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NSTC GREAT LAKES  
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LETTER AND COMMENTS FROM ILLINOIS ENVIRONMENTAL PROTECTION AGENCY  
REGARDING THE DRAFT SITE INSPECTION REPORT FOR SITE 9 CAMP MOFFETT  
DISPOSAL AREA NSTC GREAT LAKES IL  
8/18/2010  
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY



# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

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August 18, 2010

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

Re: Draft Site Inspection Report for the  
Site 9 – Camp Moffett Disposal 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 Draft Site Inspection Report for the Site 9 – Camp Moffett Disposal Area, Naval Station Great Lakes, Great Lakes, Illinois. It was dated April 2010 and was received on May 4, 2010. The Site Inspection Report presents the results of investigative, sampling, and analytical activities conducted at the site. The Agency has conducted a review of the Draft Site Inspection Report and is herein providing comments generated during that review. We apologize for not getting these comments out in a more timely fashion.

- 1) **Cover Page** – In the signature block, my name is spelled Brian, rather than Brain.
- 2) **Executive Summary** - The last paragraph of the soil discussion in Section E.7 concludes, "Exposure to subsurface soil would not occur casually or with high frequency under current land use." While this is true, the infrequent exposure of construction workers to subsurface soils must be considered and evaluated. This receptor, as defined in TACO and the USEPA Supplemental SSL guidance, epitomizes brief but potentially intense exposures.
- 3) **Executive Summary** - The groundwater portion of Section E.7 should discuss the potential for Site 9 groundwater to contaminate the north branch of Pettibone Creek.
- 4) **Section 2.3** – In the table on page 2-6, the last entry under Activity states that approximately 95% of the ravine is located under buildings at Site 9. That may be true for the middle of the three ravine fingers only, but it is not accurate when describing

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the entire ravine system at this site. The vast majority of the northern finger is not located under buildings.

- 5) **Section 3.4.3** – This section describes the rationalization behind not sampling the uppermost soil stratum as was agreed upon during development of the SAP. However, since the results of this SI dictate that a Remedial Investigation (RI) be conducted to determine the full nature and extent of identified contamination, a re-evaluation of this strategy may be necessary. A limited number of surface soil samples may be necessary.
- 6) **Table 4-3** – The title of this table should be revised such that it does not suggest that surface soil results are available.
- 7) **Tables 4-3 and 4-6** - The subject tables present screening criteria for soil and groundwater, respectively. Section 5.0 of this report presents different, less inclusive, sets of screening criteria. Please explain the importance and value of a separate, more restrictive screening process in Section 4.0.
- 8) **Section 5** – This is the Human Health Risk Screening Evaluation. As a Site Inspection (SI), the first study goal of the investigation, as stated in the SAP, was to “determine, based on a preliminary risk screening, whether contamination is present in soil or groundwater at concentrations that could pose an unacceptable risk to human receptors. If concentrations of chemicals in the media are below preliminary risk screening criteria and no CERCLA release is detected, recommend No Further Action at the site. If potentially unacceptable contamination is present, proceed to the RI/RA to further characterize human health risks and the nature and extent of contamination.” 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.
- 9) **Section 5.1** – The third paragraph provides the mistaken opinion that residential receptor criteria are the most protective. Long exposure durations and frequencies such as those assumed for the residential receptors are not the only measure of exposure; intake and contact rates also contribute to overall exposure of a receptor. See General Comment below.
- 10) **Section 5.1** – It states in the last paragraph that “A COPC was identified if the maximum detected concentration of a chemical exceeded the minimum of the Illinois EPA or the USEPA ORNL RSL for that chemical.” The lists presented in the subsequent sections do not match the exceedance lists provided in Sections 4.3 and

4.4. Please explain how chemicals that showed exceedances of the specified criteria were not identified as COPCs in accordance with the cited statement.

- 11) **Section 5.2.2** – In the next to last paragraph, it is presented that the investigation at Site 17 did not identify groundwater as a potential contaminant source or the groundwater to surface water pathway as a potential contaminant source. That may be true, but as this site had not been investigated at the time those determinations were made, those determinations may not now be accurate. This report would benefit from a more in-depth discussion of the Site 17 results with emphasis on the ravine contaminants.
- 12) **Section 5.4.1** – Regarding the third paragraph, the Agency provides the following clarification. Illinois EPA policy regarding cumulative cancer risks states that the goal for individual carcinogens is  $10^{-6}$  with cumulative carcinogenic risk not to exceed  $10^{-4}$ . Cumulative risks can be aggregated based on target organ and, under certain circumstances, individual exceedances of  $10^{-6}$  may be allowed. This decision is made on a case-by-case basis.
- 13) **Section 5.4.3** - Both the residential and the industrial/commercial soil results discussions discount the hazards determined for mercury. It's true that the screening goals for mercury are based on elemental mercury; however, the form of mercury in the ravines has not yet been established. It is not a stretch to envision mercury-containing medical waste being comingled with the galley waste.
- 14) **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. As this site is identified as a disposal area, the disposed material would not be expected to be homogenous across the site.
- 15) **Section 5.5.5** – The comparison of site data to Illinois EPA's TACO background concentrations for polynuclear aromatic hydrocarbons (PAHs) is inappropriate. That background data set was generated using, and is applicable only to, surface soils. The data reported in this investigation are all for subsurface soil samples.
- 16) **Section 5.5.5** – The background comparison for arsenic lists both the average and maximum values as being above the stated background value. As stated previously, the full nature and extent of contamination must be delineated before conducting a proper risk assessment against which risk management decisions can be made.
- 17) **Table 5-1** – The following comments were generated for this table:

