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Department of Environmental Protection

Lawron Chiles
Governor

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

Virginia B. Wetherell
Secretary

July 20, 1998

AUG 13 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

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: Draft Remedial Investigation Report, Site 41 (NAS Pensacola Wetlands), NAS Pensacola

Dear Mr. Hill:

I have completed the technical review of the above referenced document dated April 24, 1998 (received April 27, 1998) and provide the following comments. Also, please address the comments in the attached memorandum from David Grabka.

1. In Section 7.0 (Data Validation), I have concerns about the quality of the data based upon what is indicated in Tables 7-1, 7-2, 7-3 and 7-4. Specifically:

   a) In Table 7-1 (Volatile SDGs), 62% of the Continuing Calibration (CCal), 46% of the Internal Standards (IS) and 75% of the Blanks did not meet one or more of the Quality Control (QC) criteria.

   b) In Table 7-2 (Semivolatile SDGs), 58% of the CCal, and 58% of the Blanks did not meet one or more of the QC criteria.

   c) In Table 7-3 (Pesticide SDGs), 33% of the Initial Calibration (ICal), and 71% of the surrogates did not meet one or more of the QC criteria.

   d) In Table 7-4 (Inorganic SDGs), 96% of the Blanks, 76% of Matrix Spike (MS), 32% of the lab duplicates, and 84% of the atomic absorption spike recoveries did not meet one or more of the QC criteria.

Based on the above qualifications, I question whether the data shown is acceptable overall as the table indicates. Based upon a high percentage of errors within the above identified validation parameters, it would appear that the data should be treated with some suspicion. The problem appears to be within the laboratory rather than the sampling holding times or as a result of sampling methodologies.

2. On page 8-228, the document indicates, based on fish tissue analysis comparison to wetlands Nos. 18, 64, 33 (reference marine wetland), and 75 (reference freshwater wetland), that, due to the highest hazard quotient (HQ) of 15.55 in wetland No. 75, it demonstrates the ubiquitous nature of DDT distribution. However, the fish tissue data does not correlate with the sediment data hazard quotients and values in these respective wetlands. Wetland 75 had lower values for DDT and its derivatives than both wetland 18 and 64. There appears to be some other factor which may be causing the increased DDT values in fish tissue at wetland 75. I would concur that DDT will likely be found in sediment in most areas of the base because of past usage. However, this does not mean that it should be disregarded.

   Also, on this page, it states that lead does not bio-accumulate. I disagree with this statement. Lead can bio-accumulate but does not bio-magnify.

3. On page 8-231 change "used as a control" to "used as a reference."

4. In Section 8.2.8 (Data Analysis and Interpretation), much weight is given to results in reference wetlands compared to results in the other wetlands as the analysis relates to sediment toxicity and bio-accumulation results, specifically Wetland 75. There may be numerous uncertainties involved or factors of this wetland may not have been ideal to include it as a reference. This is the reason laboratory control samples are important for comparison. When a reference wetland fails, the control sample results should have the most weight for comparisons. Also, based upon the discrepancies indicated in the fish tissue bio-accumulative impacts, laboratory control samples for bio-accumulation would have been beneficial. The uncertainty segment of this section provides some of this analysis but needs to include some of the other uncertainties I have previously mentioned.

   This segment also indicates that uncertainties are compounded by the use of toxicity, diversity and bio-accumulation studies. I agree there are uncertainties within each of these respective analytical methodologies. However, they are performed to reduce uncertainties overall,

rather than compound them. They will make the analysis more complex.

If I can be of any further assistance with this matter, please contact me at (904) 921-9989.

