



January 12, 2016

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Scott Walker, Governor
Cathy Stepp, Secretary

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Mike Sitton
Commander's Representative
Badger Army Ammunition Plant
S7560 USH 12
North Freedom, WI 53951

Subject: Conditional Approval of the Gruber's Grove Bay Sampling Work Plan

Dear Mr. Sitton:

The Department of Natural Resources received the Gruber's Grove Bay Remedial Investigation Work Plan submitted on behalf of the Army by SpecPro Professional Services, LLC on November 25, 2015. Gruber's Grove Bay (GGB) is a bay within Lake Wisconsin adjacent to Badger Army Ammunition Plant (BAAP). The bay is known to have mercury contaminated sediments attributable to BAAP. The Army has conducted previous investigation and remedial work at GGB. The remedial goals were not achieved and the Department required additional sampling. The Department has reviewed the work plan and hereby gives you notice to proceed with the following conditions:

The target surface weighted average concentration (SWAC) is 0.36 parts per million (ppm) mercury. A not-to-exceed (NTE) value of 1.5 ppm will be imposed. This value falls between EPA's accepted value for predicting likely sediment toxicity in Great Lakes sediments (Probable Effects Concentration (PEC) = 1.06 ppm) and NOAA's Severe Effect Level indicating detrimental effects to the majority of the benthic community in freshwater ecosystems (2.0 ppm). While this NTE value is slightly higher than the Department's own consensus-based sediment quality guideline for mercury (PEC = 1.1 ppm), it ensures an acceptable risk, without being overly restrictive, for the sediment/water interface at localized hot spots while still allowing for the achievement of a reasonable whole-bay SWAC.

It is understood that the Army's contract laboratory will be using a SW-846 test method to analyze the sediment samples for total mercury only. No other analytes are required.

The work plan did not discuss testing of physical or geotechnical properties. Physical and geotechnical properties are common with sediment sampling and useful in interpretation of chemistry data and designing for remedial action. All samples shall be analyzed for percent solids using EPA Method SW 2540. The results of this analysis should be presented in a table of the sampling report.

Sediment sampling recovery information should be collected and provided in the sampling results report. Along with the sediment thickness from probing and recovered sediment thickness, the depth of sampler penetration should be recorded and a ratio of the sediment thickness to recovered sediment calculated. The recovery-ratio should be added to the planned table of sediment information.

Sample preparation of recovered sediment shall be modified to include all sediment greater than 18" recovery. This interval shall be homogenized, containerized, marked and stored following the same process planned for the 6-18" sediment interval.

The Army should incorporate these additions and modifications to the sampling plan, and proceed with the sampling at the soonest practical time following the procedures as set forth in the Sampling Plan and complying with State Statute and Wisconsin Administrative Code.

Any changes to the plan not covered in this approval should be discussed with the Department prior to implementation.

Please provide notice to me at least 3 days before field mobilization and 3 days ahead of sample collection.

Thank you for your continued efforts to restore the environment. If you have any questions; please contact me at (608) 273-5613.



Woody Myers
Project Manager
Remediation & Redevelopment

cc. Gregory Rudloff, EPA Region V
Joel Janssen, SpecPro Professional Services
Jim Killian, WDNR
William Fitzpatrick, WDNR
Jim Amrhein, WDNR