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NAS WHITING FIELD
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LETTER REGARDING DRAFT REMEDIAL INVESTIGATION REPORT FOR SITES 3, 4, 6, 30, 32 AND 33 NAS WHITING FIELD FL
2/23/1999
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

FLORIDA

Department of Environmental Protec

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Jeb Bush
Governor

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

David B. Struhs
Secretary

February 23, 1999

Ms. Linda Martin
Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive, PO Box 190010
North Charleston, SC 29419-9010

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RE: Draft Remedial Investigation Report, Site 3, 4, 6, 30, 32 and 33, NAS Whiting Field

Dear Ms. Martin:

I have reviewed the subject document dated September 1998 (received October 6, 1998). The document is the first RI that does not address ground water at the various sites as a result of the decision by the Navy to address ground water on a basewide level. This makes evaluation of the sites difficult in that the relationship between site soils and the ground water is not actually known. In spite if that, I have completed my review. Please address the following comments and the comments from Dr. Steve Roberts, which are attached to this letter:

1. The title of the report should be "The Remedial Investigation Report for Surface and Subsurface Soil at..."

2. At the conclusion of each site investigation, recommendations regarding possible well placement should be included in a ground water assessment or a statement as to why none are recommended should also be included.

3. The map on page 1-2 shows essentially nothing and should be revised.

4. Similar to Table 1-1, a table showing the number, supposed contents and disposition history of all ASTs and USTs at each site should be prepared. Additionally, please insure that accurate (to the degree possible) locations are shown on appropriate figures.

5. Was Building 1478, the old transformer repair shop, and the surrounding area, evaluated? Refer to page 1-9.

6. Refer to page 1-12: what is APU thinner? What was the nature (unpaved ditch, concrete pipe, etc.) of the storm sewer at the wash rack? What is (was) the nature of the cleaning solution (that was used at the rate of 4200 gallons per year)?

7. Refer to page 1-13: what was the disposition of the tank at Building 1454 (is it in the new table)?

8. Section 1.4, Regulatory Setting: as discussion of the appropriate Florida rules and regulations should be included, including a discussion of the leaching testing and data application that is required by Florida.

9. The Navy intends to evaluate ground water at NAS Whiting Field as a separate endeavor; however, there is some question as to the practicality of doing this in light of the fact that the state of the art of investigation at IRP sites has developed along the lines of a continuing and consequent knowledge of site soil and ground water. I question the ability of the Navy to adequately conduct site assessments and soil assessments on a strictly separate basis, especially in cases where a ground water investigation may precede the complete soil investigation. When the NAS Whiting Field Partnering Team was considering making the ground water a separate site, my thinking along those lines primarily concerned how we would deal with the remedial aspects of the ground water at NASWF and not necessarily with the assessment aspects of each site; now, I am questioning the wisdom of our actions. I am requesting that we revisit that decision at an early date and confirm that the decision was correct. If it is not the best way to pursue the investigations, we should be prepared to modify our actions accordingly.

10. Section 5.1, Geologic Setting and at site-specific discussions: these various site-specific discussions concerning perched water tables and clay layers should also be consolidated as one section that pertains to the absence or presence of (a) perched zone(s). This is important in that such a zone(s) may be a continuing source of contamination to the ground water and deeper zones at a particular site, which has great implications as to whether a site has been sufficiently evaluated after the usual surface/subsurface investigation(s). Maps and isopachs should also be presented for that (those) zone(s), if those data are available.

11. Table 5-2, 5-6 and other similar tables for other sites should also consider leachability values as compared to the appropriate leachability values for soils in Chapter 62-785, F.A.C.

12. Section 5.2, Soil Assessment: please insure that the data from the investigation sufficiently characterizes the areal extent of any contaminants, to the degree that the data can be utilized to prepare IM or FS tasks for any necessary remedial action(s). Please be aware that insufficient contaminant delineation during the RI phase has necessitated additional delineation during remedial actions. If the present conditions of separate soil and ground water investigations continues, this becomes more important.