Sincerely,

John W. Mitchell
Remedial Project Manager

cc: Ron Joyner, NAS Pensacola
Gena Townsend, USEPA Region IV
Brian Caldwell, EnSafe, Knoxville
Allison Dennen, EnSafe, Memphis
Karen Atchley, Bechtel, Knoxville
Tom Dillon, NOM CRC, USEPA Region IV
Tom Moody, FDEP Northwest District

TJB TB JJC JJC ESN ESN

Florida Department of

Memorandum

Environmental Protection

TO: John Mitchell, E.S. III, Remedial Project Manager, Technical Review Section

THROUGH: Tim Bahr, P.G. Supervisor, Technical Review Section

FROM: David P. Grabka, E.S. I, Technical Review Section

DATE: July 7, 1998

SUBJECT: Draft Remedial Investigation Report, Site 41, NAS Pensacola Wetlands, Naval Air Station Pensacola, Florida, April 24, 1998

I have completed my review of the Draft Remedial Investigation Report for Site 41, NAS Pensacola Wetlands, prepared and submitted by Ensafe Inc. I have the following comments:

(1) I believe the subsistence fisherman screening toxicity values used in Table 8.3.7 from USEPA Region III RBC Tables are expressed in mg/kg. The values used for screening concentrations are shown as being in µg/kg. I believe the two values were compared without converting to like units. Taking this under consideration should reduce the number of Chemicals of Potential Concern (COPCs) flagged. The revised lists of COPCs for this exposure scenario should be revised throughout the report.

(2) I believe that arsenic should be flagged as a COPC for Wetland 19 sediment and surface water in Tables 8.3.33 and 8.3.34 under the adolescent site tresspasser scenario.

(3) Arsenic in sediment and surface water should be COPCs for Wetland 15 under the adolescent site tresspasser scenario.

(4) It appears there was at least one exceedance of surface water standards in most of the wetlands where surface water sampling occurred. The number of samples that had exceedances of specific contaminants, the concentrations of contaminants in sediment and the nature of the contaminants should be used to devise a confirmatory sampling plan to confirm surface water contaminant concentrations. Because suspended sediment may be the major contributor to these surface water exceedances, it may be necessary to utilize a different sampling technique to collect those samples or it may be necessary to filter surface water samples.

(5) Sampling locations for Wetland 64 for Phase IIB were selected in areas where relatively high, medium and low levels of contamination were detected in Phase IIA. Location 05 was selected as representing a highly contaminated area (HI=245.1), location 06 as moderately contaminated (HI=89.6) and location 04 as moderately to lightly contaminated (HI=79.2). However, the Hazard Indices (HIs) at sample locations 04 and 06 were very different between

Phase IIA and Phase IIB. During Phase IIB, location 06 had the highest concentrations of contaminants (HI=564.5), location 04 was also high (HI=423.2) and location 05 had the lowest concentrations of contaminants (HI=344.3). This might explain why acute toxicity effects to *Leptocheirus plumulosus* were observed in sediment at locations 04 and 06, areas expected to have less adverse effects than location 05 based on Phase IIA analyticals. However, it is unknown why no acute effects were seen at sampling location 05, which still had comparable levels of contaminants detected in sediments to that seen at locations 04 and 06. While highly impacted sediments have shown acute toxicity effects, fbrther assessment at this wetland will be necessary on slightly and moderately impacted sediments to determine their ecological effects.

(6) I feel there may not be enough toxicity testing on biota done to adequately determine what contaminant concentrations would provide unacceptable ecological risks. In estuarine wetlands 64, 16, 18 and reference wetland 33, only highly contaminated sediment from Wetland 64 showed adverse effects to biota in toxicity testing. Potential adverse effects from DDT were modelled for the blue heron in wetlands 64 and 18. However, only one sample was collected for toxicity testing fiom wetlands 16 and 18. Freshwater wetlands 3, 5A and reference wetland 75 all had at least one sample that produced statistically significant growth effects to biota.

