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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

APR 27 1992

4WD-RCRA/FF

Mr. R. D. Nelson
Natural Resources and Environmental
Affairs Officer
United States Marine Corps
Marine Corps Air Station
Cherry Point, North Carolina 28533-5001

RE: RFI Draft Final Report Review: Units 5, and 17
Marine Corps Air Station, Cherry Point
NC1 170 027 261

Dear Mr. Nelson:

The Environmental Protection Agency (EPA), Region IV, has reviewed the Draft Final RFI Report (Units 5 and 17 only), dated May 1991, submitted by your facility pursuant to the Section 3008(h) Consent Order. Our review included consideration of both the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requirements.

Based on the review, EPA is hereby approving units 5 and 17 for the Corrective Measures Study (CMS), and the Marine Corps Air Station shall commence work and implement the tasks required by the workplans in accordance with the requirements, specifications, and schedule as stated in the workplans approved by EPA. A draft CMS report for units 5 and 17 will be due on or before October 27, 1992.

The review of the Draft Final report by EPA generated several comments concerning Unit 17. Additionally, the health, environmental, and risk assessment portions of the report were reviewed by an EPA contractor, and the comments may be found in Attachment I. On or before June 15, 1992, the Marine Corps Air Station must submit the Final RFI report that incorporates or addresses these comments.

The EPA has the following comments concerning Unit 17:

Unit 17

1. To further understand the extent of contamination and the context of the report contained within the Unit 17 discussion, a unified numbering system should be developed and implemented. In reviewing the sections of the report referring to Unit 17, the reader could not determine the location of the samples due to a repetitive and complex numbering system.

2. Figure 6-3 of the report illustrates concentrations of PCB's, however, it does not include the creek and several points beyond the shaded area. In addition, as stated above, the data used to illustrate the extent of contamination could not be determined from the figure.

3. Groundwater samples were analyzed for PCB's, however, were not analyzed for the constituents listed in 40 C.F.R. Appendix IX. These constituents should be addressed in the report.

Failure to submit the above reports by the due dates will be considered a violation of the consent order, and may result in EPA taking appropriate action to obtain compliance.

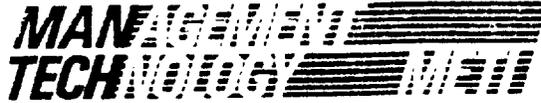
Should you have any questions concerning this letter, please contact Ms. Rebecca Hoffmann of my staff at (404) 347-7603.

Sincerely yours,

Joe R. Franzmathes

Joseph R. Franzmathes
Director
Waste Management Division

cc: N. Johnson, NAV Fac Engr Command, Norfolk VA
Jerome Rhodes, NC DEHNR

MEMORANDUM

DATE: March 3, 1992

SUBJECT: Review of Draft Final RCRA Facility Investigation Report: Units 5, 10, 16, and 17 for Department of the Navy Marine Corps Air Station, Cherry Point, North Carolina

FROM: Krista L. Jones *KLJ*
Scientist

TO: Michael Arnett
RCRA Compliance Section

THROUGH: *fr* Elmer Akin *KPK*
Health Assessment Officer

REFERENCE: TID 04-9201-064
ESAT-4R-5011

Per your request, I have reviewed the Draft Final RCRA Facility Investigation Report for the Department of the Navy Marine Corp Air Station facility in Cherry Point, North Carolina. As requested, my review focused on Units 5 and 17; therefore, Sections 4 and 5 were given only a cursory review. However, any general comments on the health and environmental assessment and/or the baseline risk assessment (comments on Section 2) will also apply to Units 10 and 16 (Sections 4 and 5). The following numbered comments should be conveyed verbatim to the contractor.

- 1.) Section 2.4.1, page 2-20, paragraph 3, first sentence. The sentence should be changed to read "Even if no individual chemical exceeds its action level in a particular medium, the total risk from all contaminants may need to be assessed to determine whether a CMS may be required."
- 2.) Section 2.4.2, page 2-21, paragraph 1. No background soil samples were collected during the RFI; therefore, site analytical data were compared with metal values obtained from literary sources. The literature values presented in Table 2-3 are the mean values for metals in the eastern United States. Typical metal ranges for a more region-specific area (i.e., Craven County) should be used. EPA prefers site-specific background data.
- 3.) Section 2.4.2, page 2-21, paragraph 2. A representative concentration for each chemical of concern was calculated by

ManTech Environmental Technology, Inc.

using Equation 11.6 of Statistical Methods for Environmental Pollution Monitoring (Gilbert, 1987) to arrive at the 95% upper confidence limit for normal distributions. However, environmental data often come from a lognormal distribution which is highly skewed to the right (i.e., "hot spots"). To account for this deviation from a normal distribution, Chapter 13 of this book presents methods for estimating the mean, standard deviation, and confidence limit for lognormal distributions. Equation 3.13 should be used to calculate representative concentrations for each chemical of concern. Also, a one-sided limit should be used instead of a two-sided limit.

