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NSTC GREAT LAKES
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U S NAVY RESPONSE TO ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
COMMENTS ON DRAFT SITE INVESTIGATION REPORT SITE 21 NSTC GREAT LAKES IL
8/1/2010
U S NAVY

**RESPONSE TO COMMENTS
ILLINOIS EPA REVIEW
AUGUST, 2010
SITES 21 DRAFT SITE INVESTIGATION REPORT
NAVAL STATION GREAT LAKES**

The following provides responses to comments made by Illinois EPA in a July 19, 2010 letter to Mrs Terese Van Donsel regarding the Draft Site Inspection (SI) Report for Site 21 – Building 1517/1506 Area Unit located at Naval Station Great Lakes.

Tetra Tech discussed the status of the Site Investigation (SI) and risk screening report in a meeting with the Navy on September 23, 2010. Tetra Tech and the Navy concluded that the SI and risk screening report would be converted to a Remedial Investigation (RI) Report and that a Human Health Risk Assessment (HHRA) would be completed.

- 1) **General Comment:** This report utilizes a screening process whereby site concentrations are compared to accepted, published risk-based environmental levels. For this purpose, the report uses the TACO residential and industrial/commercial receptor remediation objectives while maintaining that they are the most protective. This is incorrect. TACO industrial/commercial values will never be more protective than the residential values; however, the TACO construction worker objectives will occasionally be lower than the residential values. Although the TACO industrial/commercial worker may closely mimic the exposure regimen of workers at Site 21, if the overriding goal is to be protective, the construction worker objectives must be included. Soil intrusive activities for utility installation or repair are possible, and likely, at Site 21 further supporting use of construction worker objectives for screening.

Response: We are in agreement and it has been decided that a full HHRA is going to replace the Screening Evaluation (SE). As always, the HHRA will follow all USEPA guidelines (and utilize ProUCL). The data will be reviewed to determine completeness and if additional data are required prior to the RA is conducted. In addition, TACO construction screening criteria will be used in the HHRA.

- 2) **Executive Summary:** Illinois EPA does not recall discussing a risk screening evaluation during the scoping of this Site Inspection and development of the Sampling and Analysis Plan (SAP). Contaminant concentrations were to be compared to the minimum screening criteria with the result being that, if no exceedances were identified a No Further Action determination would be made. If contamination was discovered above those screening criteria, a Remedial Investigation would be required. Inclusion of the Human Health Screening Section, while informative, is premature. Given that numerous exceedances of the agreed upon screening levels have been reported within this report, a Remedial Investigation (RI) is warranted to fully determine the nature and extent of contamination at this site. A risk assessment should not be conducted until the RI is complete.

Response: Please see response to Comment #1.

- 3) **Executive Summary:** In the second paragraph on page ES-5. The fourth sentence states, "Site concentrations are within the 10-6 to 10-4 risk target range..." This is inaccurate. Calculated site risks might be within the range, but concentrations cannot. In addition, this paragraph lists the major contributors to the cancer and non-cancer risk calculations for surface soil, but does not present that information for subsurface soil. That information should be provided here as well.

Response: This text will be removed. Please see response to Comment #1.

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- 4) **Section 3.4:** In the fourth paragraph of this section, the second sentence states that dioxin/furan analyses will be done on samples containing ash or cinders. The rationale for this practice should be stated.

Response: The handling of fly ash from the incinerator may have resulted in soil contamination. Subsurface soil contamination may exist if fly ash was used as fill material. Therefore dioxin/furan analysis was done on any samples containing ash or cinders.

- 5) **Section 3.5.3:** It states here that rising head hydraulic conductivity tests were completed to characterize the subsurface groundwater conditions. Worksheet 14 of the SAP states "Rising- and falling-head slug tests will be used to determine the hydraulic conductivity of the aquifer." Please explain why no falling head tests were conducted in accordance with the SAP.

Response: According to the partial penetration and the unconfined nature of the unit tested, the falling head test is not valid in those conditions.

- 6) **Section 3.6.1:** The last sentence states that three surface samples and one subsurface sample were collected for dioxins/furans analysis. The SAP, on worksheet 18 lists the number of subsurface samples for dioxins/furans analysis as 3 plus one duplicate. Please explain why only one subsurface sample was collected.

Response: Please see response to Comment #4.

- 7) **Section 4.3:** The dioxin/furans summary of this section includes a table of detected parameters and results. The frequency of detection indicates that two soil samples were analyzed for these parameters. This contradicts Table 3-2 which shows that three soil samples were obtained for analyses.

Response: Table 3-2 will be revised based on the above comment.

