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NAS PENSACOLA
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COMMENTS FROM U S NAVY IN RESPONSE TO U S EPA REGION IV COMMENTS TO
GROUNDWATER SAMPLING SITE 41 NAS PENSACOLA FL
11/16/2007
U S NAVY

Response to Comments
United States Environmental Protection Agency, Region 4
Site 41, Operable Unit 16, Naval Air Station Pensacola
Dated April 5, 2006
November 16, 2007

Comment 1:

Overall, this document was well written and organized. It is obvious that a major investment of time and effort was put into this investigation. It is recommended that sections of the RI document be revised and be resubmitted for review, addressed in a response to comments memorandum, or addressed in an addendum to the RI report. The inclusion of laboratory and toxicology reports would be valuable for verification purposes.

Response:

The Navy agrees to revisions to this document being incorporated by addendum or errata pages. The toxicity report was included in Appendix G. The validated database summary of the chemistry samples were included in Appendices B, C and D. The Navy did not provide the laboratory reports for the chemistry samples as an appendix. The laboratory reports total over 100,000 pages. If EPA would like to view the laboratory reports, the reports can be made available.

Comment 2:

Sections 8.3.2 and 8.4.2 Refinement of Sediment and Surface Water Screening Level COPCs (respectively).

- a) The methodology is not clear regarding the treatment of non-detected (ND) constituents that have proxy exposure point concentrations (EPCs) that exceed refinement values (RVs). It appears that those COPCs are not retained for further consideration in the risk assessment. The only justification or rationale for removing those chemicals seems to be "Parameter Not Detected" (e.g., Table 10-1-6: Total BHC). It is recommended that additional documentation/justification be included regarding removal of constituents from further consideration. Examples of additional justification are:
- i) describing if analytical interferences could have elevated the sample quantitation limit (SQL)
 - ii) describing if the chemical was or was not suspected of being used at the site
 - iii) describing if the chemical had been detected at another location at the facility
 - iv) describing if the chemical is collocated with another chemical that is "driving" the risk assessment or if a remedial strategy for another chemical would address this issue.
- b) Numerous constituents (primarily pesticides and SVOCs) are shown in the refinement tables that are accompanied by neither a screening value nor refinement value. It is recommended that the EPCs for these constituents be compared to a refinement value. Additional sources of refinement values could be used for these constituents (e.g., U.S. EPA Region 3 Ecological Benchmarks [2005], U.S. EPA Region 5 RCRA Ecological Screening Values [2003]). If no refinement values exist for a constituent, appropriate surrogate refinement values could be applied.

- c) The circumstances presented in Comments to the Preparer 2a and 2b (if not addressed) could result in an underestimation of the risks to ecological receptors for the chemicals in question.

Response:

(a) The Navy did not retain parameters after refinement if it was not detected. Sample quantitation limits were elevated because of analytical interferences, including percent moisture of the samples.

(b) The Tier 1 Partnering Team agreed to use only the EPA Region 4 screening values and the FDEP PELs and TELs. Surrogate values were used for select chemicals in accordance with Team decisions.

(c) The Navy completed the data evaluation in accordance with Team decisions. The team members applied their best professional judgment on the data evaluation methods. In addition, the team sought the professional opinions of experts in ecological risk assessments, including representatives from University of Florida, EPA Region 4 Science & Ecosystems Support Division, and NOAA.

Comment 3:

Table 8-5 and Section 8.7.1.5 Input Parameters for Food-Chain Models:

The food ingestion rates for the food-chain model receptors Green Heron and Mink appear to be outdated or incorrect. The citations for those parameters in Table 8-5 refer to food ingestion rates and body weights presented in the U.S. EPA wildlife Exposure Factors Handbook (1993) for these receptors.

- a) The Green Heron food ingestion rate is derived by using a regression equation developed by Jushlan (1978).

$$\text{Log (FI)} = 0.966 \text{ log(BW)} - 0.640$$

Where: FI = food ingestion rate
BW = body weight of the organism (g – grams)

Using the cited body weight of the green heron of 241 g (0.241 kg), the calculated FI would be 45.8 g/day (0.0458 kg/day). Table 8-5 lists the food ingestion rate for the green heron as 11.5 g/day (0.0115 kg/day). It is advised that this parameter be revised to use 45.8 g/day (0.0458 kg/day) for all green heron food-chain models.

