N62661.AR.002213
NAVSTA NEWPORT
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
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BOSTON, MASSACHUSETTS 02114-2023

January 15, 2009

Winoma A. Johnson, P.E.
NAVFAC MIDLANT
Environmental Restoration OPHREV4
9742 Maryland Avenue
Bldg. N-26, Rm. 3208
Norfolk, VA 23511

Re: Draft Study Area Screening Evaluation for Former Melville Water Tower Site
Naval Station, Newport, Rhode Island

Dear Mr. Colter:

EPA has reviewed the "Draft Study Area Screening Evaluation for Former Melville Water Tower Site, NAVSTA, Newport, Rhode Island," dated November 2008. The document was prepared by Tetra Tech NUS, Inc. for the Department of the Navy, Naval Facilities Engineering Command Mid-Atlantic. EPA concurs with the conclusions of the blood lead exposure model analysis for human health risk related to lead. However, EPA requests that the Navy revise the report to better support that there is no unacceptable human health risk related to arsenic and no unacceptable ecological risk.

Enclosed are our comments on the Draft Report. If you have any questions regarding the enclosed comments, please contact me at (617) 918-1754 or at lombardo.ginny@epa.gov.

Sincerely,

Ginny Lombardo

Ginny Lombardo
Remedial Project Manager

cc: Paul Kulpa, RI DEM
Cornelia Mueller, NAVSTA Newport
Stephen Parker, TtNUS

EPA Comments on
Draft Study Area Screening Evaluation
for Former Melville Water Tower Site
NAVSTA, Newport, Rhode Island
November 2008

Comment on Arsenic Human Health Risk Evaluation:

Appendix G, Evaluation of Arsenic and Background Soil, concludes that arsenic levels in soils from Areas A, B, and C may be considered to be elevated relative to the levels found in some of the local background soil types. Then, Section 5.3 summarizes the Navy's evaluation of arsenic in soil. The first bullet here indicates that arsenic concentrations suggest no pattern associated with the water tower. Please provide the data or a reference to the data that supports this statement. The second bullet indicates that arsenic was not a "primary" ingredient of the paint and that "arsenic is not associated with the paint." This is misleading. Arsenic was detected in paint samples, as shown in Table 2-1, so arsenic was associated with the paint. The third bullet indicates that soil concentrations are within the ranges of arsenic concentrations in background soils. However, this is misleading, as the conclusion of the statistical comparison presented in Appendix G indicated that the arsenic in areas A, B, and C may be considered to be elevated compared to background. Section 5.3 then concludes that the elevated arsenic concentrations in soil do not need further consideration. EPA does not agree that the Draft SASE Report makes the case that arsenic levels in soil require no further action. The Navy must provide further support for a no further action decision related to arsenic in soil.

EPA suggests the use of ProUCL version 4.0 (http://www.epa.gov/nerlesd1/tsc/software.htm) to calculate the 95% Upper Confidence Limit (95%UCL) Exposure Point Concentration (EPC) followed by calculation of cancer and non-cancer risk of arsenic to residential receptors. Since the entire area is less than an acre, EPA suggests that all of the data from the post-excavation confirmatory sampling can be used to calculate one EPC for the area. Identify the Exposure Point Concentration (EPC) as the lower of the maximum concentration or 95% UCL. Arsenic has both carcinogenic and non-carcinogenic risks. EPA also suggests use of the regional screening levels (http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm) developed for a residential soil scenario for screening arsenic. Note that EPA Regions 3, 6, and 9 have replaced their screening levels with the EPA regional screening levels.

For carcinogenic risk, the EPA regional screening level for residential soil arsenic of 0.39 mg/kg as presented from the above weblink is associated with a risk of 1E-06 for all exposure pathways. EPA suggests adjusting this screening level to 39 mg/kg to be used as a site-specific screening level for arsenic. Note that this adjusted screening level is associated with a risk of 1E-04 for all exposure pathways.

