

N00210.AR.000529  
NSTC GREAT LAKES  
5090.3a

LETTER AND COMMENTS FROM ILLINOIS ENVIRONMENTAL PROTECTION AGENCY  
REGARDING DRAFT SEDIMENT CHARACTERIZATION INVESTIGATION REPORT STUDY  
17 PETTIBONE CREEK NSTC GREAT LAKES IL  
6/27/2012  
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY



# ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829

PAT QUINN, GOVERNOR

JOHN J. KIM, INTERIM DIRECTOR

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

June 27, 2012

Engineering Field Activity, Midwest  
Attn: Mr. Ben Simes  
Building 1A, Code 931  
201 Decatur Avenue  
Great Lakes, Illinois 60088-5600

Re: Draft Sediment Characterization Investigation  
Report in Support of the Feasibility  
Study for Site 17 – Pettibone Creek  
Naval Station Great Lakes  
Great Lakes, Illinois

0971255048 – Lake  
Great Lakes Naval Station  
Superfund/Technical

Dear Mr. Simes:

The Illinois Environmental Protection Agency (Illinois EPA or Agency) is in receipt of the Navy's *Draft Sediment Characterization Investigation Report in Support of the Feasibility Study for Site 17 - Pettibone Creek, Naval Station Great Lakes*. It was dated June 2012 and was received at the Agency in on June 13, 2012. The Investigation Report (IR) presents the results of the most recent sampling event conducted to determine the following:

- Whether benthic invertebrates are adversely impacted from exposure to North Branch Pettibone Creek sediment
- Current sediment quality in North Branch and South Branch of Pettibone Creek
- Whether a continuing source of sediment contamination persists upstream of Navy property

The IR was prepared for the United States Navy, Naval Facilities Engineering Command Midwest, by Tetra Tech NUS, Inc. Illinois EPA has conducted an expedited review of the submittal and is providing the following comments generated during that review. Comments generated by Illinois Department of Natural Resources (IDNR) staff have also been incorporated herein. Due to the time constraint, a review by the Agency's Toxicity Assessment Unit could not be completed. Therefore, the provided comments cannot be considered complete.

- 1) **Executive Summary** – The first sentence of the third paragraph concludes by stating that since the predominant source of the contamination appears to be off-site, the chemicals may not be site-related. Illinois EPA agrees that there are off-site sources, but it is misleading to state that those chemicals may not be site-related. It would be more accurate to state that much of the

4302 N. Main St., Rockford, IL 61103 (815)987-7760  
595 S. State, Elgin, IL 60123 (847)608-3131  
2125 S. First St., Champaign, IL 61820 (217)278-5800  
2009 Mall St., Collinsville, IL 62234 (618)346-5120

9511 W. Harrison St., Des Plaines, IL 60016 (847)294-4000  
5407 N. University St., Arbor 113, Peoria, IL 61614 (309)693-5462  
2309 W. Main St., Suite 116, Marion, IL 62959 (618)993-7200  
100 W. Randolph, Suite 11-300, Chicago, IL 60601 (312)814-6026

contamination appears to have originated off-site and therefore, not all of the identified chemical contaminants are site-related.

- 2) **Executive Summary** – It is noted here and throughout the report that the suspended sediment samples have not yet been collected so the text referring to those samples is just a placeholder. It is difficult to make a determination and reach a conclusion regarding the final remedy for this site without all of the expected data. Please be sure to revise the report as soon as possible once that data becomes available. Is there a projected date for collecting those samples?
- 3) **Section 2.1.1** – In the fifth paragraph it states, “Ten particles were measured in each transect using calipers to determine the size class.” That statement is incorrect. The reviewer observed this process first-hand and calipers were not used. Please revise this statement accordingly.
- 4) **Section 2.1.3** – The discussion regarding the sediment traps being repositioned should be expanded to include the dates of the storms and the number of days in which the traps were out of position, etc.
- 5) **Section 2.3** – Please provide an explanation for why the sediment samples were not analyzed for grain size as was called for in the Sampling and Analysis Plan.
- 6) **Section 3.1** – It states in the last paragraph that the collected data are adequate to complete this study. Is that determination based upon only the data currently in-house or does it include the samples that are yet to be collected? Will that statement still be true if that data is not collected and included in this report?
- 7) **Table 3-6** – According to the footnote, the QHEI score for SD53 should be shaded as it is less than 55.
- 8) **Figures 3-3 through 3-5** – The bars at the bottom of the figure showing the dates the samples were collected are incorrect. Please review and revise as necessary.
- 9) **Section 4.1.1.2** – This section should clearly point out whether there was a measurable difference between the test site and reference site in regards to chemical concentrations.
- 10) **Section 4.1.1.3** – The last sentence appears to be slanting the discussion somewhat. While it may be accurate, to be fair, it should be stated whether there was a statistical difference between the mean growth in test samples versus the mean growth in reference samples also.
- 11) **Section 4.1.1.4** – The discussion here regards the overall benthic invertebrate community evaluation. There is discussion provided that, in general, the benthic communities were better in the reference reaches than in the site reaches. The discussion of the chemicals detected in the site samples does not provide this same comparison. That comparison needs to be provided and discussed here as well.

- 12) **Section 4.2** – The recommendation should be clear that it applies only to Pettibone Creek, not all of Site 17. The Boat Basin was not included in this investigation.
- 13) **Section 4.2** – The stated recommendation is for no further action at the site. The reason provided for this determination is that the poor benthic communities found in some of the North Branch samples are likely related to habitat and not the sediment chemistry. The Agency can concur that the available habitat is a contributing factor along with the physical stressors related to stream velocities, etc., but the sediment chemistry may also contribute to the adverse effects. This should be clearly stated.  

