ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 North Grand Avenue East, P.O. Box 19276, Springfield, Illinois 62794-9276 • (217) 782-2829
James R. Thompson Center, 100 West Randolph, Suite 11-300, Chicago, IL 60601 • (312) 814-6026

PAT QUINN, GOVERNOR DOUGLAS P. SCOTT, DIRECTOR

(217) 557-8155
(FAX) 782-3258

January 4, 2010

NAVFAC Midwest IPT EV
Attn: Ms. Terese Van Donsel
Building 1A
201 Decatur Avenue
Great Lakes, Illinois 60088-2801

Re: Draft Sampling and Analysis Plan for the Remedial Investigation for Site 5 Transformer Storage Boneyard, Naval Station Great Lakes, Great Lakes, Illinois

0971255048 – Lake
Great Lakes Naval Station
Superfund/Technical

Dear Ms. Van Donsel:

The Illinois Environmental Protection Agency (Illinois EPA or Agency) is in receipt of the Navy's Draft Sampling and Analysis Plan for the Remedial Investigation for Site 5 – Transformer Storage Boneyard, Naval Station Great Lakes, Great Lakes, Illinois. The Sampling and Analysis Plan (SAP) was drafted by Tetra Tech NUS, Inc. on behalf of the Naval Facilities Engineering Command Midwest (Navy). It was dated November 2009 and was received at the Agency on November 25, 2009. The SAP constitutes the Navy's planning document, addressing specific protocols for sample collection, sampling handling and storage, chain-of-custody, laboratory and field analysis, data validation, and data reporting. The SAP was generated for and complies with applicable U.S. Navy, Illinois EPA, and United States EPA Region 5 requirements, regulations, guidance, and technical standards, especially USEPA (1999) and Department of Defense and Department of Energy guidance for preparing Uniform Federal Policy for Quality Assurance Project Plans. The Agency has conducted a review of the Draft SAP and is herein providing comments generated during that review.

1) **Executive Summary** – The next to last sentence lists the compounds for which this investigation will be analyzing. As will be mentioned below, Section 11.2 also includes poly-nuclear aromatic hydrocarbons (PAHs). Please determine whether PAHs should be on the list and revise the plan accordingly.

2) **Acronyms and Abbreviations** – The definition for JULIE should be Joint Utility Locating Information for Excavators. This will need to be updated throughout the document.

3) **Worksheet #9** – Following the fourth bullet on page 19, it should state that 27 soil sample *locations* were required for statistical analysis of the site.

4) **Worksheet #10** – In subsection 10.1 the third paragraph lists the possible contaminants for Site 9 and 21. That list should include SVOCs.

5) **Worksheet #10** – In subsection 10.1 the last sentence on page 20 states, "The Site 9 and Site 21 SI results will be incorporated into the Site 5 RI Report that presents the results from the investigative activities presented in this SAP." Wouldn't it be more accurate to say the Site 9 and Site 21 SI results *may* be incorporated in to the RI Report?

6) **Worksheet #10** – In subsection 10.3, the first sentence under Hydrogeology is confusing. Please review and revise as necessary.

7) **Worksheet #10** – In subsection 10.3, in the paragraph directly below Figure 10-7 on page 23, the site numbers have been incorrectly placed. The sixth line should read "...has the potential to impact both Site 5 and Site 9. Site 5 has the potential..."

8) **Worksheet #11** – In subsection 11.3 in the first line, the word "the" should be removed. Also, the location of the site should be described here or at least a reference to a figure showing its location should be provided.

9) **Worksheet #11** – In subsection 11.4 there is a list of chemicals that were detected in previous investigations. However, that list does not include PAHs. Since PAHs are included in the list of chemicals for analysis in Section 11.2, shouldn't they be included here or at least mentioned along with their reason for inclusion on the list?

10) **Worksheet #11** – In subsection 11.4 on page 28, the last bullet item, the threshold values for risk for residential receptors (1×10^{-6}, 1.0) should be provided.

11) **Worksheet #11** – In subsection 11.5 in the second paragraph, it mentions that 27 samples were decided to be the optimum number based upon distance between samples, etc... This should state that 27 sample **locations** were chosen rather than 27 samples as there are actually 81 soil samples being collected.

12) **Worksheet #14** – In subsection 14.4 it states that 81 soil samples from 27 borings will be collected. In several locations earlier in this document, it states that 27 samples will be collected. The actual number of soil samples will be 81, as stated here. Therefore, the other references to 27 samples should be corrected.

13) **Worksheet #14** – In subsection 14.8 there should be a discussion of the sampling, analysis, and disposal of the Investigation-Derived Waste, which would be a special waste, at a minimum.

14) **Worksheet #14** – In subsection 14.11 the last bulleted item lists information collected for each photograph. The list should also include a description of what the photo is intending to show.