(7) It may be necessary to rethink the selection of reference wetland 75. Only one sample location was selected from this wetland. Sediment at that location had light to moderate levels of pesticide (HI=23), particularly DDT and its metabolites. However, sediment and surface water collected from that location caused statistically significant growth effects to *Chironomous tentans* and *Pimephales promelas*. Also, concentrations of DDT and its metabolites detected in baitfish, when modelled to calculate potential dietary exposure, would appear to pose a risk to the blue heron. I feel this wetland might be inappropriate for use as a background wetland for comparison to other wetlands. The contaminants detected in sediment, surface water and bait fish and the aquatic effects observed may indicate that more severely impacted wetlands may have significantly greater ecological risks associated with them than that seen in reference wetland 75

(8) Reference wetland 33 appears to have been an appropriate selection as a relatively unimpacted estuarine wetland. Sediment samples collected from wetland 33 had low contaminant concentrations detected and proved to have no statistically significant adverse effect on either *Leptocheirus plumulosus* or *Neanthes arenaceodentata*. It does not appear that DDT in baitfish would pose a risk to the blue heron (see comment 15).

(9) Several wetlands, not assessed in Phase IIB, contained contaminants in sediment and surface water at levels that may indicate a risk to human and/or ecological receptors. The following wetlands, originally categorized as red or orange, may need to be fbrther addressed by sediment and surface water sampling, collection and analysis of contaminants in bait fish, toxicity testing or monitoring:

(a) Wetland 10 - *sediment:* moderately high levels of DDT and its metabolites, one sample very high in metals. *surface water:* exceedances of DDD, DDT, cadmium and silver (silver may be anomaly).

(b) Wetland W1 - ***sediment:*** moderately high levels of **cadmium,** lead, DDT **and** its metabolites. ***surface water:*** lead exceedances in all three samples

(c) Wetland 1 - ***sediment:*** moderately high levels of DDT in majority of samples, high levels of PCB and dieldrin in some samples and slightly elevated levels of lead, cadmium and mercury.

(d) Wetland 48 - ***sediment:*** extremely high levels of DDT and its metabolites

(e) Wetland 15 - ***sediment:*** DDT and its metabolites distributed across wetland, some metals and PAHs above TELs. ***surface water:*** large exceedances of surface water standards for aluminum, arsenic, beryllium, chromium, copper, iron, lead, mercury, nickel and zinc in upgradient sample closest to Site **1. A** sample taken downgradient of this had much lower levels, but still had exceedances for copper, lead and iron.

(f) Wetland 6 - ***sediment:*** DDT and its metabolites and dieldrin distributed along the wetland, elevated at some locations. ***surface water:*** exceedances of surface water standards for 1,1-DCE, **BEHP,** cyanide, lead and mercury.

(g) Wetland **63A** - *sediment:* relatively high levels of DDD, PCB, dieldrin and metals, especially cadmium and lead.

(h) Wetland 49 - ***sediment:*** DDT and its metabolites.

(i) Wetland **4D** - ***sediment:*** elevated metals, DDT and its metabolites, dieldrin, PCB and PAHs.

(10) Wetland 13 and 19 had high levels of metals detected in surface water. Because these wetlands are not associated with a contaminated site and elevated concentrations of these metals were not detected in sediment, it may be that suspended sediments are the root cause of the high levels detected. The suspended sediments may be naturally occumng, or may be caused by sampling methodology, low water levels or the means of transport to the sampling location. Resampling and analysis of surface water (possibly a filtered sample) would likely have much lower levels of metal, hopefully below surface water standards.

(11) Some of the hazard quotients calculated in Table 8.2-183 on page 8-233 do not seem to be correct.

(12) Some of the calculations in Table 8.2-157 on page 8-206 do not seem to be correct.

(13) On Table **8.2-46,** page ***6-63,*** **the** numbers for samples 003M000801 and 003M000901 may have been inadvertently switched.

(14) On Figure 8-8, page 8-56, wetland 12, apparently the hazard quotient for 2-methylnaphthalene was inadvertently left out of the calculation of the hazard index.

(15) Total DDT calculated for sample 0415330201 from Table 8.2-180 on page 8-230 would be .0029 mg/kg. It is listed as being .029 mg/kg in Tables 8.2-181 and 8.2-183. A concentration of .0029 mgkg, if correct, should not prove a risk of bioaccumulation for the blue heron.

(16) Table **8.2-117** is the same as Table **8.2-122.** Table **8.2-118** is the same **as** Table **8.2-121** Table **8.2-119** is the same **as** Table **8.2-120.**