13. Section 5.2.1.1, Surface Soil: please present assurance that comparison of the soils at this and all other sites are compared to the background soil type, in this case, to the Troup Loamy Soil, and that graphic presentations of such data such as Figure 5-1 (and all similar

figures) sufficiently characterize the areal extent of contamination, as previously mentioned in the comments on Section 5.2.

14. Please carefully consider the comment from page 2 of Dr. Roberts' letter regarding "a thick layer of concrete" serving to prevent a complete exposure pathway at certain sites. It is important that the Navy address this concern, as it is directly related to the problem of not only future exposure risks, but also in the future when the concrete may be removed or repaired, when it may contaminate the surface/subsurface soil and ground water by virtue of leaching from soil that was formerly covered by concrete. Has the Navy adequately addressed both the risk and the leaching scenario for any or all of the sites that are covered in the RI? If not, we need to discuss this and assure that it has been addressed properly.

I appreciate the opportunity to review this document. If you have questions or require further clarification, please contact me at (904) 921-4230.

Sincerely,

James H. Cason, P.G.
Remedial Project Manager

Attachment (1)

cc: Craig Benedikt, USEPA Atlanta
Phillip Ottinger, Tetra Tech NUS, Oak Ridge

TJB JRC JJC JJL ESN ESN

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December 29, 1998

Ligia Mora-Applegate
Florida Department of Environmental Protection
Bureau of Waste Cleanup
Room 471A, Twin Towers Office Building
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400

Dear Ms. Mora-Applegate:

At your request, we have reviewed the *Remedial Investigation Report* (RIR) for Sites 3, 4, 6, 30, 32, and 33 at Naval Air Station Whiting Field, located in Milton, Florida. The RIR was prepared by Tetra Tech NUS, Inc. (Tetra Tech) and dated September, 1998. Based upon our review, we have the following general and specific comments.

Human Health Risk Assessment

General Comments

Soils at this site were screened against Florida Soil Cleanup Target Levels (SCTLs) and Region III Risk-Based Concentrations (RBCs). However, the preference of FDEP is to screen all soil samples against values for leachability based on groundwater criteria, found in Table I of the Technical Report for Chapter 62-785, F.A.C. Screening against leachability numbers will have some impact on the selection of chemicals of potential concern (COPCs) for this site. For example, for subsurface soils at Site 4, chloromethane, ethylbenzene, toluene, total xylenes, 2-methylphenol, and n-nitroso-di-n-propylamine would be included as COPCs. As calculated at present and included in this report, risk/hazard estimates may change somewhat, therefore this RIR may be of limited use as a risk management tool.

It should also be noted that subsurface soil was screened against industrial/commercial SCTLs/RBCs. This further limits the usefulness of this RIR from a risk management standpoint. When calculating risk/hazard based on future residential

use, the screening of subsurface soil against industrial/commercial values implies that site soils would not be disturbed if this area were to undergo residential construction.

Specific Comments

Iron was inappropriately screened out of the COPC selection process based on its status as an essential nutrient. According to Region IV guidance, iron may not be eliminated for this reason. Chemicals which may be eliminated as essential nutrients (if their concentrations are such that they do not pose a risk) are calcium, chloride, iodine, magnesium, phosphorus, potassium, and sodium.

It should be noted that, since this RIR was submitted in September, 1998, an updated Region III RBC Table has been released. The RBC for chromium VI in soil has been revised, for residential exposure from 390 mg/kg to 230 mg/kg and for industrial/commercial exposure from 10,000 mg/kg to 6,100 mg/kg. The value of 230 mg/kg for residential contact is below the Florida residential SCTL for chromium VI (290 mg/kg). This change should be reflected in tables as appropriate, and chromium VI should be included as a COPC where the screening values are exceeded.