- b. The food ingestion rate for the mink is estimated in the Wildlife Exposure Factors Handbook as 0.22 g (food)/g (body weight)/day. The cited body weight in Table 8-5 for the mink is 550 g (0.550 kg). This value is the lowest reported value for the adult female (USEPA, 1993 and Mitchell, 1961). The body weight of the male mink does not appear to have been considered in this evaluation. A more representative body weight should be chosen for this species. The range of body weight cited in the WEF handbook for male mink (wild) is 1040 to 1233 g and for female mink (wild) is 550 to 586 g (ESEPA, 1993 and Mitchell, 1961).

The average body weight for a chosen receptor is used when food-chain modeling is done. We propose that an average body weight for mink be 852.25 g (0.85225 kg). Using this value, the food ingestion rate for the mink would be 187.5 g/day (.1875 kg/day). Table 8-5 lists the food ingestion rate for the mink as 29 g/day (0.029 kg/day). It is advised that these parameters be revised using the body weight of 852.25 g (0.85225 kg) and food ingestion rate of 187.5 g/day (0.1875 kg/day) for all mink food-chain models.

- c. The circumstances presented in 3a and 3b (if not addressed) could result in an underestimation of the risks to ecological receptors for the chemicals in question.

Response:

The ingestion rates and body weights used in the food chain models were provided to the Navy by USEPA Region 4 Science & Ecosystems Support Division in an email dated December 5, 2003. The ingestion rates and body weights used are reported on a dry weight basis. The values contained in the EPA Ecological Exposures Factors reflect a wet weight basis. Only the dry weight values were used for consistency with the laboratory data. The email and provided table are included as Attachment 1.

Comment 4:

Section 16.0 Conclusions and Recommendations

- a) As summarized in Table 16-1 of the RI document, Wetlands 3, 5A, 64, and 10 (contingent on confirmatory sampling at location 033M00401) were recommended for a feasibility study (FS).
- b) Wetlands 12 (Bilge Water Spill) and W1 (UST 18) are being assessed under the FDEP petroleum program according to the Preparer.
- c) We think that wetlands 15, 16, 18-A & -B, 48 should also be considered for an FS. Wetlands 4 and 17 may need further evaluation as they appear to receive inputs (iron) from wetlands 3 and 18, respectively. Wetland 7 may need further evaluation as it may be impacted by contaminant transport via groundwater or storm water runoff. ILS recommends that Wetland 1B also be considered for an FS based on this wetland having a Mean ERM Quotient Category 3 (likely to cause adverse effects – Described in Section 8.3.2.6 of RI report) with emphasis on chlordane. The risks may be underestimated due to food-chain modeling using outdated or inappropriate model parameters for food ingestion rates of the green heron and mink. We recommend for these wetlands that any constituents not compared to refinement values be evaluated further and that the food-chain models be recalculated using the recommended input parameters for food-chain models.
- d) Wetlands 1A, 5B, 6, 49, and 63A should be considered to have significant uncertainty associated with them. This uncertainty results from a combination of the Mean ERM Quotient Category 2 assignment (Described in Section 8.3.2.6 of RI report), incomplete evaluation of chemical comparisons to refinement values, and the underestimation of risk due to food-chain modeling using outdated or inappropriate model parameters for food ingestion rates of the green heron and mink. We recommend for these wetlands that any constituents not compared to refinement values be evaluated further and that the food-chain models be recalculated using the parameters recommended in comment 3.

Uncertainties associated with Wetlands in Comment to Preparer 4e

Wetland	Uncertainty
1A	Lead/DDT & Dieldrin FCM
5B	Pesticide/PCB FCM
6	DDT FCM
49	DDT FCM
63A	PCB FCM

- f. All other wetlands (e.g. 13, 19A, 19B, 25, 27, 32, 33, 52, 56, 57, 58, 63B, 72, 75) could be considered for NFA.

Response:

a) The Navy agrees with completing a feasibility study on Wetland 3, 5A, 64 and 10.

b) Wetlands 12 and W1 will be addressed under Florida's petroleum program.

c) The Navy agrees to completing a feasibility study on Wetlands 15, 16, and 18 (A&B). The Navy agrees that Wetland 4 is receiving iron from Wetland 3. The treatment system (Interceptor trench) is currently being evaluated for optimization. The Navy proposes to collect additional sediment samples in Wetland 48 to assess the DDT detection. A decision on whether that wetland should be retained for a feasibility study will be made on the collected data.

