wetlands results are summarized below. Based on surface water flow patterns (Figure 8-1), the following contaminant transport pathways exist within this cluster.

a. Wetland 5A/B -> Wetland 6 -> Wetland 64 -> Bayou Grande

b. Wetland 12 -> Wetland 13 -> Wetland 10A/B -> Pensacola Bay

c. Wetland 63A -> Pensacola Bay

d. Wetland 63B -> Pensacola Bay

Wetland 5 — Elevated (i.e., double- or triple-digit) sediment HQs are reported for Cd, Pb and Cu at four stations. Double-digit HQs for many individual PAH are observed at Station 5A05. The highest sediment HQs (324 for Cd) is located at the most downstream Station (5B02). Also at this location, surface water HQs for Cd, Pb and Hg are elevated (25, 55, and 12, respectively). Sediment toxicity is reported at Stations 5A05 and 5A06 (Figure 10-2-3).

Wetland 6 — Wetland 6 receives drainage from Wetland 5. Elevated surface water concentrations of mercury (HQ=73) are observed at a downstream location (Station 10). This location represents water flowing into the wetland 64. The only elevated sediment HQ in Wetland 6 is for DDT (HQ=220) at the headwaters of the wetland (Station 01).

Wetland 64 — Sediment chemistry partitions Wetland 64 into two areas. The southern, more narrow area has elevated (double-digit) HQs for Cd, Cr, Cu, Pb, PAH, and DDTx. The northern, broader area near the yacht basin has consistent double-digit sediment HQs for Cd and Cr along the western shoreline. Single-digit HQs for mercury are observed throughout Wetland 64. Significant sediment toxicity is reported at two of the three stations in the southern area. Modeling to higher trophic level fish showed a risk for mercury (HQ=16) and Aroclor 1016 (HQ=2.3).

Wetland 12 — Elevated (double- and triple-digit HQs) sediment PAH concentrations are reported for Wetland 12. Likely PAH sources are the bilge water plant located approximately 50' to the southeast and a 1991 spill of oiled bilge water. Wetland 13 is located on the other (eastern) side of the bilge water plant.

Wetland 13 — At Wetland 13, very high surface water HQs are reported for Pb (713), Hg (108), Be (34), Cr (20), Cu (18) and Cd (13).

Wetland 10 — Wetlands 12 and 13 flow into Wetland 10 where double-digit sediment HQs for Cd (51) and Cr (23) are observed at station 04. This location marks the junction of Wetland 10 with Pensacola Bay. Surface water HQ for Cd in Wetland 10 is 7 while the silver HQ appears to be greater than 100,000.

Wetland 63A/63B — These wetlands are portioned by Site 14; a dredged material disposal site that was created in 1975-77. Elevated surface water Pb levels (HQ=53) are reported in the northeast quadrant, next to Site 14. To the west (Station A3), cadmium and Aroclor 1260 are elevated in sediments; (HQs=11 and 12, respectively).

Wetland Cluster 2

The second cluster of wetlands is dominated by the Site 1 Landfill although other IRP sites are present (44, 5, 6, 7, 16). This wetland cluster contains 4 red-coded wetlands (3, 4, 16, 18) and 2 orange-coded wetlands (1, 15). Results for individual wetlands are summarized below.

Wetland 3 (eastern site of Site 1) — Triple-digit sediment HQs are observed for DDT and DDD (328 and 125, respectively) at Station 0303 and for Cd (107) at Station 07. At Station 02, elevated surface water HQs are reported for Pb (12), endrin ketone (109) and Aroclor 1260 (36). Aroclor 1260 was also elevated in sediments at Station 02 (HQ=16). Twenty months later, during

the Phase IIB/III investigations, sediment concentrations had fallen precipitously. No sediment toxicity was observed at that time.

Wetland 18 (western side of Site 1) — This wetland had some of the highest DDTx concentrations recorded at Pensacola NAS. Triple-digit HQs were observed at Stations A1, A2, B1. Twenty months later, during the Phase IIB/III investigations, sediment concentrations had fallen by two orders of magnitude. At that time, no sediment toxicity was observed in Wetland 18. Modeling risks to higher trophic level fish is described but the results are not reported in Table 10-6-13 as suggested in the text.

Wetland 1 (southern side of Site 1) — Double-digit sediment HQs for numerous PAHs are observed at Station 04.

Wetland 16 (northern side of Site 1) — The only double-digit HQ was for Cd (12) in sediment.

Wetland 15 (northeast of Site 1) — Elevated levels of DDD (HQ=164) were observed in sediment adjacent Stations 01 and 03. Also at Station 01, elevated surface water HQs for Pb (143) and Hg (38) are observed. Perhaps this is the source of mercury observed in sediments in part of Bayou Grande (see Site 40 RI report).

Wetland 4 (east of Site 1) — The only double-digit HQ was for Pb (12) in sediment at Station D2.

Wetland 19A (northwest of Site 16) — This blue-coded wetland drains into Redoubt Bayou which empties into Bayou Grande. Double-digit surface water HQs are observed for Hg (49), Pb (51) and Be (31).

Wetland Cluster 3

The third wetland cluster is located in western (less developed) portion of the base, west of Sherman Field. This cluster contains 1 red-coded wetland (W1), 2 orange-coded wetlands (48, 49), IRP Site 3 as well as UST sites O, S and X. Results for individual wetlands are summarized below.

Wetland W1 Sediment HQs for Pb are elevated (HQs=32, 28, 8) at adjacent Stations 3, 4, 5. Surface water Pb is also elevated (HQ=33) approximately 600' downstream (north) from these stations.

Wetland 48 — DDTx are elevated in sediments at the headwaters of Wetland 48. HQs are 2, 131, 300, 202 for DDD, DDE, DDT, respectively. This level of DDD is the highest recorded on base.

Wetland 72 — This blue-coded wetland is located to the northwest of Sherman Field. Surface waters contained very high levels of silver (HQ=367).

Response:

The Navy agrees with NOAA and has restructured the Final Site 41 RI Report to include the following format:

- **Section 10 will discuss the OU 1 Wetlands in a group and as individual components. OU 1 Wetlands include Wetlands 1, 3, 4D, 15, 16, 17, and 18.**

- **Section 11 will discuss the OU 2 Wetlands in a group and as individual components. OU 2 Wetlands include Wetlands 5, 6, and 64.**
- **Section 12 will discuss the OU 10 Wetlands in a group and as individual components. OU 10 Wetlands include Wetlands 10, 12, and 13.**
- **Section 13 will discuss the Chevalier Field Wetlands in a group and as individual components. Chevalier Field Wetlands include Wetlands 63A and 63B.**
- **Section 14 will discuss the UST 18 Wetlands in a group and as individual components. UST 18 Wetlands include Wetlands 52, 72, and W1.**
- **Section 15 will discuss the Remaining Wetlands as individual components. The Remaining Wetlands include Wetlands 19, 48, 49, 56, 57, 58, 75, and W2.**

In addition to re-grouping the wetlands, the sections will discuss nearby influences and provide all the information discussed in response to the first question posed by NOAA. In addition, sediment chemistry is evaluated using mean ERM quotients, Swartz TOC normalized PAHs, and DiToro TOC normalized VOCs. Selected locations were re-sampled for surface water and Wetland 5B was resampled for sediment chemistry and toxicity to assess an identified data gap.