- 4.) Section 2.4.3, page 2-27, Table 2-4. The Health-Advisory data should be changed to reflect the updated November 1991 values (the table uses data from the November 1990 report). The appropriate reference doses and slope factors should also be listed in the carcinogenic risk and hazard quotient tables for each unit.
- 5.) Section 2.4.3, page 2-30, Table 2-4. Relative slope factors were assigned to benzo(a)anthracene, benzo(a)fluoranthene, chrysene, and dibenzo(a)anthracene based on a slope factor of 11.5 kg-day/mg for benzo(a)pyrene. Region IV has recently adopted a toxicity equivalency factor methodology for carcinogenic PAHs based on the relative potency of each compound to the potency of benzo(a)pyrene. This approach should be incorporated into the document. The attached memo outlines this methodology as well as other new interim Region IV Guidance.
- 6.) Section 2.4.4.1, page 2-38. There is no mention of the potential for inhalation exposure as a result of either of the following mechanisms: (1) volatilization and/or particulate emissions from contaminated surface soil or (2) volatilization of contaminants in groundwater during water use (i.e., cooking or showering). Although these exposure routes are not specifically addressed in the RFI Guidance for the health and environmental assessment process, these pathways should at least be discussed in the baseline risk assessment.
- 7.) Section 2.4.4.2, page 2-39. Three separate populations should be considered when evaluating exposure to soil: (1) base personnel; (2) adolescent trespassers; and (3) maintenance/construction workers. Base personnel who are not involved in maintenance activities may also be exposed to surficial soil while at the work place. All three populations should be carried through the quantitative risk assessment so that cancer risks and hazard indices are calculated for each individual population. "Standard Default Exposure Factors"

(OSWER Directive 9285.6-03, March 1991) provides standard default values for the commercial/industrial setting.

Unless there are site-specific reasons for not evaluating exposure to base personnel during a normal work day (other than during maintenance or construction), the following exposure assumptions should be used for each population:

<u>Population</u>	<u>EF</u>	<u>ED</u>	<u>IR</u>	<u>SA</u>	<u>BW</u>	<u>LT</u>
Base Personnel	250	25	50	3,160	70	70
Adolescents	12	7	100	2,260	50	70
Maintenance	260	1	480	3,160	70	70

Representative soil concentrations appear to be based on samples that were collected at depths of less than 3 feet below land surface. How deep are the utility lines at the facility? If utility lines are deeper than 3 feet, then exposure to deeper soils should be evaluated for the maintenance/construction population as well as exposure to the surficial soil. Also, in accordance with the new interim Region IV Guidance (see attached memo), the soil adherence factor should be changed to a value in the 0.2 to 1.0 mg/square cm. range and the absorption factors should be changed to 1.0% for organics and 0.1% for inorganics.

- 8.) The following comments relate to Tables 2-6 through 2-9 and the associated text.

Table 2-6. This table should reflect exposure assumptions for the three populations listed in Comment #7. In addition to the changes listed above, a more specific rationale should be given for the selection of a FI value of 0.10.

Table 2-7. According to "Standard Default Exposure Factors" and the RFI Guidance, a child population does not need to be evaluated for ingestion of groundwater. Delete the ingestion rate and body weight references for children.

Table 2-8. Why was the maximum concentration detected in surface water used in the calculations instead of the upper confidence limit?

Table 2-9. Chemical-specific PC values should be used when the data are available, otherwise the PC for water should be used. The PC for water is $1E-03$. Once again, why was the maximum concentration in surface water used?

- 9.) Section 2.4.4.2, page 2-40, paragraph 3, third sentence. The sentence should be changed to read "Exposure duration is only

used for the calculation of a lifetime cancer risk. The approach for carcinogens is based on the assumption that a high dose received over a short time is equivalent to a correspondingly low dose spread over a lifetime. Therefore, when calculating carcinogenic risk for adolescent trespassers, an exposure duration of seven years (ages 8-14) will be used in conjunction with the lifetime value of 70 years.

