



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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September 9, 2009

Engineering Field Activity, Midwest
Attn: Mr. Howard Hickey
Building 1A, Code 931
201 Decatur Avenue
Great Lakes, Illinois 60088-5600

Re: Remedial Investigation and Risk Assessment
Report for Site 19 – Small Arms Range 910
Naval Station Great Lakes, Great Lakes, Illinois

0971255048 – Lake
Great Lakes Naval Station
Superfund/Technical

Dear Mr. Hickey:

The Illinois Environmental Protection Agency (Illinois EPA or Agency) is in receipt of the Navy's Remedial Investigation and Risk Assessment Report for Site 19 – Small Arms Range 910, Naval Station Great Lakes, Great Lakes, Illinois. It was dated June 2009 and was received on June 30, 2009. The goal of this Remedial Investigation (RI) Report was to characterize the nature and extent of contamination and to estimate human health risk for receptors exposed to groundwater, surface soil, and subsurface soil. The Agency has reviewed the submittal and is herein providing comments generated during that review.

It should be noted that several of these comments, if accepted, will impact the outcome of the risk quantification calculations. For this reason, review of the Appendix F risk calculations will be postponed until those comments have been addressed and the risks recalculated, if necessary.

- 1) **General Comment** – This report utilizes a screening process whereby site concentrations are compared to published, acceptable environmental levels. In this report, the screening process is cumbersome, confusing, and contradictory. Screening results are presented at three separate locations. Tables 4-4 and 6-1 both present screening results for surface soil, but Table 6-1 shows one additional and four fewer chemicals captured by the screen. Appendix F Tables 2.1 and 2.2 split the surface soil screening into the direct contact and migration to groundwater pathways which adds further confusion.

It was observed that site-related risks were quantified based upon the chemicals identified in the screenings summarized in Tables 6-1, 6-2, and 6-3; however, the State has little confidence in the screening procedure and, therefore, the results of the

risk assessment. The Agency requests that the screening process be reviewed and that consistent and uniform results be reported.

- 2) **Page ES-2:** The meaning of the statement in bullet #4 is unclear. Please revise that statement.
- 3) **Table 4-1:** The “minimum criteria” value for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene are not in the reference provided. The groundwater remediation objectives for benzo(k)fluoranthene and chrysene have been revised in the Agency-proposed Amendments to the Tiered Approach to Corrective Action Objectives regulation (Illinois Pollution Control Board case no.: R2009-009, <http://www.ipcb.state.il.us/cool/external/CaseView.aspx?case=13524>). The current groundwater objectives are 1.2 µg/L and 12 µg/L, respectively. All criteria, for both groundwater and soil, should be reviewed and the TACO amendments should be incorporated.
- 4) **Tables 4-3 and 4-5:** The TACO migration to groundwater criteria for the inorganic constituents are based on extraction procedures and are not comparable to the other listed criteria. The minimum screening value for aluminum, chromium, and iron must be revised in both tables.

The minimum screening value for vanadium should be corrected to 18 mg/kg based on one-tenth of the Regional Screening Level for migration to groundwater of 180 mg/kg.

- 5) **Section 6.2** – At the conclusion of the third paragraph, use of one-half the detection limit for statistics is discussed. This is inappropriate when the ProUCL statistical software program is used. The unadjusted detection limit should be used in the ProUCL program.
- 6) **Section 6.3.1** - In the Screening Levels for Soil paragraph, seven bulleted entries present the sources of the screening concentrations. It is imperative that these sources be kept current. The second, fourth, and fifth bullets should be updated to the January 2009 revision. The third bullet references tables that are no longer posted on the IEPA website and should be removed.

The lists of screening level sources for soil and for groundwater are incomplete. Many more sources are presented in the three sets of tables of screening levels than are included in the text of the report.