- 8) **Table 4-4:** The State suggests the following corrections for this table:

- The TACO construction worker receptor objectives should be added to this table.
- The practice of reporting one-tenth of the literature value for non-carcinogenic parameters should be stated in the text or as a footnote and justified.
- The exemption from reporting one-tenth the screening value for non-carcinogenic criteria designed to protect groundwater from soil contamination should be stated and justified.
- Five parameters on this table are transitioning from non-TACO status to the TACO regulation. Objectives for 2-butanone, isopropyl benzene, trichlorofluoromethane, 2-methylnaphthalene, and dicamba can be found in the Agency authored initial filing, plus addenda, to the Illinois Pollution Control Board. These documents are available on the Board's web site: <http://www.iqcb.state.il.us/COOLIEExternalCaseView.aspx?case=13524>.
- The abbreviation "sat" should be defined.
- An explanation should be provided to tell why some criteria are coded neither "carcinogen" nor "non-carcinogen".
- The USEP A soil and migration to groundwater criteria for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene could not be confirmed. Please explain.
- The PCB-related parameters (aroclor) should be combined and compared to the TACO entry for PCBs. This could follow the pattern established for "Total PAHs".
- The chlordane-related parameters should be combined and compared to the TACO entry for chlordane, i.e., total chlordanes.

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- The endosulfan-related parameters should be combined and compared to the TACO entry for endosulfan, i.e., total endosulfans.
- The source of the dioxin and furan screening values for the USEPA residential soil and USEPA risk-based screening (protection of groundwater) criteria should be explained.
- The TACO and non-TACO Class I soil to groundwater criteria units should be corrected to mg/L. These criteria are designed to be compared to results from extraction procedures, TCLP or SPLP.

Response: Table 4-4 will be revised based on the above comments. Revisions were made to the second bullet item on page 3, and elsewhere, that the existing Skokie Ditch storm sewer lines will be grouted closed.

- 9) **Table 4-5:** The screening criteria should be revised per the comments for Table 4-4. Averaging should conform to the procedures presented in the USEPA ProUCL guidance.

Response: Table 4-5 will be revised based on the above comment.

- 10) **Table 4-6:** The screening criteria should be revised per the comments for Table 4-4. Additionally, it is imperative that analytical methods achieve levels of detection that are at or below the screening criteria. These levels were not achieved in some cases at this site. This situation must be corrected or the impact must be explained and justified. The exceedances flagged for the inorganic parameters based on TACO criteria are incorrect. TACO criteria are to be compared to extraction test results.

Response: Table 4-6 will be revised based on the above comment.

- 11) **Table 4-7:** The screening criteria should be revised per the comments for Table 4-4. ProUCL should be used for averaging.

Response: Table 4-7 will be revised based on the above comment.

- 12) **Table 4-8:** See comment for Table 4-6.

Response: Table 4-8 will be revised based on the above comment.

- 13) **Table 4-9:** The State suggests the following corrections for this table:

- The practice of reporting one-tenth of the literature value for non-carcinogenic parameters should be stated in the text or as a footnote and justified.
- The chlordane-related parameters should be combined and compared to the TACO entry for total chlordane.
- The USEPA tapwater criteria for Acenaphthalene, benzo(g,h,i)perylene, and delta-BHC could not be verified.
- The final 15 entries for inorganics are duplicates and should be deleted.

Response: Table 4-8 will be revised based on the above comment.

- 14) **Table 4-10:** A data averaging plan should be developed for situations where sample numbers are low and detections are rare.

Response: Table 4-10 will be revised based on the above comment.

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Discuss with IEPA to see if we still want/need to include Risk Assessment.

- 15) **Section 5:** This is the Human Health Risk Screening Evaluation. As a Site Inspection (SI), the purpose of the investigation, as stated in the SAP, was "to collect soil and groundwater data to determine through a screening analysis if chemical concentrations are greater than acceptable risk-based human health screening levels. The possible outcomes of this SI are No Further Action (NFA) if chemical concentrations are less than acceptable human health risk levels, or a Remedial Investigation (RI) to determine nature and extent of contamination." (There was no Human Health Risk Assessment Work Plan included in the SAP.) The data presented in this SI show numerous exceedances of the agreed upon screening levels listed in the SAP for both soil and groundwater. Therefore, a Remedial Investigation is warranted to fully determine the nature and extent of contamination at this site. Although the provided human health risk screening evaluation is helpful in understanding site risks, it is premature to conduct a risk assessment until a complete set of data has been collected.

Response: We are in agreement and it has been decided that a full HHRA is going to replace the SE. As always, the HHRA will follow all USEPA guidelines (and utilize ProUCL). The data will be reviewed to determine completeness and if additional data are required prior to the RA is conducted. In addition, all of the following issues/comments/questions pertaining to Section 5 will be addressed by the replacement of the SE with the HHRA.

- 16) **Section 5.1:** It states here that "A COPC was identified if the maximum detected concentration of a chemical exceeded the minimum of the Illinois EPA or the USEP A ORNL RSL for that chemical." The lists presented in the subsequent sections do not match the exceedance lists provided in Sections 4.3, 4.4, and 4.5. Please explain and justify the removal of the TACO and non-TACO Industrial/Commercial ingestion and inhalation criteria, the TACO and non-TACO Soil Component of the Class I Groundwater Ingestion Pathway criteria, and the USEP A Protection of Groundwater RSL criteria.

