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LETTER AND COMMENTS FROM ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
REGARDING DRAFT SAMPLING AND ANALYSIS PLAN FOR THE REMEDIAL
INVESTIGATION FOR SITE 12 HARBOR DREDGE SPOIL AREA NTC GREAT LAKES IL
11/8/2010
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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

November 8, 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 12, Harbor
Dredge Spoil Area, 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 Sampling and Analysis Plan for the Remedial Investigation for Site 12 – Harbor Dredge Spoil Area, Naval Station Great Lakes, Great Lakes, Illinois. It was dated July 2010 and was received on August 3, 2010. The Sampling and Analysis Plan (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) **Worksheet #1, Executive Summary** – The last sentence of the second paragraph appears to state that any contamination found at this site is the “result of industries activities upstream of NS Great Lakes.” While this may be accurate, the Navy cannot overlook their own activities which may well have contributed to the contaminant load.
- 2) **Worksheet #1, Executive Summary** – The fourth paragraph states that chemical concentrations will be compared to risk-based human health screening levels. Given the site is on the shore of Lake Michigan, ecological risks must be accounted for as well. The SAP should be revised accordingly throughout.
- 3) **Worksheet #1, Acronyms and Abbreviations, page 5** – The definition of “ECD” should be electron capture *detector*. Also, the acronym and abbreviation for “HAS hollow-stemmed auger” should be HSA Hollow-stemmed Auger.

Rockford • 4302 N. Main St., Rockford, IL 61103 • (815) 987-7760

Elgin • 595 S. State, Elgin, IL 60123 • (847) 608-3131

Bureau of Land – Peoria • 7620 N. University St., Peoria, IL 61614 • (309) 693-5462

Collinsville • 2009 Mall Street, Collinsville, IL 62234 • (618) 346-5120

Des Plaines • 9511 W. Harrison St., Des Plaines, IL 60016 • (847) 294-4000

Peoria • 5415 N. University St., Peoria, IL 61614 • (309) 693-5463

Champaign • 2125 S. First St., Champaign, IL 61820 • (217) 278-5800

Marion • 2309 W. Main St., Suite 116, Marion, IL 62959 • (618) 993-7200

- 4) **Worksheet #1, Acronyms and Abbreviations, page 6** – Is the acronym for Office of the Chief of Naval Operations accurate? Please review and revise as necessary.
- 5) **Worksheet #4** – Under SAP Section Reviewed, the Illinois RPM should read “All.”
- 6) **Worksheet #9** - On page 16, following the second bullet, it should also mention that although groundwater will not be sampled, a subsequent decision may be made to collect groundwater samples if the soil data warrants it.
- 7) **Worksheet #9** – After reviewing the Site Background on Worksheet #10, Illinois EPA believes the samples should also be analyzed for PAHs.
- 8) **Worksheet #10** – If, as stated at the top of page 18, “the filling activities may not be related to the disposition of dredge spoils”, then the selection of contaminants for analysis based upon that assumption may be flawed. In addition, the assumption that the contamination at this site should be fairly homogeneous may also be inaccurate. After reviewing the information provided in the Site Background Section, of which the State was previously unaware, the State believes a significant change in scope may be necessary. Revisions to the scope may include collection of samples in more than 10 locations, at more than 2 depths, and for more contaminants than initially envisioned. Suggest a meeting be scheduled to hash out the details. The entire SAP would then need to be updated accordingly.
- 9) **Worksheet #10, page 18** – See earlier comment regarding possible Navy contribution to the contaminant load.
- 10) **Worksheet #10, page 18** - The first bullet presents an argument for eliminating the need for analysis and evaluation of volatile organic contaminants (VOCs) in soil based upon their absence in a prior sampling and analysis round. Earlier in Section 10.1, it is explained that the prior analyses failed data quality criteria because holding times were exceeded or they could not be validated. The absence of VOCs in sample data that was determined to be not usable is insufficient justification to rule out their potential presence. Therefore, VOCs may still be considered potential contaminants of concern.
- 11) **Worksheet #10, Section 10.3** – The first sentence is incomplete. Please review and revise as necessary.
- 12) **Worksheet #10, Section 10.3** – The first full paragraph on page 21 begins by discussing the shallow hydrogeology at the site and the perched aquifers found in sand lenses within layers of clay and silty clay. Is this referring to the areas on base located on the bluff overlooking the lake and Site 12 or the areas near the lake below the bluff including Site 12? This should be clarified.

