

N00210.AR.000653  
NSTC GREAT LAKES  
5090.3a

LETTER REGARDING ILLINOIS ENVIRONMENTAL PROTECTION AGENCY COMMENTS  
ON THE DRAFT FINAL REMEDIAL INVESTIGATION/RISK ASSESSMENT REPORT FOR  
SITE 12 HARBOR DREDGE SPOIL AREA NSTC GREAT LAKES IL  
3/18/2014  
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY



# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397

PAT QUINN, GOVERNOR

LISA BONNETT, DIRECTOR

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

March 18, 2014

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

Re: Draft Final Remedial Investigation /  
Risk Assessment Report for the Site 12 -  
Harbor Dredge Spoil Area  
Naval Station Great Lakes

0971255048 -- Lake County  
Naval Station Great Lakes  
Superfund/Technical File

Dear Ms. Van Donsel:

The Illinois Environmental Protection Agency (Illinois EPA or Agency) is in receipt of the Navy's *Draft Final Remedial Investigation/Risk Assessment Report for Site 12 – Harbor Dredge Spoil Area, Naval Station Great Lakes, Great Lakes, Illinois (RI/RA)*. It was dated December 2013 and received at the Agency on December 16, 2013. The RI was conducted to determine the nature of fill materials placed at the site, to delineate areas of impacted soil/fill, and evaluate the potential for contaminants to migrate to groundwater at Site 12. The data were then used to conduct a human health risk assessment and an ecological risk assessment for the site.

Illinois EPA has conducted a review of the submittal and has generated the following comments for the Navy to consider.

- 1) **Executive Summary, Section E.6** – In the fifth sentence, the singular “medium” should be used.
- 2) **Executive Summary, Section E.6.1.1** – The criterion for delta-BHC and phenanthrene in the tables herein could not be confirmed. Please provide the source for these.
- 3) **Executive Summary, Section E.6.2.2** – The first bullet states that the groundwater objective for arsenic is 6 µg/L. The Class I groundwater standard for arsenic is 10 µg/L.

- 4) **Executive Summary, Section E.6.2.2** – There is discussion of the groundwater results when compared to the TACO Class II remediation objectives. The discussion, though, does not expound on the fact that the local groundwater, due to its proximity to Lake Michigan, is likely not potable nor does it attempt to have a Class II determination made. Has this been considered?
- 5) **Executive Summary, Section E.7** – The third paragraph states that screening for carcinogens will be at the  $10^{-4}$  level of risk. Illinois EPA requires screening to be performed at the  $10^{-6}$  level.
- 6) **Executive Summary, Section E.9** – The final sentence in the second paragraph requires the singular noun “medium”. Furthermore, the sentence is long and unclear with some words apparently missing, which obscures its meaning.
- 7) **Section 4.5.1.1** – It is mentioned here that, based upon the measured ORP data, reducing conditions are present in the area of the fill material compared to the up-gradient location. There is no discussion provided to explain the possible cause for this however. There should be some discussion to explain this. Is this related to the fill material or the contamination; or, is there another cause? Depending on the cause, perhaps some type of amendment may be applied as part of one of the remedial alternatives to correct this situation.
- 8) **Section 4.5.2** – This section should be revised to focus on the difference between site groundwater and the Illinois Groundwater Quality Standards found at 35 Illinois Administrative Code (IAC) 620. The standards are enforceable (ARAR) and any difference between TACO and the standards should default to the 35 IAC 620 values. The groundwater standard for arsenic is 10 µg/L.
- 9) **Section 4.6** – Please explain the inclusion of this section. What is its purpose? The 12<sup>th</sup> sentence states that “Most maximum surface soil and subsurface soil concentrations exceeded the maximum sediment concentrations.” The last sentence states that, “greater metals concentrations were generally found in soil samples compared to sediment samples.” What is the point of reporting the previous sediment sampling data if it only shows that the site soil is more contaminated than the sediment in the harbor? It should also clearly state here that no sediment samples were collected for this Site 12 evaluation, but that proximal samples may be adequate.

In addition, in one sentence there is reference to sediment sample 37, while the next sentence references sediment sample 27. Please verify which is correct.

- 10) **Section 4.7** – In the fourth paragraph, it is stated that screening was done against TACO residential and industrial/commercial values. TACO construction worker values should always be included in screening efforts. Occasionally, TACO construction worker objectives will be the lowest of all available objectives and this receptor is applicable at all sites.