There are discrepancies between sampling reports as stated in Section 5 (Investigative Results) and Section 6 (Human Health Risk Assessment). For example, Tetra Tech states on page 5-30 that "twenty-four subsurface soil samples and five duplicates were collected at Site 4 in 1998 and analyzed for VOCs, SVOCs, Pesticides/PCBs, TPH, and metals." Table 5-8 (Summary of Subsurface Soil Analytical Results at Site 4) lists 52 analytes and also indicates that 24 samples were analyzed for this Site. However, Tetra Tech indicates on page 6-5 that one sample was collected at Site 4 from 2-15 feet below ground surface (bgs) and six samples were collected from 2-22 feet bgs, for a total of seven samples. Tables 6-4A and 6-4B (Occurrence, Distribution, and Selection of Chemicals of Concern for Site 4 Subsurface Soil) also indicate that seven samples were analyzed for Site 4, and Table 6-4B lists 44 analytes. Although it appears that the samples in Section 6 may be a subset of the samples in Section 5, it is unclear a) why there is a discrepancy in the number of samples and b) which section contains the correct data. The same type of apparent discrepancy also exists for Site 3 subsurface soil, Site 6 subsurface soil, Site 30 surface soil, Site 32 subsurface soil, and Site 33 subsurface soil.

Regarding Sites 32 and 33, Tetra Tech states on page 6-22 that "a thick layer of concrete covers the surface soil at Site 32 [and Site 33]. Therefore, a complete exposure pathway does not exist." It should be made clear that a complete exposure pathway does not exist *at the present time*. Unless there is some mechanism to ensure that a thick layer of concrete overlies these sites *both now and in the future*, risk/hazard for future use should be predicated upon exposure to surface soils. Also regarding these sites, it is

stated on page 6-52 that "if the concrete would be removed, clean fill would be used as the replacement." Is there some mechanism in place to ensure that this would be the case?

Risk/hazard from inhalation exposure was not calculated for any receptor because "inhalation exposures represent a relatively minor exposure relative to dermal and ingestion pathways (Table 6-11, Selection of Exposure Pathways)." Rather than disregard potential risk/hazard from inhalation exposure, Tetra Tech should include this exposure pathway in the calculations. For example, since chromium VI is a carcinogen only through the inhalation route, potential cancer risks from this COPC were not calculated. After inhalation risk/hazard from COPCs is determined, it can then be concluded whether the risk/hazard is negligible.

There seems to be some confusion as to the derivation of dermal toxicity factors. In Section 6, Tables 6-23 and 6-24 (Non-Cancer Toxicity Data – Oral/Dermal and Cancer Toxicity Data - Oral/Dermal, respectively), Tetra Tech presents the oral toxicity values, oral to dermal adjustment factors (i.e., gastrointestinal absorption), and adjusted dermal toxicity values for COPCs. Region IV guidance states that when "appropriate data are available on oral absorption of a specific chemical, they should be used to make the administered/absorbed dose adjustment...in the absence of chemical-specific data, the Region IV OTS has adopted the following oral absorption efficiencies...80% for volatile organic chemicals, 50% for semi-volatile organic chemicals, 20% for inorganic chemicals." For all the COPCs listed, data for gastrointestinal (GI) absorption are available from either the ATSDR Toxicant Profiles or the Hazardous Substances Data Bank (HSDB). The table below lists COPCs identified by Tetra Tech, the GI absorption used in this RIR to extrapolate dermal toxicity factors, and the chemical-specific absorption factors. Tetra Tech references Region IV supplemental guidance to RAGS as the source for its GI absorption factors; however, the guidance as quoted above is the only guidance specified by Region IV. It should be noted that correction of the GI absorptions will also change the dermal toxicity values used by Tetra Tech in the RIR.

