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NSTC GREAT LAKES
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U S NAVY RESPONSES TO ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
COMMENTS ON THE DRAFT FOCUSED FEASIBILITY STUDY FOR SITE 5, SITE 9, AND
SITE 21 NSTC GREAT LAKES IL
8/27/2013
TETRA TECH

**Responses to Illinois EPA's August 8, 2013 Comments
Draft Sites 5, 9, and 21 Focused Feasibility Study Report
Naval Station Great Lakes, Great Lakes, Illinois**

Date Issued: August 27, 2013

Comment 1: Sections 1.2.3, 1.3.3, and 1.4.3 - These sections discuss the level of contamination at each site relative to USEPA screening criteria and Illinois EPA's Tiered Approach to Corrective Action Objectives (TACO). These sections do not indicate whether the waste, contaminated soil, or groundwater exhibited a characteristic of a hazardous waste, or if data exists to indicate these media contain a listed hazardous waste. This information is critical to properly identify the regulatory classification of the waste and contaminated soil and to identify the Applicable or Relevant and Appropriate Regulations (ARARs) for any proposed remedial action. These sections should be revised to indicate if the waste or contaminated media at each site exhibit a characteristic of a hazardous waste or would contain a listed hazardous waste, if generated. Soils should not be excavated unless their regulatory classification has been determined. On-site management of hazardous waste can trigger additional hazardous waste ARARs.

Response: Per discussions between the Navy, Illinois EPA, and Tetra Tech on August 14, 2013, the following text will be inserted into Sections 1.2.3, 1.3.3, and 1.4.3:

"No information has been identified to indicate the presence of listed hazardous waste at the site. Based on the analytical data from the site and the analysis of the investigation-derived waste, the contaminant concentrations do not suggest the soil and groundwater would be characteristically hazardous."

Comment 2: Section 2.2.1 - Under both Surface and Subsurface Soil - Residential, it is understood why the TACO values for ingestion and inhalation have been chosen as potential PRGs, since they represent a risk-based level of 10^{-6} . However, one of the other potential PRGs is listed as "ILCR 10^{-5} Risk-based PRG using USEPA methods (considered 10^{-4} to 10^{-6} , but generally found to be protective)". Please provide justification for potentially using the 10^{-5} value rather than the 10^{-6} value. According to the NCP, "First, EPA will use an individual lifetime excess cancer risk of 10^{-6} as a point of departure for establishing remediation goals for the risks from contaminants at specific sites." Illinois EPA requires a calculated cancer risk level of 1×10^{-6} as the remedial action objective when developing remedial alternatives. Sites where the risk level falls between 1×10^{-4} and 1×10^{-6} are not necessarily considered protective, but require risk management decisions to be made and will likely require institutional controls.

Response: Per discussions between the Navy, Illinois EPA, and Tetra Tech on August 14, 2013, the PRG selection process for surface and subsurface soil will be modified to address Illinois EPA's comment as follows:

Surface Soil

Metals: Select the lower of the Residential Inhalation TACO and Residential Ingestion TACO as the PRG. If background is higher than the minimum TACO, then select background as the PRG.

Exceptions:

- Iron has no TACO values. The only other value developed was the HI risk-based value of 55,000 mg/kg. (Background is 15,900 mg/kg.)
- If the maximum lead concentration is greater than 400 mg/kg, then lead will be included as a COC with a PRG of 400 mg/kg.

PAHs: The lower of the Residential Inhalation TACO and Residential Ingestion TACO will be selected as the PRG. If background is higher than the minimum TACO, then background will be selected as the PRG.

Subsurface Soil

Metals: The lower of the Residential Inhalation TACO and Residential Ingestion TACO will be the PRG. If background is higher than the minimum TACO, then background will be selected as the PRG.

Exceptions:

- Iron has no TACO values. The only other value developed was the HI risk-based value of 55,000 mg/kg.
- Cobalt has a TACO value of 2,400 mg/kg and a HI risk-based value of 24 mg/kg. In this case, the lower value (24 mg/kg) will be selected.
- If the maximum lead concentration is greater than 400 mg/kg, then lead will be included as a COC, with a PRG of 400 mg/kg.

PAHs: Use the PRGs based on an ILCR of 10^{-5} .

Revised PRG tables were submitted to Illinois EPA for review and approval. The revised tables are attached to this Response-to-Comment document.

