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LETTER OF TRANSMITTAL AND U S EPA REGION IV COMMENTS ON BASEWIDE
ECOLOGICAL RISK ASSESSMENT NAS KEY WEST FL
3/9/1999
U S EPA REGION IV

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Mr. Dudley Patrick
Code 1852
Southern Division Naval Facilities Engineering Command
P.O. Box 190010
Charleston, S.C. 29419-9010

SUBJ: Naval Air Station (NAS) Key West, Florida
EPA ID# FL6 170 022 952

Dear Mr. Patrick:

EPA has received and reviewed the following document:

- o **Basewide Ecological Risk Assessment, TtNUS, September 1998.**

EPA's comments are enclosed with this letter. If you have any questions, please contact me at 404.562.8533.

Sincerely,

Martha Berry
Remedial Project Manager
Federal Facilities Branch

Enclosure

cc: Jorge Caspary, FDEP
Ron Demes, NAS Key West
Phillip Williams, NAS Key West
Charles Bryan, TtNUS

**Technical Review and Comments Report
for the
Basewide Ecological Risk Assessment for
Naval Air Station Key West, FL, dated September 1998.**

General Comments

1. Site IR3 is not included in the risk assessment because the assumption is made that it does not have an ecological exposure pathway. While it is true that this site provides only poor wildlife habitat, it is likely used by reptiles, invertebrates, birds, and small mammals. Both the American kestrel and the raccoon are species known to inhabit areas near human activity. Thus the American kestrel and the raccoon may utilize this site and ingest prey that utilize this site. Table 1-1 indicates the presumptive remedy for site IR3 is to cap the area, but the description in section 2.1.11 on page 2-6 does not discuss capping. IR3 should be included in the risk assessment for the American kestrel and the raccoon unless the area is capped, thus removing the potential ecological exposure pathway.
2. Average contaminant concentrations are used in the exposure estimates. To comply with recent Region 4 guidance on exposure point concentrations to be used in risk assessment, the maximum concentration detected should be used in the exposure estimates as well. Furthermore, the average concentrations of contaminants of potential concern (COPCs) in Tables 5-1, 5-2, 5-3, 5-4 and 5-5 (pages 5-9 to 5-16) may not have been calculated correctly. For example, the only detection of acetophenone in surface soil is reported as 120 microgram per kilogram ($\mu\text{g}/\text{kg}$), but the average concentration is reported as 1033.3 $\mu\text{g}/\text{kg}$. This may be an artifact of using one-half the detection limit for non-detections when calculating the mean concentration. The equation used for calculating the mean concentrations should be checked. If the numbers reported in these tables are correct, a discussion of the uncertainty introduced from using average concentrations should be included in Section 5.2.4.3 Uncertainty in the Exposure Estimate.
3. Hazard Indices (HI) are not presented for any of the ecological receptors. HI tables for each receptor should be presented in the document.

Specific Comments:

1. **Section 3.1, Page 3-1.** This section discusses the derivation of the toxicity reference values (TRVs) used in the risk assessment. An uncertainty factor of 10 for class-to-class extrapolations was employed. Extrapolation between taxonomic classes is not an accepted practice for TRV derivation (EPA 1996). TRVs that employ class-to-class extrapolations should be replaced with NA for not available.

2. **Table 3-1, Pages 3-3 and 3-4.** This table presents the derivation of TRVs for the raccoon. The table has a few errors that should be corrected. Specifically, the no observed adverse effect level (NOAEL) for copper is 1.17E+01; vanadium is 2.1E-01; and endosulfan I, endosulfan II and endosulfan sulfate is 1.5E-01 for the source cited. Furthermore, a more conservative NOAEL for mercury from a mink study should be used. The lab test result for mercury should be changed to 1.0E+00.
3. **Table 3-2, Pages 3-5 and 3-6.** This table presents the derivation of TRVs for the American kestrel and the great blue heron. An uncertainty factor of 10 for class-to-class extrapolations was employed for antimony; arsenic; barium; beryllium; cyanide; nickel; silver; 2,4,5-T; 2,4,5-TP; 2,4-D; heptachlor; benzo(a)pyrene; fluoranthene; and pyrene. Extrapolation between taxonomic classes is not an accepted practice for TRV derivation. Furthermore, NOAELs are available for avian species in Sample et al. (1996) for arsenic, barium, and nickel. The avian TRVs should be used where available. The TRVs which employ class-to-class extrapolations should be replaced with NA for not available.
4. A more conservative NOAEL for endrin is available than the value cited. Sample et al. (1996) includes a screech owl study with a LOAEL of 1E-01 milligram per kilogram per day (mg/kg/day). The most conservative value from an avian study should be used.
5. **Tables 3-1 and 3-2.** Footnote c for Tables 3-1 and 3-2 indicates the "Total Uncertainty Factor= $(1/UF^a * 1/UF^b)$." This equation does not correspond to the values entered in the Total Uncertainty Factor columns in these tables. The equation should be Total Uncertainty Factor= $(UF^a * UF^b)$. Also, footnote d indicates the "Derived Wildlife TRV=Lab Test Result*Total Uncertainty Factor." This would be accurate if the numbers in the Total Uncertainty Factor column had been entered according to the equation given in footnote c. However, given the numbers as entered, this equation should be: Derived TRV=Lab Test Result/Total Uncertainty Factor. The equations should be changed to accurately reflect the values in the tables.
6. **Section 4.1, Paragraph 2, Page 4-1.** This section discusses the exposure point contaminant concentrations. The second paragraph states that, "mean concentrations of COPC were used as exposure point contaminant concentrations." To be conservative, the maximum concentrations detected should be used as well.
7. **Section 5.1, Page 5-2.** This section summarizes the risk assessment approach. The section indicates that the sediment data and the crab tissue data are used to estimate the doses to the raccoons. Raccoons are an omnivorous terrestrial species, thus they would also be potentially exposed to surface soil contamination. The surface soil data should be incorporated into the dose estimates for the raccoon.

8. **Table 5-4, Page 5-15.** This table summarizes the ecological COPCs in minnows. Two of the columns in the table have the same heading "Average Concentration." The last column is presumably the average background concentration. The column heading should be corrected.
9. **Table 5-6, Page 5-17 and 5-18.** This table summarizes the hazard quotients (HQ) for the wildlife receptors. The HQs should be recalculated to incorporate the general comments and specific comments above.

References

- Sample, B.E., D.M. Opresko, and G.W. Suter II. 1996. *Toxicological Benchmarks for Wildlife: 1996 Revision*. Health Sciences Research Division, Oak Ridge National Laboratory, Oak Ridge, TN. June.
- U.S. Environmental Protection Agency (EPA). 1996. *Use of Uncertainty Factors in Toxicity Extrapolations Involving Terrestrial Wildlife*. Office of Research and Development. Washington, D.C. September