- 7) **Section 6.3.1** - The third paragraph discusses a screening comparison to USEPA SSL soil-to-air criteria. A Table 6-1 footnote identifies an internet calculator as the source

of these screening values. The default calculation provides criteria for the residential receptor. For several volatile chemicals, the construction worker criteria are lower for this pathway. The user determined inputs into the calculator must be provided for each receptor.

- 8) **Section 6.3.2** – The first bullet identifies “BaP equivalents” as a chemical of potential concern. This concept is poorly developed. More detail or documentation using references to literature should be provided. Additionally, soil screening values have been calculated for “BaP equivalents”. This process should be described in detail and its relevance to the risk assessment discussed. Finally, in some of the tables, the entry for “B(a)P equivalents” is qualified with the entry “(1/2 DL)”. As stated previously, use of one-half the detection limit to substitute for chemical non-detection in an analysis may be inappropriate.
- 9) **Section 6.3.2** – At the bottom of page 6-10, there is mention of “the Base background soil datasets.” Illinois EPA has no knowledge of that data and it does not appear to be provided in this submittal. Please provide the data and whatever associated information is available.
- 10) **Section 6.3.3** – See previous comment regarding “the Base background soil datasets.”
- 11) **Section 6.4.5.1** – In the Incidental Ingestion of Soil section, second paragraph, reference is made to the “...same exposure frequencies and durations used in the estimation of dermal intakes...”, however, these parameters were not defined in the dermal section. Please provide the missing information.
- 12) **Section 6.4.5.1** – The definition of AT for non-carcinogens should be corrected to “ED x 8,760 hrs”.
- 13) **Section 6.4.5.1** – The first full paragraph on this page refers to a PEF calculation in Appendix F. That calculation could not be located.
- 14) **Section 6.6.4** – The calculated value for the Adult Lead model should be provided in the last paragraph as it was for the Child Lead Model.
- 15) **Table 6-1** – The policy of dividing the literature source non-cancer screening level by 10 has been applied inconsistently. For example, the Regional Screening Level Table residential soil value for 2-butanone has been decreased but the TACO residential soil value has not.
- 16) **Table 6-4** - The chemicals retained for risk assessment from the groundwater evaluation should also be summarized here or in a separate table.

- 17) **Table 6-9** - The reference dose for barium should be corrected to the IRIS value of 0.2 mg/kg-day. The adjusted dermal RfD should also be corrected.
- 18) **Table 6-10** - Oral reference concentrations of 0.00003 mg/m³ for arsenic from California EPA and 0.0003 mg/m³ for mercury from IRIS should be added. Extrapolation of RfC values to inhalation reference doses is inappropriate unless the effect can be reasonably determined to be a systemic effect. Effects on the respiratory system are not generally considered to be systemic. The inhalation RfD extrapolations for chromium and cobalt should be removed.
- 19) **Table 6-12** - Oral cancer slope values should be estimated and included for the other carcinogenic PAHs based on the slope value for benzo(a)pyrene and adjusted using the USEPA approved order-of-magnitude relative potency factors. PAHs are contact carcinogens, thus extrapolation of PAH inhalation unit risk values to inhalation slope factors is inappropriate. Extrapolation to inhalation slope factors is also inappropriate for arsenic, chromium, and cobalt.
- 20) **Section 7.2** - The recommendation herein is for no further investigation at this site. However, it does not provide a recommendation as to the next step in the CERCLA process. Illinois EPA believes the recommendation should be for no further investigation and to move forward with a Feasibility Study to evaluate potential remedial alternatives. Potential remedial alternatives would include, but not be limited to; No Action, Limited Action (Land Use Controls), some form of treatment technology, and a Removal Action for contaminated surface soil.

If you have any questions regarding anything in this letter or require any additional information, please contact me at (217) 557-8155 or by electronic mail at brian.conrath@illinois.gov.

Sincerely,



Brian A. Conrath
Remedial Project Manager
Federal Facilities Unit
Federal Site Remediation Section
Bureau of Land

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cc: Bob Davis, Tetra Tech NUS, Inc.

Owen Thompson, USEPA (SR-6J)