- 10.) Section 3.4.3, page 3-47, paragraph 3. Methylene chloride was detected in sediment during the preliminary site investigation. There is no further mention of methylene chloride in the document. Please provide an explanation for eliminating this compound from the discussion when considering the effects of sediment on environmental receptors.
- 11.) Section 3.6, page 3-47. Although most of the individual soil constituents did not exceed their respective action levels in the screening level health assessment, the overall risk may still deem that a CMS is required since there were so many constituents detected in the soil. In accordance with Section 2.4.1, an evaluation of the chemical mixtures should be completed before the chemicals that do not exceed their respective action levels are excluded from the baseline risk assessment.
- 12.) Section 3.7.3. The reviewer was able to duplicate the carcinogenic risks and hazard quotients for soil exposure at Unit 5. However, the exposure doses listed in Table 3-16 only show chronic daily intakes (intakes that are averaged over the period of exposure). These intakes are only appropriate for calculating noncarcinogenic effects. The lifetime intakes (intakes that are averaged over a lifetime of 70 years) should also be presented in all exposure dose tables throughout the document so that carcinogenic risk can be readily verified.

When calculating risk from dermal exposure, toxicity values that are expressed as an administered dose (reference doses and cancer slope factors) must be converted to an absorbed dose. Refer to Appendix A of the Risk Assessment Guidance for Superfund, Volume 1, for guidance on how to make this conversion. A table should be included in the risk assessment that summarizes the adjusted toxicity values and absorption rate used to make the adjustment. This comment applies to the calculation of risk for all units.

- 13.) Section 3.3.1.2, page 3-64. The RFI focuses on soils that are less than five feet below land surface (bls). Although organic contaminants were infrequently detected at depths greater than five feet bls, the text should include an explanation in this section as to why leaching tests will not

be used to assess the potential for release of contaminants to ground water from the deeper soils (5.5 - 10 feet bls). There is a statement in Section 2.4 that mentions that these tests may be conducted.

- 14.) Pages 6-1 through 6-4 were missing from the document.
- 15.) Section 6.4.1, page 6-12. paragraph 3, fifth sentence. The North Carolina clean-up goal for PCBs is 5,000 ug/kg and the EPA standard for nonresidential areas is 10,000 ug/kg. The units should be changed in the document.
- 16.) Section 6.4.1, page 6-12. PCBs were detected in 14 of 17 surficial soil samples (0-0.5 ft) and 4 of 5 shallow subsurface soil samples (2-2.5 ft). PCBs were not detected in the single deep subsurface soil sample (3-3.5 ft) that was collected. However, the deep sample was collected from the boring that also did not have a hit at the shallow subsurface soil depth. Since PCBs were detected in 4 out of the 5 shallow subsurface soil locations, it is recommended that additional soil samples be collected from the 2.5 - 3.5 ft depth interval to fully delineate the extent of contamination.



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New Interim Region IV Guidance:

- (1) As an interim procedure, until more definitive Agency guidance is established, Region IV has adopted a toxicity equivalency factor (TEF) methodology for carcinogenic PAHs based on each compounds relative potency to the potency of benzo(a)pyrene (BaP). The following TEFs should be used to convert each cPAH concentration to an equivalent concentration of BaP:

<u>Compound</u>	<u>TEF</u>
Benzo(a)pyrene	1.0
Benzo(a)anthracene	0.1
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.1
Chrysene	0.01
Dibenzo(a,h)anthracene	1.0
Indeno(1,2,3-c,d)pyrene	0.1

Also, EPA's CRAVE workgroup has verified a new cancer slope factor (CSF) for BaP. The CSF is $5.8 \text{ (mg/kg/day)}^{-1}$.

- (2) The following absorption factors (including the soil matrix effect) should be used in determining the risks associated with dermal exposure to contaminated soils.

1.0 % for organics
0.1 % for inorganics

- (3) The soil to skin adherence factors given in EPA's Risk Assessment Guidance to Superfund (RAGS) are 1.45 mg/cm^2 to 2.77 mg/cm^2 . Because of new data in this area, this range should be changed to 0.2 to 1.0 mg/cm^2 .

Agency-wide guidance in these areas is pending.