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LETTER AND U S NAVY RESPONSE TO U S EPA COMMENTS TO HUMAN HEALTH RISK
ASSESSMENT MEMORANDUM NAS CECIL FIELD FL
1/8/1993
NAVFAC SOUTHERN

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Code 1852

JAN 08 1993

Mr. James Hudson
U.S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30365

Subj: HUMAN HEALTH RISK ASSESSMENT MEMORANDUM
RESPONSE TO COMMENTS, NAS Cecil Field

Dear Mr. Hudson:

Enclosed are responses to the United States Environmental Protection Agency's (USEPA) comments on the Human Health Risk Assessment Methodology (HHRAM). The text of the HHRAM will not be modified; however, your comments will be incorporated into the Baseline Risk Assessment (BRA) when it is completed.

Should you have any questions concerning these responses, please contact Mr. Cliff Casey, Code 1852, at (803) 743-0561.

Sincerely,

J. B. MALONE, P.E.
Head, Installation Branch
Restoration 1 Branch

Encl:

(1) Response to USEPA HHRAM Comments

Copy to:

FDER (Eric Nuzie) (w/encl)
NAS Cecil Field (Code 20IR) (w/encl)

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**Responses to USEPA's Comments on the Human Health Risk Assessment Methodology
Technical Memorandum, NAS Cecil Field**

Comment: "EPA is unable to determine from this document if the resulting Baseline Risk Assessment (BRA) will be valid and defensible. This Technical Memorandum is not a usual submission in the risk assessment process and the scope of work is unclear to define."

Response: The intent of the HHRAM TM was to describe the methodology that will be used in the BRA of the Remedial Investigation (RI) to be conducted for OUs 1, 2, and 7 at NAS Cecil Field and to streamline and expedite the writing of the BRA in the future. This has been achieved by opening the lines of communication on issues that require discussion.

Comment: "The Baseline Risk Assessment (BRA) should include both current and future risks posed by a site. Per RAGS (page 1-11) baseline risks are risks that might exist if no remediation or institutional controls were applied to the site."

Response: The Navy agrees. The BRA will consider baseline risks (current and future) that might exist if no remediation or institutional controls were applied to the site.

Comment: "The Baseline Risk Assessment for each site at this facility should include future residential (adult and child) scenarios."

Response: The Navy agrees with some parts of this comment, but not all. As stated in Section 5.0, adults and children will be included as part of the future resident scenario at each site at OUs 1 and 2. However, a future resident scenario at OU 7 will not be completed in the BRA because of the location of the site in relation to the NAS Cecil Field runways and industrial workshops. Only a future industrial scenario will be completed for OU 7. This decision is in agreement with the supplementary guidance for risk assessment provided by USEPA Region IV. (See: Response 11 of ABB-ES letter from Kathleen O'Neil to Cacky Barefoot, SOUTHDIV. re., Meeting Minutes for the Region IV Regulatory Risk Assessment Meeting; Tallahassee, FL; October 22, 1991).

Comment: "Also, since the standard industrial scenario (250 days/year exposure) is not included as a current scenario it should be included as a future scenario to show the risks to workers if a change in land use resulted in workers spending all of their work day at the site."

Response: The Navy agrees with some parts of this comment, but not all. An industrial scenario was not proposed for OUs 1 and 2 in the HHRAM TM because it was believed that the future resident scenario would adequately characterize the maximal risks associated with the site in the future. The standard industrial scenario will be included for OU 7 in the BRA.

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Comment: "Comparison of sampling data to Screening Criteria Values (SCVs) is not consistent with "Risk Assessment Guidance for Superfund: Volume 1 - Human Health Evaluation Manual (Part A)" (RAGS) and the applicability of such a comparison should be reconsidered. As presented in this document SCVs consider exposures via ingestion only. Dermal and inhalation exposures could add significantly to the total risks. Eliminating contaminants from the contaminants of concern list based on standard exposure scenarios (ingestion only) at a 1×10^{-6} risk level could potentially eliminate contaminants with total risks exceeding 1×10^{-6} ."