- 13) **Worksheet #10, Section 10.3** – Under Potential Receptors, there is no discussion of ecological receptors, only human receptors. As noted above, ecological risks (and receptors) must be accounted for as well.
- 14) **Worksheet #11, Section 11.1** – The Problem Definition mentions the sediments from Pettibone Creek as the source of contaminated soil. It should also discuss the other possible sources of fill material mentioned in the Site Background Section. In addition, it does not address the characterization of risks to ecological receptors, which must also be evaluated.
- 15) **Worksheet #11, Section 11.2** – Following number 1, PAHs should be added to the list for chemical data.
- 16) **Worksheet #11, Section 11.2** – Following number 4 there is discussion of the use of Illinois EPA background concentrations for metals and poly-nuclear aromatic hydrocarbons (PAHs). It should be noted that the regulations in which those values are located, Illinois EPA's Tiered Approach to Corrective Action Objectives (TACO) regulations, are not ARAR at this site, only to be considered regulations (TBCs). In addition, those PAH values were generated using only surface soils and would therefore only be applicable to surface soils. (In its current state, the SAP does not even provide for the analysis of PAHs, although the Agency believes it should.)
- 17) **Worksheet #11, Section 11.2, Project Action Limits** – See previous comments regarding ecological risks and receptors.
- 18) **Worksheet #11, Section 11.2, Project Action Limits** – The last paragraph references Appendix B several times and identifies it as the Human Health Assessment Work Plan. The reference should be to Appendix C and it should reference the Human Health *Risk* Assessment Work Plan.
- 19) **Worksheet #11, Section 11.3** – In the first full paragraph on page 25, surface soil is defined as the 0 to 2 feet bgs interval. This interval extends too deep. For all but the construction worker receptor, direct contact and dust inhalation will involve soil from the very most top level in the soil profile. The Supplemental SSL guidance (USEPA, 12/2002) defines surface soil as the top 2 centimeters or one inch. Because of the difficulties in obtaining such shallow samples, we have accepted samples in the 0 to 6 inch interval. Correspondingly, the subsurface interval definition should be revised to extend from the bottom of the surface soil interval to native soil/material.
- 20) **Worksheet #11, Section 11.3** – In the second full paragraph on page 25, it states that if a risk assessment is required, the site will be divided into two exposure units, each about 1.7 acres. If that is the case, the number of samples will be insufficient to conduct a proper risk assessment. As above, the State suggests collecting samples at more than the 10 locations

called for within this SAP. If as stated, there may be two exposure units, the number of samples will need to be at least 10 per soil horizon per exposure unit.

- 21) **Worksheet #11, Section 11.3** – The last sentence states that field activities will be conducted in the summer of 2010. This will need to be updated as the summer is already over.
- 22) **Worksheet #11, Section 11.4** – The first bulleted item states, “If the Incremental Lifetime Cancer Risk (ILCR) is greater than 1×10^{-4} or the hazard quotient (HQ) is greater than 1, the Project Team will proceed to a FS in order to evaluate remedial alternatives.” It should be revised to read as follows, “...to 1×10^{-4} , and or if the HQ is between 0.1 and 1 for residential any receptors...”
- 23) **Worksheet #11, Section 11.4** – The first two bullet items mention the hazard quotient (HQ) when discussing the rules governing data use. The third bullet mentions the HI, rather than the HQ. Shouldn't this be HQ as well to be consistent?
- 24) **Worksheet #11, Section 11.4** – In the paragraph discussing lead as a COPC, line 4 should read “...levels exceeding 10 micrograms per deciliter...”
- 25) **Worksheet #11, Section 11.5** – See previous comments regarding the number of samples to be collected.
- 26) **Worksheet #14, Section 14.3** – As noted previously, Illinois EPA defines surface soil as 0-6 inches below ground surface. The number of samples may require modification also.
- 27) **Worksheet #15** – Both herein and in Appendix F, there is reference to “IL NON-TACO” and “NON-IL TACO” values. It is assumed that these should be the same and the former would be the correct reference. In addition, that abbreviation should be defined following the tables.
- 28) **Worksheet #15** – No PAHs are listed on the provided tables. These will need to be added.
- 29) **Worksheet #15** – There are a large number of compounds where the Limit of Quantitation exceeds the Project Action Limit (PAL). In fact, ~45% of the SVOCs, nearly all of the PCBs, and ~23% of the pesticides have such exceedances. In most cases they are off by an order of magnitude or more. This is unacceptable. Please explain how the collected data are to be meaningful when the PALs cannot be attained for so many compounds. Risk management decisions must be based upon valid data. These exceedances must be addressed.
- 30) **Worksheet #16** – This Project Schedule/Timeline Table is outdated and will need to be updated to match the current projected schedule. When revising the table, please remember that the Agency is typically allowed 30 working days for review and comment rather than

30 calendar days. In addition, the Deliverable and Deliverable Due Date for Navy and Regulatory Review of the Draft RI Report should be filled in with the proper information.