Comment 3: Section 2.2.1 - Under both Surface and Subsurface Soil - Residential, Illinois EPA does not agree with the third step in the PRG selection process, in which the greater of the two PRG values is selected so as not to be overly conservative. As noted above, the Agency requires a calculated cancer risk level of 1×10^{-6} as the remedial action objective when developing remedial alternatives.

Response: See the Response to Comment 2 regarding the new PRG selection process. In addition, the following sentences were deleted from the 6th paragraphs under Surface Soil – Residential and Subsurface Soil – Residential subsections, respectively, in Section 2.2.1:

~~“In those cases, the greater of the two values is selected so that the PRGs are not overly conservative. However, for a COC for which the difference is an order of magnitude or more, suggesting that significantly different assumptions were made in~~

~~the risk evaluation method, the lower value is used to provide better certainty of protectiveness.”~~

The following sentence will be added to Surface Soil – Residential subsection at the end of 6th paragraph:

“Actual application of PRGs does allow for the use of site-wide evaluations of contaminant concentrations. Therefore, PRGs do not necessarily represent a “not to exceed” concentration.”

The following sentence will be added to Subsurface Soil – Residential subsection at the end of 6th paragraph:

“Actual application of PRGs does allow for the use of site-wide evaluations of contaminant concentrations. Therefore, PRGs do not necessarily represent a “not to exceed” concentration. For selection of PAH subsurface soil PRGs, this FFS utilizes 1×10^{-5} target concentrations based on a comparison to acceptable PAH background surface soil risk levels.”

Comment 4: Section 2.4 - Please explain why the depth of contamination for the estimated volume of contaminated soil in the surface and subsurface is stated as being "not deeper than the water table in any case." If the remedy includes a removal, all contamination or waste above the PRGs should be removed regardless of whether it is above or below the water table.

Response: The depth of contamination was based on the surface and subsurface soil results. Contaminated soil was not identified below the water table. The following phrase will be deleted from the first sentence in the second paragraph of Section 2.4:

~~“...; but is not deeper than the water table in any case.”~~

Comment 5: Table 2-2 - This table states there are no State or Federal Location-Specific ARARs. The FFS should clarify that the Navy has considered the following regulations and found that they are neither applicable nor relevant and appropriate: 35 Illinois Administrative Code (IAC) 703.184, 724.118, 35 IAC 811.102, 811.302, and Section 22.19a and 22.19b of the Illinois Environmental Protection Act.

Response: Agree. The regulations referenced in Illinois EPA's comment will be included in Section 2.1.2.2 Location-Specific ARARs and TBCs.

Comment 6: Table 2-3 - Other State requirements that will be potentially applicable at these sites are the Uniform Environmental Covenant Act (UECA) at 765 ILCS 122 and the Illinois Solid Waste and Special Waste Hauling regulations at 35 IAC 809. The sections describing the remedial alternatives should describe how those alternatives comply with these requirements.

Response: Agree. The regulations referenced in Illinois EPA's comment will be incorporated into Table 2-3. The alternative-specific discussions on compliance with ARARs/TBCs will be updated accordingly.

Comment 7: Table 2-4 - The values used in this and all subsequent tables should be the most up-to-date values available. Since the TACO regulations have just been updated, any revised values should be used and appropriately referenced.

Response: Agree. The only impact based on the new TACOs was on the groundwater indoor inhalation TACOs. The Section 2 PRG tables were updated to incorporate the most recent TACO values (2013).

Comment 8: Table 2-4 - The following surface soil PRGs and the basis for use should be revised as noted:

- Arsenic - 13 mg/kg (background)
- Manganese - 1600 mg/kg (TACO Residential Ingestion)
- Benzo(k)fluoranthene - 1500 µg/kg (ILCR=1E-6)

Response: See the Response to Comment 2 and the revised Table 2-4 that is attached to this Response-to-Comment document.

Comment 9: Table 2-4 - The following sub-surface soil PRGs and the basis for use should be revised as noted:

- Manganese - 1600 mg/kg (TACO Residential Ingestion)
- Benzo(a)anthracene - 900 µg/kg (TACO Residential Ingestion)
- Benzo(a)pyrene - 90 µg/kg (TACO Residential Ingestion)
- Benzo(b) Fluoranthene - 900 µg/kg (TACO Residential Ingestion)
- Benzo(k)fluoranthene - 1500 µg/kg (ILCR=1E-6)
- Dibenzo(A,H)anthracene - 90 µg/kg (TACO Residential Ingestion)
- Indeno(1,2,3-CD)pyrene - 900 µg/kg (TACO Residential Ingestion)

Response: See the Response to Comment 2 and the revised Table 2-4 that is attached to this Response-to-Comment document.