Response: The Navy does not agree. On page 5-23 of RAGS, the use of a concentration-toxicity screen is discussed. The objective of a screening procedure as identified in RAGS is to identify the chemicals in a particular medium, based on concentration and toxicity, that are most likely to contribute significantly to risks calculated for the exposure scenarios involving a medium.

USEPA Region IV also supports the use of screening criteria values. (See: Response 6 of ABB-ES letter from Kathleen O'Neil to Cacky Barefoot, Southern Division Naval Facilities Engineering Command. re., Meeting Minutes for the Region IV Regulatory Risk Assessment Meeting; Tallahassee, FL; October 22, 1991) USEPA Region IV has stated their preference to remove contaminants that do not contribute significantly to the risk from the risk calculations. Further, they have suggested using media specific risk-based concentrations that are calculated by assuming residential exposures and calculating risk-based levels in water, air, and soil using an acceptable risk level of 10^{-6} .

Risk-based concentrations will be calculated by assuming residential exposures and calculating risk-based levels in water, air, and soil. Algorithms will follow USEPA guidance for carcinogens and non-carcinogens. Each risk-based concentration will be calculated using toxicity constants obtained from the USEPA Integrated Risk Information System (IRIS) or the USEPA Health Effects Assessment Summary Tables (HEAST). For example, the risk-based concentration for water will be calculated using an algorithm that takes into account water ingestion rates, oral CPS, oral RfDs, as well as, inhalation rates, inhalation CPS, and inhalation RfDs.

The risks associated with dermal contact in the case of the risk-based concentration calculation for water is not believed to be a significant contributor to the overall risk associated with water, so this pathway will not be used in the algorithm. Values will also be calculated for fish ingestion if this is found to be a relevant exposure pathway.

Professional judgement will be used to determine if a chemical is to be included in the BRA.

Comment: "Sediments should be addressed in a human health risk assessment if they are available for direct contact exposures."

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Response: The Navy agrees. The surface water and sediment contact scenarios will be included in the BRA. The current recreational uses of the land surrounding scenic bodies of water (bodies of water designated for recreation, propagation, and management of fish and wildlife *i.e.*, Lake Fretwell) on the NAS Cecil Field Facility suggest that contact with surface waters (*i.e.*, wading, swimming) may occur at a low frequency (12 days/year) and exposure duration (1.3 hours/day). The frequency is one-quarter the recommended value and the duration is one-half the value recommended by EPA for the southeast region. The Navy feels these frequencies are sufficiently conservative to evaluate risk because of the signs posted warning against swimming, wading, and alligators in the waters suggest that this activity is unlikely. The evaluation of current risks at OUs 1 and 2 will include exposure to both surface waters and sediments in the BRA.

Exposure to surface waters and sediments at OU 7 will not be considered because the individuals that infrequently contact Site 16 are not expected to contact recreational bodies of water which are greater than 1,000 feet away.

Future exposures to surface waters and sediments are possible and will be included in the BRA for OUs 1 and 2. This change in the methodology is based on the probability that, in the future, property near attractive bodies of water may become residential. In this event it would be probable and realistic that the waters would be cleared of alligators, and made available for swimming to encourage property occupancy.

Future surface water and sediment exposures associated with OU 7 will not be considered because it is highly unlikely that the area surrounding OU 7 will be changed from industrial to residential use.

In both the current and future scenarios for surface water and sediment contact, sediments will be evaluated using EPA guidance for surface soils.

Comment: "Sediments in an intermittent stream are available for direct exposures (ingestion, inhalation, and dermal) when there is no water in the stream. Exposures to sediments under water could occur through ingestion or dermal routes."

Response: While the Navy agrees with the commentor that, in general, contact with sediments in dry stream beds can be a relevant exposure pathway when intermittent streams are identified at a site, such streams have not been identified at OUs 1, 2, and 7 at NAS Cecil Field. If, however, an intermittent stream is identified in the future at NAS Cecil Field, the stream bed would be assessed using surface soil scenarios rather than sediment contact associated with swimming scenarios.