For non-carcinogenic risk, the EPA regional screening level for residential soil arsenic of 22 mg/kg as presented from the above weblink is associated with a hazard quotient of 1. This level is associated with a carcinogenic risk of 5.6E-05. Since the screening level for carcinogenic risk of 39 mg/kg is not as conservative as the screening level for non-carcinogenic risk, the level of 22 mg/kg based on non-carcinogenic risk would be used as the screening level for arsenic at the

site. Compare the calculated EPC to this screening level. If the EPC is less than 22 mg/kg, than the Screening Hazard Quotient (SHQ) is less than 1 or the associated screening carcinogenic risk (SCR) is less than 5.6E-05. In that situation, the Navy can conclude that no further action is needed.

If the EPC is greater than 22 mg/kg (associated with the SCR greater than 5.6E-05 or the SHQ greater than 1), the Navy should re-calculate the EPC taking into account the clean fill material that was used to fill the removal action excavations at the site. The goal of this calculation would be to estimate the concentration in a hypothetical mixture of surface and subsurface soil (0-10 ft.) that would occur after basement excavation, stockpiling, and re-grading of excavated soil during home building. For this calculation, the Navy could calculate the mass of arsenic in the 6 inch layer of added topsoil, the mass of arsenic in the fill material, and the mass of arsenic in the layer below the confirmatory samples to the maximum depth of 10 feet, and then calculate the concentration in the whole volume. In other words, the Navy could determine the % of the soil volume that is represented by the fill material and incorporate the arsenic data for the fill into the ProUCL evaluation and attempt to calculate an EPC representative of the post-removal action soil conditions. Then, follow the same steps as discussed above to evaluate a SCR and SHQ. If the SCR is less than 5.6E-05 or if the SHQ is less than 1, the Navy can conclude that no further action is needed.

If SCR is still greater than 5.6E-05, but less than 1E-4, or SHQ is still greater than 1, the Navy should utilize the baseline background data set to calculate the risk associated with background and determine whether site-related risks in comparison with background warrant action under CERCLA. If SCR is greater than 1E-4, the Navy will need to consider further action under CERCLA. Also, please note that ProUCL has a background analysis and comparison tool, and the Navy may want to consider repeating the background evaluation with the ProUCL software.

Navy should provide a technical memorandum that shows these calculations, as well as the input concentrations for the ProUCL calculations of EPCs and the ProUCL printout of the selected EPC and its statistical distribution.

Comments on Ecological Risk Assessment Evaluation

The Draft SASE Report should be revised to provide further support related to ecological risk related to lead in soil, particularly in the East Area. Rather than making the general statement that the Eco SSL for lead is "low", it would be more productive for the Navy to examine the exposure assumptions used in the development of the Eco SSL and describe any conditions assumed in the Eco SSL development that are not met in this situation. A more robust case must be made for the position that no further action is needed. Does the Eco SSL assume a home range factor of 1 (i.e. a bird would spend 100% of time in the site area)? Are there habitat characteristics that make all or part of the area unsuitable for bird life, or unable to support a population or sub-population of small mammals? Section 5.4 indicates that "other SSLs for other receptors may be more appropriate for this site." What other SSLs and what data supports this position? Short of doing a full ecological risk assessment, the Navy could provide a habitat description, map and/or aerial photograph or other site photo, and a description of the type of wildlife receptors that might inhabit this portion of the site.

In addition, it would be helpful for the Navy to provide some information on the EPC used in the ecological evaluation. The tables describe the data points as average of all soil depths. The ecological evaluation should use only surficial soil data such as 0-1' or 0-2'. Are the averages skewed by any particular hot spots or uniquely high values that might be considered outliers? The Eco SSLs are designed to be conservative and exceeding the Eco SSL does not indicate a need for remedial action. However, a well-reasoned risk-based argument must be made for setting a higher threshold based on site-specific considerations.