Wetland 18 discharges to Redoubt Bayou and the inference that Wetlands 17 and 18 are connected is not clear.

d) The Navy evaluated all the wetlands in accordance with Team agreements regarding refinement values and food chain input parameters provided by EPA and FDEP.

f) The Navy agrees the remaining wetlands should be given a No Further Action status.

Comment 5:

Section 17.0 References

The reference section appears to be incomplete. Several citations were made in the RI report that were not included in references section. The preparer should check all citations in the RI report for inclusion in the references section.

Response:

Agreed. The Navy will review and revise the References Section for completeness.

Attachment 1
USEPA Region 4 Science & Ecosystems Support Division Email
December 5, 2003

Attachment 1
USEPA Region 4 Science & Ecosystems Support Division Email
December 5, 2003

From: <George.Linda@epamail.epa.gov>
To: <balbrecht@ensafe.com>
Date: 12/5/2003 12:37:31 PM

Barb,

The rest of the screening tables will be mailed out to you on Monday.

This excel table shows the exposure parameters that may be used for the food web models. The word file contains the citations of the parameter numbers used in the excel table. This file of references contains additional citations since I didn't go through and delete them. Just ignore the other citations. If you have any questions, please call me at (706) 355-8718.

thanks, Linda

(See attached file: 871Inputparametertable - final.xls)(See attached file: Referencesforexpparameters.doc)

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CC: <Lewis.Bobby@epamail.epa.gov>, <gbenfield@ensafe.com>