The Agency can concur though that while certain restoration activities might help improve the biological integrity of the creek, a removal of contaminated substrates alone will not likely make a significant difference in the state of the benthic communities within the creek.
- 14) **Section 4.2** – Another restoration activity that would help improve habitat in the creek is the repair or re-routing of the nearly 30 storm water outfalls that empty into the creek on base, many of which have long been in a state of disrepair.
- 15) **Appendix A** – Suggest adding additional photographs to better show the differing conditions encountered within a single reach and to show an example of surface sediment collection activities.
- 16) **General Comment** – In the Agency’s provided comments on the sampling plan in regards to the screening levels, we stated that “A thorough review of the listed values to confirm that they remain current could not be completed in the time allotted. Therefore, the Agency reserves the right to request revisions to these values once a more complete review has been conducted.” Unfortunately, insufficient time has been allotted for our review of this submittal as well. Therefore, Illinois EPA requests the Navy consult the Agency’s website and the provided databases to confirm that the most up-to-date screening values have been used.

#### **IDNR Comments**

- 1) The Navy uses the 2000 draft sediment clean-up objectives (SCOs) to screen results. There is an updated 2009 draft and some of the values are significantly different (lower). Are the “unpublished derived water quality criteria” used to calculate some of the baseline SCOs still relevant or have they been revised also?
- 2) The mIBI has limited value due to the sampling occurring in March. In terms of taxa present and their abundance in the site reaches, although such data may be realistically compared to the reference reaches at that time of year, an mIBI value should not be assigned to each reach and those reaches compared unless those scores are going to be strictly assigned to an early spring sampling. The early spring mIBI scores should not be compared to summer scores generated previously.

- 3) Are any of the trends of total taxa and chemical concentrations being driven by pollution-tolerant species? Please evaluate the locations where there were a greater number of taxa present with higher chemical concentrations and determine whether the taxa are more diverse due to the occurrence of more pollution-tolerant species.
- 4) Some of the tables include MacDonald et al. 2000 Threshold Effect Concentrations (TEC). Please include these values in the text in addition to the PECs.
- 5) QHEI scores are based heavily on professional judgment. If much weight is being given to the arguments related to the “poor or fair” benthic community sources being due to lack of habitat rather than chemical impacts, then a neutral party should perform a QHEI for comparison.
- 6) **Section 3.1.2, page 3-5, 4<sup>th</sup> full paragraph, last sentence.** Please specify what is meant by “typical spraying activities.” Are those labeled application rates or typical activities for the Navy or the surrounding communities?
- 7) **Section 4.1.1.4, page 4-3, eighth sentence.** It may, in fact, be unlikely that the chemicals are the sole factor inhibiting the stream benthics; however, it is also unlikely the chemicals in the sediment are not impacting the benthic community in Pettibone Creek at all, as is indicated in this sentence.
- 8) **Section 4.1.2.1, page 4-4, first paragraph.** Please specify the source of the mentioned pesticides, i.e. whether they are traveling from upstream or from run-off from the bluffs on base or both.
- 9) **Appendix B, Section 1** – In response to the statement: “No federally listed endangered or threatened species are known to exist in the area.” – The Navy continues to ignore the IDNR recommendation to include the mudpuppy as a possible species of concern in Pettibone Creek.
- 10) **Appendix B, Section 3.2** – On page 7, paragraph 2, for consistency and accuracy, please change the term “stressed sites” to “test sites.”
- 11) **Appendix B, Section 3.2** – On page 7, paragraph 3, please clarify whether any of the seven midge taxa (that occurred only in the reference sites) were considered tolerant.
- 12) **Appendix B, Section 4, page 18** – According to results there is 48% correlation between variability in test sites versus reference sites in regards to benthic samples and the physical habitat. The remaining 52% can be explained by other parameters (ex. Sediment chemistry and others). This provides an indication that the removal of contaminated substrate may still need to be considered.
- 13) **Appendix B, Section 4, page 18** – To further enhance the physical in-stream habitat available to benthic organisms, the Navy could stop removing the woody debris (as recommended). An

important additional step to consider for such action is securing the debris in the appropriate locations so scour does not occur in unwanted locations.

- 14) **Appendix B, Section 4, page 18** – In response to the following statement; “This end-of-pipe environment is a harsh habitat that would be impractical to restore to natural conditions and restoration to morphologically stable stream conditions may not benefit the biological community.” – If “natural conditions” refers to pristine conditions, IDNR agrees that restoring to pristine conditions is not practical. However, restoration may be warranted to increase the biological habitat which is potentially being negatively impacted by substrate contaminants.
- 15) **Appendix B, Section 4, page 19** – IDNR agrees that a potential goal on which the Navy could focus for the North Branch of the creek may be to restore the physical and sediment chemistry conditions to conditions similar to the South Branch, which are attainable conditions for the region. In order to achieve such restoration, relevant mIBI values must be compared. (See previous comment on the main report.)
- 16) It is stated on page 3 of Appendix E that “Avoidance of the sediment by test organisms was observed in some test containers, particularly sites NTC17PCSD60 and NTC17PCSD64.” Is this behavior common for test organisms in toxicity tests that otherwise show non-toxic results? Please provide an explanation for this apparent anomaly.

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).

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: *PAC*  
BAC:\p\fac:H\GLNNTC\Site 17 Related\Site17SedcharIRrvw.docx

cc: Bob Davis, Tetra Tech NUS, Inc.

Owen Thompson, USEPA (SR-6J)