Comment 10: Table 2-5 - This table omits lead and it's PRG of 400 mg/kg. Also, the following sub-surface soil PRGs and the basis for use should be revised as noted:

- Manganese - 1600 mg/kg (TACO Residential Ingestion)
- Benzo(a)anthracene - 900 µg/kg (TACO Residential Ingestion)
- Benzo(a)pyrene - 90 µg/kg (TACO Residential Ingestion)
- Benzo(b) Fluoranthene - 900 µg/kg (TACO Residential Ingestion)
- Benzo(k)fluoranthene - 1500 µg/kg (ILCR=1E-6)
- Dibenzo(A,H)anthracene - 90 µg/kg (TACO Residential Ingestion)
- Indeno(1,2,3-CD)pyrene - 900 µg/kg (TACO Residential Ingestion)

Response: See the Response to Comment 2 and the revised Table 2-5 that is attached to this Response-to-Comment document.

Comment 11: Table 2-6 - The following surface soil PRGs and the basis for use should be revised as noted:

- Arsenic - 13 mg/kg (background)
- Benzo(k)fluoranthene - 1500 µg/kg (ILCR=1E-6)
- Chrysene - 88,000 µg/kg (TACO Residential Ingestion)

Response: See the Response to Comment 2 and the revised Table 2-6 that is attached to this Response-to-Comment document.

Comment 12: Table 2-6 - The following sub-surface soil PRGs and the basis for use should be revised as noted:

- Arsenic - 13 mg/kg (background)
- Benzo(a)anthracene - 900 µg/kg (TACO Residential Ingestion)
- Benzo(a)pyrene - 90 µg/kg (TACO Residential Ingestion)
- Benzo(b) Fluoranthene - 900 µg/kg (TACO Residential Ingestion)
- Benzo(k)fluoranthene - 1500 µg/kg (ILCR=1E-6)
- Chrysene - 88,000 µg/kg (TACO Residential Ingestion)
- Dibenzo(A,H)anthracene - 90 µg/kg (TACO Residential Ingestion)
- Indeno(1,2,3-CD)pyrene - 900 µg/kg (TACO Residential Ingestion)

Response: See the Response to Comment 2 and the revised Table 2-6 that is attached to this Response-to-Comment document.

Comment 13: Table 2-7 - There are two columns identified as "TACO Industrial/Commercial Inhalation⁽²⁾." The second column should read "TACO Industrial/Commercial Ingestion⁽²⁾."

Response: Agree. The requested correction was made to the header of the second column in Table 2-7.

Comment 14: Table 2-8 - This table omits lead and its PRG for groundwater, which should be 7.5 µg/L.

Response: Agree. The requested lead PRG for groundwater (7.5 µg/L) was added to Table 2-8.

Comment 15: Section 2 Figures - Any revisions of the PRGs as noted above will need to be revised within these figures as well.

Response: Agree. The Section 2 figures were updated to capture the changes to the PRGs.

Comment 16: Figure 2-6 - This figure omits the lead exceedances in the subsurface soil. These should be identified here.

Response: Agree. The tags on Figure 2-6 were updated to include the detections of lead in subsurface soil that exceed the lead PRG of 400 mg/kg.

Comment 17: Sections 4.2.1, 4.2.2, and 4.2.3 - In each case, a part of two of the remedial alternatives listed includes the term "cover". That is a fairly non-descript term. Please explain in each case what is meant. Would that be considered an engineered barrier or a landfill cap?

Response: Per discussions between the Navy, Illinois EPA, and Tetra Tech on August 14, 2013, the term "cover" was replaced by "barrier." The composition of each "barrier" (e.g., existing soil, asphalt, concrete, or buildings) was included in the updated remedial alternative descriptions.

Comment 18: Sections 5, 6, and 7 - The subsections of these sections describing how each alternative complies with the ARARs and TBCs should identify the ARARs and describe how the remedy would comply with them.

Response: The ARAR/TBC tables included in Section 2 were updated to capture general compliance issues for certain technologies included in the remedial alternatives. In addition, the text of the Detailed Analysis – Compliance with ARARs and TBCs subsections for each alternative in Sections 5, 6, and 7 were updated to capture general compliance issues for the remedial alternatives. In addition, the forthcoming ARAR/TBC tables for the Record of Decision for the selected alternatives will include a detailed compliance evaluation for each alternative.