15) **Worksheet #15** – There are quite a number of analytes in this table that are both highlighted and bolded indicating the Project Action Limit is less than the laboratory quantitation limit (QL) and the method detection limit (MDL). This includes compounds that have historical exceedances at this site. This is reason for concern. It is noted that there is a paragraph at the bottom of the last page discussing this issue, but the Agency is still not completely comfortable with this. Every effort should be made to achieve a QL that is below the PAL, where possible.

16) **Worksheet #15** – A rigorous review of columns 3 and 4, Project Action Limit and Project Action Limit Reference, respectively, was undertaken. The following discrepancies need to be revised or explained.

Soil

- Aluminum: The project action limit (PAL) reported for this mineral is one order of magnitude less than the level given in the stated reference. This is consistent with the stated strategy of using $1/10^{th}$ of the published screening level as action limit for non-carcinogenic chemicals. However, aluminum is the only analyte reduced by a factor of ten. The tables should be consistent and should agree with the text.

- Chromium: The footnote, number 4, states that the PAL for chromium is based on total chromium. The values presented are for the soluble, Cr VI valence of the mineral. The PAL should be for the more toxic form of this mineral.

- Lead: The PAL of 14,000 µg/kg for lead could not be confirmed. 400,000 µg/kg should be used.

- 2,4-Dinitrotoluene: The ORNL Regional Screening Level (RSL) for the risk-based protection of groundwater of 0.2 µg/kg is lower and should be used.

- 2,6-Dinitrotoluene: The TACO migration to groundwater remediation objective (RO) is 0.7 µg/kg and should be the PAL.

- 2-Nitroanaline: The ORNL RSL for risk to groundwater of 33 µg/kg should be the PAL.

- 3-Nitroanaline: The PAL and PAL reference for this chemical should be "NA".

- 4,6-Dinitro-2-methylphenol: The PAL for this substance should be corrected to 3.1 µg/kg.

- 4-Chloroanaline: The PAL should be corrected to 0.12 µg/kg.

- Acenaphthalene: The PAL and its reference could not be confirmed. The entry should be changed to 85,000 µg/kg using the IEPA non-TACO reference.

- Benzo(g,h,i)perylene: The PAL and its reference could not be confirmed. The entry should be changed to 2,300,000 µg/kg from the IEPA non-TACO reference.

- Dibenzofuran: TACO ROs are available. The Construction Worker ingestion RO of 820,000 µg/kg should be used.

- Di-n-octylphthalate: TACO ROs are available for this chemical. The residential ingestion value of 1,600,000 µg/kg should be used.

- Hexachlorocyclopentadiene: The PAL should be revised to 180 µg/kg, the lowest RSL from the reference.

- Nitrobenzene: The PAL should be revised to 0.071µg/kg, the lowest RSL listed in the reference.

- Phenanthrene: The PAL could not be confirmed. The entry should be changed to 200,000 µg/kg from the IEPA non-TACO reference.

- Chloromethane: The PAL could not be confirmed and should be revised to 49 µg/kg.

- Dibromochloromethane: The PAL could not be confirmed and should be revised to 0.04 µg/kg.

- Methylcyclohexane: The PAL could not be confirmed and should be revised to 46,000 µg/kg.

<u>Groundwater</u>

- Mercury: The PAL should be revised to 0.57 µg/L, the lower RSL from this reference.

- 4-Chloroanaline: The PAL should be corrected to 0.34 µg/L.

- 4-Nitroaniline: The PAL should be corrected to 3.4 µg/L.

- 4-Nitrophenol: No values could be located for this chemical. The PAL and reference entries should be changed to "NA".

- Chrysene: The spelling for this analyte should be corrected. The PAL could not be confirmed. The PAL and its reference should be revised to 2.9 µg/L and ORNL-R, respectively.

- Nitrobenzene: The PAL should be corrected to 0.12 µg/L.

- Bromodichloromethane: The PAL should be revised to 0.12 µg/L and the reference to "ORNL-R".

- Chloromethane: The PAL should be corrected to 190 µg/L.

- Dibromochloromethane: The PAL should be corrected to 0.15 µg/L.

17) **Worksheet #15** – There is no data included here for investigation-derived waste analysis as has been done in the past. Please provide that information as well.

18) **Worksheet #16** – The dates on this table will need to be updated/revised to match the current schedule.

19) **Worksheet #17** – In the first full paragraph on page 61, the list of chemicals for soil analysis are provided. The list does not include PAHs when in Section 11.2 PAHs are included. Please determine which is correct and revise as necessary. The same is true for groundwater analysis. The remainder of the SAP (text and tables) will need to be revised to match as well.

20) **Worksheet #18** – In the Depth column, subsurface soil should be listed as 0.5 to 4 feet.