Comment: "Pesticides should not be considered as background constituents for the purpose of the Baseline Risk Assessment; the Baseline Risk Assessment should include all risks posed by a site *regardless of source* [emphasis added]. It would be appropriate to discuss the

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uncertainties related to background pesticides in the uncertainties section."

Response: The Navy does not agree. This comment does not take into account background risks due to naturally occurring metals at the site nor does it take into account risks which may be present at the site due to the presence of anthropogenic chemicals.

Supplemental Region IV Risk Assessment Guidance clearly allows for screening of inorganic chemicals detected at concentrations less than 2 times the background. In addition, RAGS, page 4-5 explicitly uses pesticides as an example of a possible type of anthropogenic background chemical. If pesticides are detected in background soil, sediment, or groundwater samples, those pesticides may be considered as part of background if the pesticide is not associated with a CERCLA site. The judgement will be based on the concentration of the pesticide detected in the background samples versus concentrations measured in the on-site samples.

In general, facility wide background samples will be analyzed for all possible potential contaminants at each site. Location of these background samples will be taken in areas that are up gradient of hazardous waste sites. Background samples are proposed in the *Technical Memorandum for Supplemental Sampling at Operable Units 1, 2, and 7*.

Comment: "The equation presented for the 95% UCL is appropriate for data which has been log transformed. It would be inappropriate to use the equation presented if the data had not been log transformed. The sentence following the equation in Section 3.1.1 should be deleted from the text."

Response: The Navy agrees.

Comment: "Figure 2-7 should include inhalation exposure to contaminated surface soils via volatile emissions and dust."

Response: The Navy agrees with parts of this comment but not all of it. Although vegetation covers the majority (>80%) of OU 1, the conceptual model for OU 1 in the BRA will include an exposure pathway for the inhalation of dust. Exposure point concentrations of soil particulates will be modeled by using the Cowherd model as described in the HHRAM TM. Since there is no reason to believe that volatile organic compounds have been disposed at OU 1 (old and new landfills), an exposure scenario including the inhalation of volatile emissions at OU 1 is not anticipated to be included in the BRA.

However, if concentrations of volatiles are detected at the landfills at levels of concern, the risks associated with the inhalation of volatile emissions at OU 1 may be considered as part of the overall risk at OU 1. The judgement for inclusion will be based on the concentration of the volatiles detected in the on-site samples.

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Comment: "Figure 2-9 should include residential exposures."

Response: The Navy does not agree. A future resident scenario is not appropriate for OU 7 because of the low probability that a future resident will ever be associated with the site. OU 7 is an active industrial setting located in close proximity (400 feet) to the NAS Cecil Field air strip that serves the Navy. Because of the dimensions of the runways, it is highly unlikely that the area surrounding the runways (including OU 7) would be converted from airport/industrial use to residential property. However, a future industrial scenario will be included at OU 7 as discussed in a previous comment. This is consistent with Supplemental Guidance for Risk Assessment from USEPA Region IV.

Comment: "It is unclear why site workers would be exposed to contaminant emissions from groundwater at OU 7 and not at OUs 1 and 2."

Response: The exposure of individuals to volatile emissions at OU 7 is proposed for evaluation in the BRA because of the high volumes of solvents associated with the site's history, and its close proximity (less than 400 feet) to Navy facilities that house occupational workers. It is anticipated that data collected from OU 7 will indicate levels of volatile and/or semi-volatile chemicals, and therefore, the inhalation of volatiles will be addressed as a viable exposure pathway by site and occupational workers. It is highly likely that the solvents used historically at the site have seeped from the pit at OU 7, percolated into the soil which has in turn transferred to the groundwater, and the chemicals have then volatilized to ground surface from both the soil and groundwater.

Because of the high volume of solvents associated with OU 7 it is the only operable unit that we anticipate the need to evaluate the inhalation of the volatilized chemicals. However, volatile chemicals will be analyzed for at all sites, including OUs 1, 2, and 7, in conjunction with analyses completed on surface soils and groundwater. If a sufficiently high concentration of a particular volatile chemical is discovered at these OUs, the specific conceptual model for that operable unit would include an evaluation of the volatilization of chemicals.

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