Table 1. Input parameters

Exposure Scenario	Body Weight (kg)	Dietary Composition	Area Use Factor/Alternate AUF	PCB		Food Ingestion Rate (kg/day dry weight)	Surface Water Ingestion Rate (L/day)		Sediment/Soil Ingestion Rate (kg/day dry weight)		TRVs NOAEL/LOAEL (mg/kg-body weight/day)	
				Concentration in Media (biotic/abiotic)	Area Use Factor/Alternate AUF		Mean/Mean	Max./Max.	Mean/Mean	Max./Max.		
ASSESSMENT ENDPOINT 1 - Piscivorous Bird												
Representative Species - Green Heron (<i>Butorides virescens</i>)												
Maximum	0.241 ^a	100 percent fish	1/1	Max./Max.	1/0.6	0.0115 ^b	0.0227 ^c	0.00023 ^d	0.42 ^g /0.94 ^f			
RME	0.241 ^a	100 percent fish	1/1	95%UCL/95%UCL	1/0.6	0.0115 ^b	0.0227 ^c	0.00023 ^d	0.42 ^g /0.94 ^f			
Average	0.241 ^a	100 percent fish	1/1	Mean/Mean	1/0.6	0.0115 ^b	0.0227 ^c	0.00023 ^d	0.42 ^g /0.94 ^f			
ASSESSMENT ENDPOINT 2 - Carnivorous Bird												
Representative Species - Eastern Screech-Owl (<i>Otus asio</i>)												
Maximum	0.15 ^g	100 percent small mammals	1/0.6	Max./Max.	1/0.6	0.0149 ^h	0.0170 ^c	0.0003 ^d	0.42 ^g /0.94 ^f			
RME	0.15 ^g	100 percent small mammals	1/0.6	95%UCL/95%UCL	1/0.6	0.0149 ^h	0.0170 ^c	0.0003 ^d	0.42 ^g /0.94 ^f			
Average	0.15 ^g	100 percent small mammals	1/0.6	Mean/Mean	1/0.6	0.0149 ^h	0.0170 ^c	0.0003 ^d	0.42 ^g /0.94 ^f			
ASSESSMENT ENDPOINT 3 - Insectivorous Bird												
Representative Species - American Woodcock (<i>Scolopax minor</i>)												
Maximum	0.160 ⁱ	100 percent worms	1/1	Max./Max.	1/1	0.0256 ^j	0.0173 ^c	0.0027 ^k	0.42 ^g /0.94 ^f			
RME	0.160 ⁱ	100 percent worms	1/1	95%UCL/95%UCL	1/1	0.0256 ^j	0.0173 ^c	0.0027 ^k	0.42 ^g /0.94 ^f			
Average	0.160 ⁱ	100 percent worms	1/1	Mean/Mean	1/1	0.0256 ^j	0.0173 ^c	0.0027 ^k	0.42 ^g /0.94 ^f			
ASSESSMENT ENDPOINT 4 - Piscivorous Mammal												
Representative Species - Mink (<i>Mustela vison</i>)												
Maximum	0.55 ^l	100 percent fish	1/0.9	Max./Max.	1/0.9	0.0290 ^m	0.0578 ^c	0.003 ^d	0.15 ⁿ /0.31 ⁿ			
RME	0.55 ^l	100 percent fish	1/0.9	95%UCL/95%UCL	1/0.9	0.0290 ^m	0.0578 ^c	0.003 ^d	0.15 ⁿ /0.31 ⁿ			
Average	0.55 ^l	100 percent fish	1/0.9	Mean/Mean	1/0.9	0.0290 ^m	0.0578 ^c	0.003 ^d	0.15 ⁿ /0.31 ⁿ			
ASSESSMENT ENDPOINT 5 - Carnivorous Mammal												
Representative Species - Long-tailed Weasel (<i>Mustela frenata</i>)												
Maximum	0.08 ^o	100 percent small mammals	1/0.4	Max./Max.	1/0.4	0.0055 ^h	0.0100 ^c	0.00015 ^d	0.15 ⁿ /0.31 ⁿ			
RME	0.08 ^o	100 percent small mammals	1/0.4	95%UCL/95%UCL	1/0.4	0.0055 ^h	0.0100 ^c	0.00015 ^d	0.15 ⁿ /0.31 ⁿ			
Average	0.08 ^o	100 percent small mammals	1/0.4	Mean/Mean	1/0.4	0.0055 ^h	0.0100 ^c	0.00015 ^d	0.15 ⁿ /0.31 ⁿ			
ASSESSMENT ENDPOINT 6 - Insectivorous Mammal												
Representative Species - Short-tailed Shrew (<i>Blarina brevicauda</i>)												
Maximum	0.012 ^p	100 percent worms	1-Jan	Max./Max.	1/1	0.0037 ^q	0.0027 ^r	0.00035 ^d	0.15 ⁿ /0.31 ⁿ			
RME	0.012 ^p	100 percent worms	1/1	95%UCL/95%UCL	1/1	0.0037 ^q	0.0027 ^r	0.00035 ^d	0.15 ⁿ /0.31 ⁿ			
Average	0.012 ^p	100 percent worms	1/1	Mean/Mean	1/1	0.0037 ^q	0.0027 ^r	0.00035 ^d	0.15 ⁿ /0.31 ⁿ			

Note: The PCB concentration in water used for the maximum and RME scenarios in this assessment is 130 ug/L.

The PCB concentration in water used for the average scenario in this assessment is 24.5 ug/L.

The PCB concentration in sediment used for the Maximum scenario for this assessment is 16 mg/kg.

The PCB concentration in sediment used for the RME scenario for this assessment is 2.2 mg/kg.

The PCB concentration in sediment used for the average scenario in this assessment is 1.6 mg/kg.

The PCB concentration in soil used for the Maximum scenario for this assessment is 6400 mg/kg.

The PCB concentration in soil used for the RME scenario for this assessment is 173 mg/kg.

The PCB concentration in soil used for the average scenario in this assessment is 89.5 mg/kg.

For small mammal tissue, fish tissue and surface water concentrations, the 95%UCL values will be substituted in the RME scenario.

^a Niethammer and Kaiser (1983).

^b Kushlan (1978).

^c Calder and Braun (1983).

^d Estimated based on the results of Beyer et al. (1994).

^e Derived from McLane and Hughes (1980).

^f Derived from Peakall and Peakall (1973).

^g Henny and Van Camp (1979).

^h Nagy et al. (1999).

ⁱ Owen and Krohn (1973).

^j Sheldon (1967).

^k Beyer et al. (1994).

^l Mitchell (1961).

^m Bleavins and Aulerich (1981).

ⁿ Derived from Aulerich and Ringer (1977).

^o Fagerstone (1987).

^p Guilday (1957).

^q Based on Morrison (1957)

^r Chew (1951).

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