Example text for Alternative 5-2 is provided below:

"Risk-based chemical-specific TBCs (CSFs, RfDs, USEPA Guidance documents, and Illinois) will be met through a combination of barriers and LUCs which prevent exposure and eliminate risk. Compliance with groundwater quality standard regulations will be attained by meeting the requirements for alternative standards by implementing groundwater LUCs to prevent groundwater use. NSGL is in the Chicago Metropolitan area, so the background soil concentrations in 35 IAC 742 for this area are used in the development of PRGs.

There are no location-specific ARARs or TBCs for this alternative.

Action-specific ARARs and TBCs will be met. No wastes would be generated for this alternative, so hazardous waste characterization and generator management regulations are not pertinent. Fugitive dust would be controlled as needed during maintenance of the barrier, such as replacement of paving."

For the excavation alternatives and the ISCO components, similar text was prepared.

Comment 19: Section 5.1.2 - The title for Alternative 5-2 is LUCs, Cover, and Monitoring. Suggest using the term engineered barrier, rather than cover for this alternative. In addition, the "cover" is only described as the existing pavement. A better description of what the actual barrier material will be comprised of is required. Will it be 4 inches of concrete, 6 inches of asphalt, three feet of compacted clay, or a combination of these? Please be more specific.

Response: See the Response to Comment 17.

Comment 20: Section 5.1.2.1 - The surveyor mentioned in this section should be an Illinois licensed professional surveyor.

Response: Agree. The text was changed per Illinois EPA's recommendation to the following:

"Illinois Licensed Professional Land Surveyor"

Comment 21: Section 5.1.3 and 5.1.3.1 - See previous comments regarding Section 5.1.2 and 5.1.2.1.

Response: See the Responses to Comments 19 and 20.

Comment 22: Section 5.1.3.1, 6.1.3.1, and 7.1.3.1 - The approximate dimensions of the proposed ISCO treatment area should be provided here along with the number of proposed wells.

Response: Agree. The dimensions of the proposed ISCO treatment areas (i.e., 50 feet by 50 feet) were added to Sections 5.1.3.1, 6.1.3.1, and 7.1.3.1.

Comment 23: Table 5-1 - Under Alternative 5-2A for Short-Term Effectiveness in the first line, remove the word "not". Implementing In-situ Chemical Oxidation (ISCO) would result in a slight increase of risks to remediation workers.

Response: Agree. The word "not" was deleted as requested from Table 5-1.

Comment 24: Section 5 Figures - Any revisions of the PRGs as noted above will need to be revised within these figures.

Response: Agree. Please see the Response to Comment 2. The Section 5 figures were updated to capture the new PRGs.

Comment 25: Figure 5-4 - Please explain why this figure is included. The previous figure already provides the soil excavation limits for Alternative 5-3. This figure merely breaks out

the soil to be excavated for the subsurface only. There is no option provided in Alternative 5-3 for excavating only surface or subsurface soil, so this figure is unnecessary.

Response: Per discussions between the Navy, Illinois EPA, and Tetra Tech on August 14, 2013, Figure 5-4 will be retained. The figure was included to depict the difference between the excavation limits for surface soil shown on Figure 5-3 and the excavation limits for subsurface soil.

Comment 26: Section 6.1.2 - The title for Alternative 9-2 is LUCs, Cover, and Monitoring. Suggest using the term landfill cap or cap, rather than cover for this alternative. In addition, the "cover" is only described as the existing soil cover, pavement, and buildings. A better description of what the actual cap materials will be comprised of is required. Will it be 4 inches of concrete, 6 inches of asphalt, three feet of compacted clay, or a combination of these? Please be more specific.

Response: See the Response to Comment 17.

Comment 27: Section 6.1.2.1 - The surveyor mentioned in this section should be an Illinois licensed professional surveyor.

Response: Agree. See the Response to Comment 20.

Comment 28: Section 6.1.2.2 - On page 6-4 under Compliance with ARARs and TBCs, the last paragraph states that supplemental landfill cover improvements are not required. Without a description of the materials being referenced here, there is no way to confirm that statement. Sufficient justification needs to be provided to back up such a statement.

Response: See the Response to Comment 17.

Comment 29: Section 6.1.3 and 6.1.3.1 - See previous comments regarding Section 6.1.2 and 6.1.2.1.

Response: See the Responses to Comments 26 and 27.