- 11) **Section 4.7** – In the fifth paragraph, the purpose of Class I groundwater is misstated. The Class I designation is to protect the groundwater resource whether currently used or not. Site groundwater contaminant levels should be compared to the 35 IAC 620 standards not TACO.
- 12) **Table 4-2** – On page 2 of 4, several soil to groundwater criteria can be added. The TACO Soil Component of the Groundwater Ingestion Route objectives for the inorganic constituents are extraction-based (TCLP/SPLP) criteria. These criteria should be added to the respective TACO and Non-TACO Class I Soil to Groundwater Criteria columns. On page 4 of 4, the SPLP TACO ingestion of groundwater criterion for arsenic should be 10 µg/L, to agree with the revised groundwater standards.
- 13) **Table 4-3** – Page 1 of 2 contains a column titled “TACO Class I Soil to Groundwater Criteria”. The entries appear to be based on TACO Appendix B Table C values for pH 7.75 to 8.24. Unless the site-specific soil pH has been established to be in this range, the TACO default soil pH of 6.8 should be used.
- 14) **Table 4-3** – The fifth and sixth data columns of page 2 of 2 present the USEPA SSL criteria for the inhalation exposure pathway for the residential and industrial receptors, respectively. Please explain why columns providing ingestion criteria are not also included.

The seventh and eighth columns present construction worker ingestion and inhalation criteria, respectively. The USEPA Supplemental Soil Screening Levels do not include default construction worker exposure parameters. Please provide the exposure parameters used to develop the construction worker criteria.

The headers for columns nine and ten are identical yet the data differ. Please explain.

- 15) **Table 4-5** – The same problems exist for Table 4-5 as were found for Table 4-3 as described above. Additionally, 10 µg/L should be used as the arsenic SPLP criterion for TACO ingestion of Class I groundwater.
- 16) **Section 6.3.1** – As a general comment, the described screening procedures should be reconciled with the Section 4.0 tables. For instance, it is not apparent that HQ = 0.1 was included in the Section 4.0 screening process.
- 17) **Section 6.3.1** – The fifth bullet indicates that USEPA SSL values for the construction worker were used for screening. The cited reference contains no calculated criteria. Please explain.
- 18) **Section 6.3.2** – In this section and throughout Section 6 and 7, the PAH benzo(a)pyrene has been misspelled in numerous locations. This should be corrected.
- 19) **Section 6.3.2** – The first bullet in the first paragraph should include the carcinogenic PAH chrysene. Upon the exceedance of screening criteria for any one carcinogenic PAH, all carcinogenic PAHs need to be evaluated. The seven carcinogenic PAHs are similar acting and

Illinois EPA requires that they all be evaluated as a group regardless of their individual screening status. In addition, please add chrysene to the table of background values in this section.

- 20) **Section 6.3.3** – In the first paragraph, first bullet; add chrysene.
- 21) **Section 6.3.5** – The first paragraph, should reference the 35 IAC 620 Groundwater Standards rather than TACO.
- 22) **Section 6.4.5.1** – In the Inhalation of Air Containing Fugitive Dust/Volatiles Emitted from Soil paragraphs, the abbreviations for the concentration of the contaminant in air need to be reconciled. For completeness, the equations and procedures necessary to calculate the volatilization factors should be added.
- 23) **Section 6.6.2.1** – This section presents cumulative risk for each receptor that was evaluated. Incremental risk based on target organ impacts similar to what was done for non-carcinogens should also be presented to better identify the chief contributor to risk.
- 24) **Section 6.6.2.1** – Under Carcinogenic Risks for Exposure to Subsurface Soil – RME, the ILCR for construction workers was not equivalent to the lower limit of the USEPA and Illinois EPA TACO target risk range. It was below.
- 25) **Section 6.6.2.2** – This section presents a summary of the calculated chemical hazards for the various receptors. Although the hazards for the child and adult residential receptors are calculated separately, the results are usually combined to portray the 30-year resident.
- 26) **Section 6.7.4** – Please explain and justify the use of a dilution attenuation factor, as is discussed here. Its use was not included in the previous version of this report. In addition, please provide a more thorough explanation of how the DAF<sub>15</sub> was derived and provide tables including the DAF<sub>15</sub> – adjusted soil screening levels. Also, the site is described here as being approximately 1.75 acres in size when it is listed as 3.5 acres in Sections 2.1 and 7.2.1.
- 27) **Section 6.7.4** – In the first paragraph of the Surface Soil section, the TACO Class I groundwater criterion for arsenic is out of date. The Illinois Groundwater Standard of 10 µg/L should be used.
- 28) **Section 6.7.5** – The uncertainty regarding whether the groundwater is actually potable and if it could have a Class II groundwater designation should be discussed here.
- 29) **Section 6.7.6.4** – This section addresses the uncertainty associated with treating all detected chromium concentrations as the more toxic form, Cr VI. This practice is not an uncertainty; it is an absolute overestimation of risk and an abandonment of risk assessment principles. Ideally, the chromium should have been speciated when analyzed. Resampling and analysis

with speciation should be considered. Otherwise, some quantifiable approach should be proposed.