- Clarify that the one-tenth rule does not apply to screening goals based on Csat.
  - Explain the source of USEPA ORNL Residential Soil criteria for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene.
  - Correct the effects designation for benzo(g,h,i)perylene to “N” for non-cancer.
  - Add non-TACO inhalation and ingestion criteria of 25,000,000 µg/kg (Csat) and 4,700,000 µg/kg (non-cancer), respectively, for 2-butanone. These values are available on the Illinois Pollution Control Board website (initial filing plus addenda). The URL is:  
<http://www.ipcb.state.il.us/COOL/External/CaseView.aspx?case=13524>.
  - Add a non-TACO ingestion criterion of 31,000 µg/kg (non-cancer) for 2-methylnaphthalene. Value available from above web source.
  - Compare the TACO criterion for chlordane to the total of alpha-chlordane and gamma-chlordane concentrations.
  - Compare the TACO criterion for endosulfan to the endosulfan I concentration.
  - Compare the TACO criterion for endrin to the total of endrin and endrin aldehyde concentrations.
  - Correct the USEPA ORNL Residential Soil criterion for beta-HCH to 270 µg/kg.
  - Explain the source of the USEPA ORNL Residential Soil criteria for the dioxins/furans.
  - Explain why the lead criteria do not follow the one-tenth rule for non-carcinogens.
- 18) **Table 5-2** – The following comments were generated for this table:
- Explain why the TACO Class I groundwater criteria do not follow the one-tenth rule for non-carcinogens.
  - Correct the USEPA MCL criterion for chloroform to 80 µg/L.
  - Add the non-TACO groundwater criterion of 1,400 µg/L for dichlorodifluoromethane. This value is available on the Illinois Pollution Control Board website (initial filing plus addenda).
  - Compare the TACO criterion for chlordane to the sum of the alpha-chlordane and gamma-chlordane concentrations.
  - Compare the TACO criterion for endosulfan to the endosulfan I concentration.
- 19) **Tables 5-4 and 5-5** – Arithmetic means are generally unacceptable for use as exposure point concentrations in human health risk evaluations. The procedures outlined in the USEPA ProUCL user’s guide should be followed. Also, please define the abbreviations used in the target organ column.
- 20) **Table 5-4** – The cancer industrial risk-based screening level for arsenic should be 1.6 mg/kg. The non-cancer industrial risk-based screening level for aluminum should be

990,000 mg/kg. These corrections will create corresponding corrections to the calculated HQs.

- 21) **Table 5-5** – Several groundwater non-cancer risk-based screening levels should be corrected. These corrections will impact the calculated HQs. They are as follows:
  - Barium should be corrected to 2,000 µg/L.
  - Iron should be corrected to 5,000 µg/L.
  - Lead should be corrected to 7.5 µg/L.
  - Manganese should be corrected to 150 µg/L.
  - Selenium should be corrected to 50 µg/L.
- 22) **Section 6.0** – The second study goal of the investigation, as stated in the SAP, was to “determine the geographical boundary of the ravine by correlating the geophysical survey results and subsurface data from this investigation.” The Summary and Conclusions Section should discuss whether this was accomplished or whether further investigation is required. It should also discuss the possibility that the fill material and identified contamination continues off-site to the east within the bounds if the former ravine there.
- 23) **Section 6.0** – The Summary and Conclusions Section should include discussion of the sampling results for 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 around SB-07 and further down-gradient within the former ravine footprint (likely off-site) for inorganics (lead, iron, etc.) in soil.
- 24) **Section 6.1** – 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.
- 25) **Section 6.1** – 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.
- 26) **Section 6.2** – The Recommendations for soil and groundwater should be to conduct a Remedial Investigation to properly determine the nature and extent of identified contamination, which may well extend off-site to the east.

- 27) **Appendix B-10** – 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.
- 28) **General Comment** - This report utilizes a screening process whereby site concentrations are compared to accepted, published risk-based environmental levels. In part, this report uses the TACO residential receptor remediation objectives for this purpose while maintaining that they are the most protective. This is incorrect. The TACO construction worker objectives are occasionally lower than the corresponding residential values. If the overriding goal for selecting screening criteria is to be protective, the construction worker objectives must be considered. In reality, soil intrusive activities at Site 9 for utility installation or repair are possible, and likely, further supporting use of construction worker objectives for screening and for the evaluation of risks.

If you have any questions regarding anything in this letter or require any additional information, please contact me at (217) 557-8155 or by electronic mail at [brian.conrath@illinois.gov](mailto: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: [redacted] fac:HGLNTC\Site 9\Site9DS\rvw

cc: Bob Davis, Tetra Tech NUS, Inc.

Owen Thompson, USEPA (SR-6J)