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U S NAVY RESPONSES TO U S EPA COMMENTS TO REVIEW ITEM FOR DRAFT FINAL
PHASE II EBS DECISION DOCUMENT AREA 110 SOUTHEAST ANTENNA FIELD WITH
TRANSMITTAL NAS SOUTH WEYMOUTH MA

09/02/2009

TETRA TECH NUS



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C-NAVY-09-09-3298W

September 2, 2009

Project Number G02073

Mr. Brian Helland, RPM
BRAC PMO, Northeast
4911 South Broad Street
Philadelphia, Pennsylvania 19112

Reference: CLEAN Contract No. N62470-08-D-1001
Contract Task Order (CTO) No. WE11

Subject: Review Item Area 110, Southeast Antenna Field, Final Decision Document
Naval Air Station South Weymouth, Weymouth, Massachusetts

Dear Mr. Helland:

Tetra Tech NUS, Inc. (TtNUS) has prepared the final Decision Document for Review Item Area 110, Southeast Antenna Field, Naval Air Station South Weymouth, Weymouth, Massachusetts. The document has been revised to incorporate the August 12, 2009 responses to comments received on the draft final document. Following receipt of regulator concurrence with the No Further Action recommendation, the property will be ready for transfer.

Through copy of this letter, the final Review Item Area 110 Decision Document is being provided to the recipients listed below. Any questions regarding this document should be directed to your attention at (215) 897-4912. Please contact me at (978) 474-8403 should you have any questions.

Very truly yours,

Phoebe A. Call
Project Manager

PAC/lh

Enclosure

c:
D. Barney, Navy (w/encl. – 1 paper copy, 1 CD)
B. Capito, Navy (w/o encl.) (electronic)
K. Keckler, EPA (w/encl. – 3 paper copies, 3 CDs)
D. Chaffin, MADEP (w/encl. – 1 paper copy, 1 CD)
P. Golonka, Gannett Fleming (w/encl. - 1 paper copy)
Y. Walker, Navy and Marine Corps Public Health
Center (w/encl. – 1 CD)
P. Sortin, Abington (w/encl. – 1 CD)
D. McCormack, Weymouth (w/encl. – 1 paper copy)
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File G02073-3.2 (w/o encl.); G02073-8.0
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**NAVY RESPONSES TO U. S. ENVIRONMENTAL PROTECTION AGENCY (EPA)
COMMENTS DATED JULY 14, 2009
REVIEW ITEM AREA 110 – SOUTHEAST ANTENNA FIELD
DRAFT FINAL PHASE II ENVIRONMENTAL BASELINE SURVEY DECISION DOCUMENT
NAVAL AIR STATION SOUTH WEYMOUTH, WEYMOUTH, MASSACHUSETTS**

Navy responses to the EPA comments on the Draft Final Phase II Environmental Baseline Survey Decision Document for Review Item Area 110 – Southeast Antenna Field, Naval Air Station South Weymouth, Weymouth, Massachusetts (June 2009) are presented below. EPA's comments are presented first (in italics) followed by the Navy's responses.

General Comment: *Overall, the Draft Final Decision Document has been revised and incorporates all EPA comments on the Draft Decision Document, with an enhanced evaluation of COPC exceedances and a better explanation as to why exceedances do not equate to unacceptable risk. Before EPA can fully accept the NFA decision, however, the Navy should confirm that the following issues have been addressed:*

Comment 1: *As stated in EPA's review of the April 2009 responses to our comments, the remaining concerns relative to the removal action included:*

- a. the remaining turtle barriers need to be removed,*
- b. the logs in the wetland that were apparently laid to aid passage need to be removed (not the apparently naturally-fallen tree), and*
- c. solid waste should be removed.*

Response: The remaining hay bales, turtle barriers, logs that were laid in the wetland to aid passage, and solid waste have all been removed from RIA 110 as requested. The removal of these items was completed during the week ending July 24, 2009.

Comment 2: *In a follow-up to General Comment 4, the argument that, for some chemicals, the 0.1X factor applied to non-cancer risk based benchmarks is not appropriate has been supplemented. The arguments need to be further supported, however:*

- a. For MCPA, in Section 6.1.3.1, the penultimate sentence states that no other COPC that target the liver and kidney are present at concentrations that exceed screening criteria. Vanadium and arsenic can affect the kidney and were detected at concentrations greater than benchmarks. Because they were not detected above background, however, the argument is still valid. Please state that the other COPC that target the liver and kidney were not detected above SOWEY UPLs.*

Response: The statement will be added as requested. Please note that the kidney is not the target organ listed for the arsenic RfD in the IRIS file.

- b. The text (e.g., Section 6.1.3.2 argument for antimony) suggests that additive toxic effects are only expected if chemicals with the same toxic mechanism occur at the same pole. Given that potential human receptors would not be limited to the areas around each pole but could be exposed throughout the site, the argument against potential additive effects must address COPC at all poles together.*

Response: The reviewer is correct that receptors could likely be exposed to COPC concentrations **across** the site and not just the COPC concentrations at one particular pole; however, it is still anticipated that additive effects are not a problem as discussed below.