- 31) **Worksheet #17** – The sample collection methods discussed in the third paragraph are not acceptable. Surface soil samples, as noted previously, should be collected from 0-6 inches below ground surface. The subsurface samples should not be composited as described here either. The State suggests discrete sample locations. All samples should be obtained from discrete locations identified by staining, odor, or vapor detection on a field instrument.
- 32) **Worksheet #17** – As noted above, the sampling approach (the number of sample locations, samples collected, and the analysis list) may change due to recently-discovered information.
- 33) **Worksheet #18** – This worksheet will need to be revised once the sample collection uncertainties have been worked out. Also, see previous comments regarding surface soil depth range.
- 34) **Worksheet #20** – This worksheet will need to be revised once the sample collection uncertainties have been worked out.
- 35) **Worksheet #27** – In Section 27.1.1 is a reference to Worksheet #20 for how field QA/QC will be labeled. However, that worksheet does not provide any labeling information.
- 36) **Worksheets #28 and 30** – Please ensure these tables are updated once the sample collection uncertainties have been worked out.
- 37) **Figure 10-4** – The CSM needs to account for ecological receptors.
- 38) **Figure 17-1** – The note should define surface soils as 0-6 inches rather than 0-2 feet. The figure will also need to be updated if the sampling scheme is revised.
- 39) **Appendix B** – There are historic maps and drawings provided dating back to 1907, but no aerial photos provided prior to 1974. It would be preferable to include such photos to ensure the enclosed drawings accurately represent the area at that time.
- 40) **Appendix C, Section 1.2.1** – This section is titled “COPC Screening Criteria” and includes a part presenting screening criteria for lead. It would be helpful to include the TACO objectives of 800 and 700 mg/kg for the industrial/commercial and construction worker receptors, respectively. These screening criteria are for areas where soil contact by children is low but where contact by pregnant adults is possible.
- 41) **Appendix C, Section 1.2.2** – The subject section discusses chemicals that lack toxicity values and the options for providing screening values for them. The examples given

include 2-methylnaphthalene. This is a poor example since it is now included in the IRIS system.

- 42) **Appendix C, Section 2.3** – We agree with the use of the USEPA provided statistical program (ProUCL) for determining exposure point concentrations. The text at the fifth bullet in the referenced section should be updated to the current version, 4.00.05.
- 43) **Appendix C, Section 2.4.3** – The subject of this section is the inhalation exposure to contaminated dust and vapors. The first two sentences in this section suggest that inhalation screening criteria must be exceeded before inhalation risks and hazards are quantified. This is inappropriate. Any contaminant that becomes a chemical of concern for any reason should be evaluated and the risks and hazards from all pathways, including inhalation, quantified and summed.

Additionally, the first sentence in Section 2.4.3 refers to default USEPA inhalation SSLs. There are none for the Construction Worker receptor. Finally, the equation provided in this section leads to the calculation of an inhalation dose. This is contrary to current guidance provided in USEPA RAGS Part F. Inhalation risks and hazards should be calculated using estimated air exposures in milligrams per cubic meter coupled with cancer IURs and non-cancer RfCs.

- 44) **Appendix C, Section 3.1** – As discussed above in our previous comment, IURs and RfCs should be used for calculating risks and hazards due to the inhalation of site contaminants. Identification of inhalation RfDs and CSFs in the first paragraph of this section should be corrected.
- 45) **Appendix C, Table 2** – Each of the four receptors presented in this table include an entry for “Inhalation of Air/Dust”. For clarity and consistency, please revise the occupational worker, recreational/trespasser, and residential receptor routes to “Subsurface Soil – Inhalation of Vapors” and “Surface Soil – Inhalation of Dusts”. The construction worker receptor should be corrected to show that they will be exposed to surface and subsurface vapors and dusts. Typically indoor residential and occupational vapor exposure is also included.
- 46) **Appendix C, Tables 3 and 4** – For both Tables 3 and 4, ingestion/dermal and inhalation of dust/vapor exposure assumptions need to be added for the Occupational Worker, adolescent recreational/trespasser, and adult recreational/trespasser receptors. Also, the listed PEF in both tables for the Construction Worker inhalation pathway could not be located in the referenced literature source.
- 47) **Appendix C, Figure 6-1** – Figure 6-1 presents a graphic view of the conceptual site model. The last transport pathway entry on this figure is titled “Direct Contact During Construction”. This title is incorrect since completed pathways for residential receptors are

indicated. The differences in this figure and Figure 10-4, an earlier conceptual site model, should be reconciled as well.

- 48) **Appendix D** – The following Laboratory Standard Operating Procedures (SOPs) are not signed; SOP-149, SOP-164, SOP-168, SOP-181, and SOP-198. Please provide properly signed copies of those SOPs.
- 49) **Appendix F** – The title page should not use acronyms, but rather should write out the definitions for PALs, TCLP, and Refs.
- 50) **Appendix F** – The subject appendix includes three sets of tables. The first is an unlabelled spreadsheet of the chemical-specific project action limits (PALs). The second, Appendix F-1, is a summary of these values. Explain the absence of volatile organic compounds from these tables and the selection process for the abbreviated list of semi-volatile organic compounds. Also, TACO construction worker objectives should be added to the unlabelled spreadsheet table.
- 51) **Appendix F, F-1** – The table uses many abbreviations that are not defined anywhere on the page. Please add those definitions below the table.

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: [Signature] fac:HGLNTC\Site 12\Site12SAPrvw

cc: Biff Cummings, Tetra Tech NUS, Inc.

Owen Thompson, USEPA (SR-6J)