COPC	GI Absorption Used by Tetra Tech	Literature GI Absorption	Reference
Aroclor-1260	0.9	0.85	ATSDR
arsenic	0.41	0.95	ATSDR
aluminum	0.1	0.04	ATSDR
benzo(a)anthracene	0.31	0.5	ATSDR
benzo(a)pyrene	0.31	0.5	ATSDR
benzo(b)fluoranthene	0.31	0.5	ATSDR
benzo(k)fluoranthene	0,31	0.5	ATSDR
chrysene	0.31	0.5	ATSDR
dibenz(a,h)anthracene	0.31	0.5	ATSDR
indeno(1,2,3-cd)pyrene	0.31	0.5	ATSDR
dieldrin	0.5	1.0	HSDB
chromium VI	0.02	0.013	ATSDR
vanadium	0.01	0.03	ATSDR

Receptor-specific exposure parameters (both reasonable maximum exposure [RME] and central tendency [CT]) are presented in Appendix D-1. The exposure parameters for an older child trespasser are listed in Table D1-1. The surface area for this receptor is 1,013 cm^2-year/kg. The surface area should be derived assuming a child receptor has the hands, one-half the arms and one-half the legs available for dermal contact (i.e., wearing shorts and a short-sleeved shirt). As Tetra Tech has not specified the age of the older child trespasser, they should do so and derive an appropriate surface area. The construction worker scenario parameters (Table D1-6) are for RME only, and the exposure frequency and duration for these workers is 30 days/year for one year. Since the length of construction projects frequently seem to exceed one month, this value seems to be more indicative of CT than RME. A more conservative approach would be to assess the short-term construction worker (i.e., 30 days/year) and the longer-term construction worker (i.e., 60-90 days/year). Additionally, for non-carcinogens, if the exposure frequency is set to 30 days, then the averaging time should be 42 days (30 days plus weekends). Tetra Tech instead incorrectly used an averaging time of one year.

Cancer risk calculations are shown in Appendix D-5. In several of the tables in this section, the cancer slope factors are incorrectly listed and appear to be oral reference doses instead. However, the cancer risks appear to have been calculated correctly. In all of the tables for adult/child residential receptors, the COPC-specific intake values are not listed.

Ecological Risk Assessment

Tetra Tech dismisses ecological receptors to most of the sites in this RIR on the basis of noise from adjacent taxiways and runways. However, there are well-documented populations of terrestrial wildlife in busy metropolitan airports, most notably (in Florida) rabbits and burrowing owls. It has also been demonstrated that industrialization and human activity do not preclude use of an area by potential ecological receptors. It is unclear, however, if a walk-through assessment of any populations of ecological receptors has been performed at this site. It is further stated on pages 7-3, 7-4, and 7-5 that "no rare, threatened, or endangered species are located on or near the site (Lancaster, 1998)." There is no reference for Lancaster; however, there is a reference for Lassiter, which is perhaps what the authors intended to state.

Table 7-2 lists toxicity reference values for the selected endpoint ecological receptor species. These values were generally taken from the 1996 revision of *Toxicological Benchmarks for Wildlife*. Although the Benchmarks provides estimated *wildlife* toxicity values extrapolated from values measured in laboratory animal models (usually rats or mice), Tetra Tech uses the toxicity value (NOAEL and LOAEL) determined in the laboratory species. The Benchmarks does not extrapolate toxicity values for all representative ecological species chosen by Tetra Tech, but when this is the case, the extrapolated values should be used. For example, for aluminum, Tetra Tech

uses the NOAEL and LOAEL determined in the mouse, when an extrapolated value is given for the red fox, which is an endpoint terrestrial ecological receptor chosen for the analysis. Additionally, it would be helpful if intermediate food chain modeling calculations were provided. Again using the risk to the red fox from exposure to aluminum, at Site 3 the hazard quotient based on a NOAEL is listed as 5.7E+02. In reproducing this calculation, using equations provided in the ERA and input values as shown in Tables 7-2 and 7-4, it appears that this value should be 1.2E+03 using a NOAEL for a laboratory mouse (1.93 mg/kg/day). When the extrapolated NOAEL for the red fox is used (0.551 mg/kg/day), the hazard quotient becomes 4.3E+03. Tetra Tech should therefore confirm calculations presented in this section, and further confirm that toxicity reference values are the most appropriate for the chosen endpoint ecological receptors.

We hope that these comments are helpful. Should you have any further questions, please do not hesitate to contact us.

Sincerely,

Christine H Halmes

N. Christine Halmes, Ph.D.

Stephen M. Roberts

Stephen M. Roberts, Ph.D.

cc: James Cason