Response: Refer to above response.

- 17) **Section 5.2.2** - Under Groundwater, the flow of groundwater is stated as generally from the southeast. This should read to the southeast.

Response: Refer to above response.

- 18) **Section 5.4** - Insufficient data such as adequate exposure point concentration estimates and current toxicological values are provided to quantify risks and hazards from chemical contaminants at this site. At best, a qualitative estimate of potential problems could be made.

Response: Refer to above response.

- 19) **Section 5.5** - Another source of uncertainty, which should be included in this section, would be that because the study data does not have the identified soil and groundwater contamination properly delineated, the listed contaminant concentrations may not be accurate either in number of exceedances or in the maximum concentrations.

Response: Refer to above response.

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- 20) **Section 5.6** - The comparison of site data to Illinois EPA Background in soil for PAHs is acceptable only in that it is being used to discuss uncertainty and then only for surface soils. Illinois EPA's Tiered Approach to Corrective Action Objectives (TACO) regulations are not ARAR at this site and that background data was generated using only surface soils so its use in the discussion of subsurface soils is inappropriate.

Response: Refer to above response.

- 21) **Tables 5-1 and 5-2** - Because dioxins/furans have similar health effect endpoints and the assessment of their risks relates back to the most studied constituent in the group, they should be evaluated as a mixture, i.e., Total Dioxins/Furans or TCDD Equivalents. The 2,3,7,8-TCDD equivalencies should be calculated using the most current guidance, summed, and compared to the 2,3,7,8-TCDD screening value.

Response: Refer to above response.

- 22) **Table 5-3** - Please explain why the results of the detected dioxins/furans in groundwater are missing from this table.

Response: Refer to above response.

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- 23) **Section 6.0** - The Summary and Conclusions Section should include discussion of the sampling results for surface and subsurface soil and for groundwater. It should list the constituents that had exceedances of the approved screening values and state that nature and extent have not been fully determined. It should conclude that a remedial investigation is necessary to determine the nature and extent of contamination in both soil and groundwater. It should also discuss the specific locations where contamination has been identified and indicate where additional investigation should be conducted. One example would be the northwest corner of the site for PAHs in soil and for benzene and PCE in groundwater.

Response: Tetra Tech discussed the status of the SI and risk screening report in a meeting with the Navy on September 23, 2010. Tetra Tech and the Navy concluded that the SI and risk screening report would be converted to a RI Report and that a HHRA would be completed.

- 24) **Section 6.2** - The Human Health Risk Screening discussion provided herein is just that, a screening discussion only. Since the nature and extent of the identified contaminants have not been completely characterized, a proper risk assessment cannot be completed. A remedial investigation is warranted to obtain the required information to conduct a proper risk assessment.

Response: Please see response to Comment #23.

- 25) **Section 6.2:** The actual calculated values for the ILCR and HI for the residential and industrial/commercial screening criteria should be provided here rather than just stating that they were in exceedance of or below the risk targets.

Response: A discussion of the data will be added to Section 6.2.

- 26) **Section 6.2**, Third Paragraph - See comment number 2 above.

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Response: We are in agreement and it has been decided that a full HHRA is going to replace the SE. As always, the HHRA will follow all USEPA guidelines (and utilize ProUCL). The data will be reviewed to determine completeness and if additional data are required prior to the RA is conducted. In addition, TACO construction screening criteria will be used in the HHRA.

- 27) **Appendix B-IO** - The provided chain-of-custody forms do not appear to contain all of the necessary information and what is provided requires clarification. The forms show the samples being received by the shipper, but not by the laboratory. In addition, there is consistently a one hour difference between relinquishing the samples and receipt by the shipper. Please explain the time gap.

Response: The chain-of-custody forms signed by the laboratory will replace the chain-of-custody forms provided in the Draft Site Inspection Report.

- 28) **General Comment** - It is noted that data from certain environmental investigations such as the geophysical surveys and filtered groundwater analyses are presented in the report, but no discussion or conclusions are drawn from the results. An explanation should be provided.

Response: A discussion regarding geophysical survey and filtered sampling will be added to the conclusions section of the RI report.

- 29) **General Comment** - The Navy has requested to incorporate the soil data from one soil boring collected as part of the B 1600A Closure activities into this site investigation. The Agency is inclined to allow this request, but has asked that the data from two other borings from that site be included as well. This report does not currently include that information. Those soil borings, identified as SB09, SB 1 0, and SB 11, and all of the relevant data should be provided/copied within this report. (It should be noted that one boring notes the soil as being black with hydrocarbon odors and another notes black fill material, coal, and slag within the boring.)

Response: *Talk with Terese about this.*