- 30) **Section 6.7.7.1** – This section addresses the uncertainty involved when summing risk and hazard. This concern is negligible for the carcinogenic PAHs. The slope for benzo(a)pyrene coupled with order-of-magnitude relative potency factors for the various carcinogenic PAHs are used to evaluate the seven compounds. The carcinogenic PAHs all have the same toxicological endpoint and should any individual compound exceed screening, all should be evaluated.
- 31) **Section 6.7.7.2** – The discussion suggests that risks and hazards might be doubled when surface soil risks are added to subsurface soil risks. This should not be a concern. Receptors contacting surface soil are evaluated using a dataset containing only surface soil result and receptors such as a construction worker are evaluated using a dataset combining surface and subsurface results.
- 32) **Section 6.8.3** – The second paragraph suggests that some constituents contributing unacceptable risk are at or below background. This should be quantified by comparison to well documented references or by site-specific analysis.
- 33) **Table 6-8** – The exposure parameters for the central tendency versus the reasonable maximum exposure paradigms are presented here. Due to the uncertainty in determining environmental concentrations, the exposure point concentration data should be the 95% UCL for both exposure paradigms, the RME and the CTE.
- 34) **Table 6-9** – This table presents non-cancer toxicity values. Because separate toxicity values are not available for alpha- and gamma-chlordane, their concentrations should be combined and evaluated as “chlordane” or “technical Chlordane.”

A subchronic RfD of 1.0E-04 is available for heptachlor from ATSDR. HEAST provides subchronic RfDs of 1.3E-05 for heptachlor epoxide and 3.0E-04 for arsenic. Additionally, the State suggests the subchronic RfD of 5.0E-03 for chromium VI from ATSDR. In the absence of subchronic RfDs, the chronic RfD should be used.

- 35) **Table 6-10** – Alpha- and gamma-chlordane should be evaluated together as technical chlordane. ATSDR provides a subchronic RfC of 2.0E-04 for chlordane and 3.0E-04 for chromium VI. In the absence of subchronic RfCs, the chronic RfC should be used.
- 36) **Table 6-17** – The correct arsenic groundwater screening value is 10 µg/L.
- 37) **Section 7.0** – This section presents the ecological risk assessment. In the State’s judgment, the complexity and detail of this assessment is unnecessary. Site 12 is described as 3.5 acres that includes a road and parking lot and is otherwise mowed and highly maintained as a picnic area

and archery range. The size and configuration of Site 12 suggests that it is unlikely to attract or support any threatened or endangered species.

Rather than review and provide detailed comments for the Section 7.0 Ecological Risk Assessment, Illinois EPA requests that a qualitative assessment be added to summarize the more realistic potential for ecological harm. A biological survey should be conducted to determine whether threatened or endangered species (T&Es), terrestrial or aquatic, are present. In the absence of existing T&Es, the site should be evaluated on the likelihood of it attracting and supporting T&E species in the future. Potential harm to common species should be qualified relative to the size of the site and the length of the shoreline.

- 38) **Section 7.4.1** – The last sentence in the 10<sup>th</sup> paragraph appears to be superfluous. Please clarify the intent of this sentence.
- 39) **Section 7.4.1** – The last sentence in the 11<sup>th</sup> paragraph states there does not appear to be a specific source of selenium. While this may be accurate when considering this site only, it does not take into account the fact that the site is comprised of fill material and former dredge material. That fill material could well be the source of the selenium and since the fill was spread across the site would explain the sporadic distribution.
- 40) **Section 8.1.3** – See previous comment regarding Section 4.6.
- 41) **Appendix B** – The chain-of-custody forms provided are incomplete as they are missing the laboratory received by signatures and dates. Please ensure the completed forms are provided in the final version of the report.

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](mailto:brian.conrath@illinois.gov).

Sincerely,

*Brian A. Conrath*

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

BAC: [redacted] H:\GLNTC\Site 12\Site12DFRIRArww.docx

cc: Corey Rich, Tetra Tech NUS, Inc.

Owen Thompson, USEPA (SR-6J)