21) **Worksheet #19** – In the Containers column, shouldn't there be 3 40-milliliter vials collected for aqueous samples for volatiles?

22) **Worksheet #19** – In the Containers column, the soil volatile containers should be Encore samplers or their equivalent, not 40-milliliter vials. The preservation requirements for those samples will need to be revised as well.

23) **Worksheet #19** – If, as noted previously, PAHs are to be included in the analysis scheme, they will need to be added here keeping in mind that in order to reach the PAL a different analysis method than is used for SVOCs may need to be employed.

24) **Worksheet #27** – There is no discussion provided for sample custody while in the field. The sample custody requirements should be provided from the point of collection until disposal.

25) **Worksheet #30** – In the Matrix column, it should read soil and groundwater, rather than semi-volatiles.

26) **Worksheet #37** – The third paragraph on page 124 states that one-half the detection limit will be used for statistical comparisons involving analytical results that are below the sample-specific reporting limits. This is not always appropriate. Any value substitution for non-detected values should be appropriate to the statistical method used.

27) **Appendix A, Table of Contents** – The title for Figure 2-2 should read from Site 5, rather than from Sites 9 and 21.

28) **Appendix B, Section 1.2** – There is discussion here of the "screening criteria". If these criteria are the same as the "project action limits" presented in Worksheet #15, this connection should be stated. If the screening criteria are different, they should be referenced or presented.

29) **Appendix B, Section 1.2.1** – It states here that the screening criteria will "correspond to a hazard quotient of 0.1 for non-carcinogens". The PALs from Worksheet #15 do not conform to this statement.

30) **Appendix B, Section 1.2.1** – The Screening Levels for Subsurface Soil section begins on page B-4 and contains four bullets. The first bullet carries over to the following page and contains two URLs. The second URL identifies the proposed and as yet un-finalized revisions to the IEPA TACO regulation. It was mutually agreed by the IEPA and Naval Station Great Lakes for a previously-investigated site that proposed regulations would not be reflected in work plans. If this agreement holds for Site 5, the second URL should be removed.

31) **Appendix B, Section 1.2.1** – The first bullet near the top of page B-5 indicates that the Regional Screening Levels internet-based table of values was used to develop screening levels for subsurface soil. Because the referenced table is frequently revised and updated, this entry and subsequent references to the Regional Screening Levels should be revised to include the URL and the date.

32) **Appendix B, Section 1.2.1** – The first paragraph on page B-6 states that migration to groundwater SSLs will not be used to select chemicals of concern. Please revise or explain this statement in light of the Worksheet #15 PALs which are predominantly based on potential threats to groundwater through soil infiltration.

33) **Appendix B, Section 1.2.1** – In the Screening Concentrations for Groundwater section, reference is made to groundwater screening concentrations for vapor intrusion. These levels should be presented for review and comment.

34) **Appendix B, Section 2.1.3** – The second bullet on page B-13 discusses the On-site Worker receptor. The description describes occasional visits to the site. The storage dome and truck parking suggest more frequent and regular on-site worker activities. An additional, daily on-site worker scenario should be considered.

35) **Appendix B, Section 2.3** – The final paragraph in the Exposure Point Concentrations (EPCs) section describes the use of one-half the detection limit. See our caution regarding this practice in the comment regarding Worksheet Number 37.

36) **Appendix B, Section 2.4.3** – The intake equation for inhalation of dusts and volatiles should include the receptor body weight in the denominator.

37) **Appendix B, Section 2.4.6** – The equation for inhalation of volatiles from vapor intrusion should include body weight in the denominator.

38) **Appendix B, Section 5.4** – An un-labeled figure follows page B-34. This figure should be numbered and identified. On Worksheet #10, it is labeled as Figure 10-7. Additionally, an "On-Base Military Resident" receptor should be added in both locations.

39) **Appendix B, Tables 1-4** – The subject tables are erroneously labeled as "Site 9 – Camp Moffett Disposal Area".

40) **Appendix B, Table 2** – The Occupational Workers receptor description should include a current land use scenario. All pathways should be considered for these receptors.

41) **Appendix B, Table 3** – The RME Occupational Worker exposure frequency of 24 days per year should be revised based on the daily activities currently conducted at this site.

42) **Appendix B, Table 4** – The CTE Occupational Worker exposure frequency of 12 days per year should be revised based on the daily activities currently conducted at this site.

43) **General Comment** - The body of the report contains citations to literature sources, but there is no reference section. Please add a reference section.

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

In accordance with Public Act 96-0603, which went into effect on August 24, 2009, any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Sincerely,

Brian A. Conrath

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

BAC:rac:H\GLNTC\Site 5\Site5DSAPrvw

cc: Bob Davis, Tetra Tech NUS, Inc.
Owen Thompson, USEPA (SR-6J)