Comment 30: Section 6.1.3.2 - On page 6-7 under Compliance with ARARs and TBCs, the last paragraph states that supplemental landfill cover improvements are not required. Without a description of the materials being referenced here, there is no way to confirm that statement. Sufficient justification needs to be provided to back up such a statement.

Response: See the Response to Comment 17.

Comment 31: Table 6-1 - Under Alternative 9-2A for Short-Term Effectiveness in the first line, remove the word "not". Implementing In-situ Chemical Oxidation (ISCO) would result in a slight increase of risks to remediation workers.

Response: Agree. See the Response to Comment 23.

Comment 32: Section 6 Figures - Any revisions of the PRGs as noted above will need to be revised within these figures. The figures also do not show the lead exceedances.

Response: Agree. All Section 6 Figures were updated to capture the revised PRGs. The figures were also updated to show all lead exceedances.

Comment 33: Figure 6-1 - The location of the box for the Groundwater LUC Boundary appears to be incorrect. Please review and revise as necessary.

Response: The Groundwater LUC Boundaries were revised to show the areas affected by arsenic and lead.

Comment 34: Figure 6-2 - The location of the box for the ISCO Treatment Area appears to be incorrect. Please review and revise as necessary.

Response: The figure was revised to show the location of the ISCO treatment for arsenic, and areas for LUCs for lead.

Comment 35: Figure 6-3 - The excavation limits are not delineated in this figure, as stated. Please review and revise as necessary.

Response: The excavation limits were added to Figure 6-3.

Comment 36: Section 7.1.2 - The title for Alternative 21-2 is LUCs, Cover, and Monitoring. Suggest using the term engineered barrier, rather than cover for this alternative. In addition, the "cover" is only described as the existing pavement. A better description of what the actual barrier material will be comprised of is required. Will it be 4 inches of concrete, 6 inches of asphalt, three feet of compacted clay, or a combination of these? Please be more specific.

Response: See the Response to Comment 17.

Comment 37: Section 7.1.2.1 - The surveyor mentioned in this section should be an Illinois licensed professional surveyor.

Response: See the Response to Comment 20.

Comment 38: Section 7.1.2.2 - Under Short-Term Effectiveness, sustainability is listed as moderate. However, the values provided are identical to those listed for

Alternative 9-2 and its sustainability value is listed as low. Please rectify this discrepancy.

Response: The sustainability value of moderate was incorrect. The value was changed to low and is now consistent with Alternative 9-2. However, it should be noted that the sustainability values will be revisited and updated after all changes are made to the alternatives based on these responses to Illinois EPA comments. It is possible that additional changes to the sustainability values will be required.

Comment 39: Section 7.1.3 and 7.1.3.1 - See previous comments regarding Section 7.1.2 and 7.1.2.1.

Response: See Responses to Comments 36 and 37.

Comment 40: Section 7.1.5 - The title of this subsection leaves out ISCO, which is part of this alternative.

Response: Agree. The title was updated to include ISCO.

Comment 41: Table 7-1 - Under Alternative 21-2A for Short-Term Effectiveness in the first line, remove the word "not". Implementing In-situ Chemical Oxidation (ISCO) would result in a slight increase of risks to remediation workers.

Response: Agree. See the Response to Comment 23.

Comment 42: Section 7 Figures - Any revisions of the PRGs as noted above will need to be revised within these figures.

Response: Agree. All Section 7 figures were updated to capture the revised PRGs.

Comment 43: Appendix A - The title of this appendix is misspelled.

Response: Agree. The spelling error was corrected.

Comment 44: Appendix D - The title of the cost estimate pages for Alternative 21-2A is incorrect. It should read Alternative 21-2A: LUCs, Cover, ISCO, and Monitoring.

Response: Agree with clarification. The title will be changed to the following:

"Alternative 21-2A: LUCs, Barrier, ISCO, and Monitoring"

Additional Information:

It should be noted that during the August 14, 2013 discussions between the Navy, Illinois EPA, and Tetra Tech, it was decided that the monitoring component in Alternatives 5-2, 9-2, and 21-2 should be deleted. Subsequent to the meeting, Tetra Tech determined that the monitoring component associated with the LUCs in Alternatives 5-2A, 9-2A, and 21-2A, should also be deleted, but the monitoring component associated with the ISCO treatment portion of the alternatives should be maintained.

Additionally, text was added to Section 6 that indicates additional delineation will be required at Site 9 prior to excavation because of the uncertainty associated with the volume of soil requiring excavation.