First, very few chemicals were detected at concentrations exceeding the screening levels at any of the poles evaluated. This fact significantly limits the potential for cumulative effects. Second, most detected concentrations that exceed screening levels do not exceed the referenced MassDEP background concentrations or the noted exceedance is minor (e.g., iron [target organ is the gastrointestinal system]). Those chemicals that clearly exceed background concentrations include MCPA, antimony, manganese and aluminum. The maximum detected concentrations of these compounds and their target organs are discussed in a new Section 6.1.3.6, All Poles, to be added to the RIA 110 Decision Document. Please see Attachment A with the text of this new section.

- c. *Manganese was detected at several locations, with the maximum concentration (760 mg/kg) at Antenna Pole 3. This concentration is greater than the adjusted (for potential additivity) benchmark of 180 mg/kg (i.e., 1/10 of the EPA Regional Screening Level (RSL) for residential soil of 1800 mg/kg) and greater than the SOWEY background UPL (314 mg/kg). The value of 5500 mg/kg from the 1996 EPA Region I Risk Update is superseded by the April 2009 EPA Regional Screening Levels. Please evaluate whether there are enough chemicals with central nervous system effects to justify the use of the 1/10 factor on the non-cancer RSL.*

Response: The text of the new Section 6.1.3.6 (attached) of the RIA 110 Decision Document includes an evaluation of chemicals with CNS effects.

Regarding the EPA comment, the Navy believes that the evaluation of manganese presented in the 1996 EPA Region I Risk Update is both thoughtful and accurate, and should not be superseded by the April 2009 EPA Regional Screening Levels. The Reference Dose (RfD) used to calculate the RSL of 1800 mg/kg is 2.4E-02 mg/kg/day and is actually based, more specifically, on consumption of water (please see notation and footnotes on RSL tables). The actual RfD in the IRIS file is 0.14 mg/kg/day and is based on **total** oral intake of 10 mg per day. Per the EPA 1996 guidance, the anticipated dietary intake is approximately 5 mg per day. Thus, a more appropriate allowable dose from environmental (non-dietary) sources would be 5 mg per day. The 2.4E-02 is calculated as follows: 5 mg per day/3 (recommended modifying factor for non-dietary sources)/70 kg adult body weight. This RfD does indeed yield a soil RSL of 1800 mg/kg. However, the EPA 1996 guidance further explains that use of a modifying factor of 3 is only likely to be appropriate for the evaluation of sites where exposure to "neonates" is plausible. Since this is very unlikely at most CERCLA/RCRA sites, the use of the modifying factor of 3 is not the typically recommended value for soils; thus, a risk-based soil concentration of 5,500 mg/kg is recommended in the EPA 1996 guidance. It should be noted that the 1996 EPA analysis appears to be based on an evaluation of the following text which focuses on water (as a medium of concern) and neonates (as a population of concern). The modifying factor (MF) text quoted below is provided in the IRIS database [URL: <http://www.epa.gov/ncea/iris/subst/0373.htm>] in Section I.A.3.

"MF — When assessing exposure to manganese from food, the modifying factor is 1; however, when assessing exposure to manganese from drinking water or soil, a modifying factor of 3 is recommended. As discussed more fully in the Additional Studies/Comments Section, there are four reasons for this recommendation. First, while the data suggest that there is no significant difference between absorption of manganese as a function of the form in which it is ingested (i.e., food versus water), there is some degree of increased uptake of manganese from water in fasted individuals. Second, the study by Kondakis et al. (1989) raises some concern for possible adverse health effects associated with a lifetime consumption of drinking water containing about 2 mg/L of manganese. Third, although toxicity has not been demonstrated, there is concern for infants fed formula that typically has a much higher concentration of manganese than does human milk. If powdered formula is made with drinking water, the manganese in the water would represent an additional source of intake. Finally, there is some evidence that neonates absorb more manganese from the gastrointestinal tract, that neonates are less able to excrete absorbed manganese, and that in the neonate the absorbed manganese more easily passes the blood-brain barrier. These findings may be related to the fact that manganese in formula is in a different ionic form and a different physical state than in human milk. These considerations concerning increased exposure in an important population group, in addition to the likelihood that any adverse neurological effects of manganese are likely to be irreversible and not manifested for many years after exposure, warrant caution until more definitive data are available."

ATTACHMENT A

6.1.3.6 All Poles

Very few chemicals were detected at concentrations that exceeded the human health screening benchmark and Base background levels at any of the poles evaluated. Following the evaluation and elimination of chemicals from the list of COPCs at all poles, and based on comparison to MADEP natural soil background data and MCP S-1 values as discussed in the above sections, only the following COPCs remain at the RIA 110 site:

<u>Pole</u>	<u>Chemical</u>	<u>Target Organ</u>
C	MCPA	Liver/Kidney
1	Antimony Manganese	Blood Central nervous system
2	Antimony	Blood
3	Aluminum Manganese	Central nervous system Central nervous system
4	Manganese	Central nervous system

Given that the maximum detected concentration was evaluated in all cases and there is at most two chemicals listed per target organ, cumulative health effects are not anticipated if the dataset for all poles were combined and evaluated as one dataset. Aluminum and manganese are the only two remaining COPCs present at RIA 110 that target the central nervous system (CNS). Since their maximum detected concentrations are within the same order of magnitude as the Base background UPLs, the 1/10 factor adjustment of their non-cancer RSLs is not warranted. The maximum concentrations of aluminum (12,000 mg/kg) and manganese (760 mg/kg) are below their unadjusted screening values (76,000 and 1,800 mg/kg, respectively); therefore, they are not a concern for human health at RIA 110.