



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
1 CONGRESS STREET, SUITE 1100 (HBT)
BOSTON, MASSACHUSETTS 02114-2023

April 8, 2003

Mr. Frederick J. Evans, P.E.
Remedial Project Manager
Engineering Field Activity Northeast
10 Industrial Hwy., Mail Stop #82
Lester, PA 19113-2090

Re: **Site 6 Field Demonstration Work Plan, QAPP, and HASP, Portsmouth Naval Shipyard, Kittery, Maine**

Dear Mr. Evans:

Thank you for the opportunity to review the subject document dated 24 February 2003, which was prepared on behalf of the Navy by Encapco Technologies. EPA provides these comments with the understanding that they are limited to the application of the Encapco technology as a demonstration and would require further evaluation for the technology to be considered in the Feasibility Study. To this end, the Agency's comments are attached.

If you have any questions, please feel free to contact me at audet.matthew@epa.gov or 617.918.1449.

Sincerely,

A handwritten signature in black ink, appearing to read "Matthew R. Audet".

Matthew R. Audet, P.G.
Remedial Project Manager
Federal Facilities Superfund Section

cc. Deb Cohen/Tetra Tech NUS
Carolyn Lepage/Lepage Environmental (email)
Iver McLeod/ME DEP
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Attachment 1
US EPA Comments to Site 6 Field Demonstration Work Plan, QAPP, and HASP
Portsmouth Naval Shipyard

General Comments

The Encapco process involves the removal of the existing GCL cap, the excavation of PCB, PAH, and inorganic contaminated soils, and the subsequent treatment with an organic emulsion, encapsulating the soil particles. This final material will be returned to the original excavation. According to the vendor, hydrocarbons present in the soil will preferentially bind with the organic matrix, effectively stabilizing the contaminants. In addition, fixating chemicals will be added to help to reduce the mobility of metals. While EPA supports the demonstration project, in order to proceed, EPA will need to determine that the Encapco process poses no unreasonable risk.

Technical Comments

1. The soil proposed for the demonstration contains PCB concentrations higher than the prescriptive cleanup standards. Under a scenario where the Navy intends to leave such PCB remediation waste on site, EPA requires a qualitative and quantitative risk evaluation as prescribed in 40 CFR 761.61(c).
2. The potential use as a surface material could result in the material being worn down (by vehicle or foot traffic), broken up by freeze-thaw cycles, or altered by heat during summer. If this occurs PCBs and metals could be mobilized in the form of dust and particulate runoff. These exposures should be evaluated.

The toxicity of such contaminated dust or particulates is unknown, but any risk evaluation should assume that the contaminants are bioavailable and equally toxic as the form used to derive the toxicity parameters. An evaluation of the powdered or crumbled treated soil should assume 100% bioavailability and typical exposure conditions for dust inhalation, incidental soil ingestion, and dermal contact.

3. Since the product is an emulsion of oil (and other more water-soluble ingredients), it is possible that organic chemicals in the soil (PCBs and PAHs) will partition to the oil fraction within the treated product due to their highly hydrophobic nature. If the product is used as surface material for roads or walkways (or unpaved work/play areas), there is the possibility during warm conditions that the oil will adhere to tires, shoes or feet, similar to what happens during high heat conditions with asphalt pavement. During hot conditions, the oil might liquify and migrate as a separate phase down through the matrix. Similarly, spillage of organic solvents or gasoline on the treated soil would probably dissolve PCBs and PAHs into the migrating non-aqueous phase liquid (NAPL). EPA suggests that this be evaluated.
4. The physical behavior of the product as a result of freeze-thaw cycles should be addressed. Freezing and thawing typically causes breakup of asphalt over time and mixing of surface and subsurface soil due to frost heave. If this occurs there would be potential for physical transport

of PCB and lead from the matrix due to greater permeability, soil fractures, and accessibility to burrowing soil organisms. The potential for future disturbance suggests some sort of institutional control be instituted to prevent future exposure.

5. EPA recommends an evaluation of leachability by seawater if the treated soil has the potential for contact with salt water (via salt water intrusion in the groundwater or surface spray). Any extraction tests should be conducted using extractant of appropriate pH and salinity.
6. PCBs may be susceptible to being "wiped" off by people who come in contact with the material. This suggests a TSCA-style wipe test is appropriate as the material may be used in surface materials that could be contacted by people.
7. Section 3.5 contains no mention of any means to address air emissions via particulate release.
8. The plan proposes the collection of "before treatment" and "after treatment" samples. It appears that these samples are analyzed for total PCBs. EPA would like to review the raw chromatograms.

Additionally, on page 13, the second paragraph states: "Considering the location of the contaminated surface soil and the nature of the PCB contaminants, the full-scale remediation goals for site 6 may be lower than the 1311/8082 method reporting limits. Therefore, for this field demonstration, Encapco set the treatment objectives for the PCBs to the 1311/8082 method reporting limits." If 1311/8082 method reporting limits cannot meet the full scale remediation goals, how can the results of the demonstration be used to determine if this would be an appropriate remedy?

The selection of Method 8082 assumes that the PCBs will leach as an Aroclor. Different solubilities will result in the Aroclor pattern degrading. Method 1668 *Revision A: Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by HRGC/HRMS, EPA-821-R-00-002, December 1999* would be a more appropriate analytical method to determine the concentration of PCBs in the leachate as it does not rely on the PCB pattern.

9. Page 17. EPA suggests changing Method 418.1 *Petroleum Hydrocarbons, Total Recoverable* for the analysis of TRPH to Method 1664 *Revision A: N-Hexane Extractable Material (HEM; Oil and Grease) and Silica Gel Treated N-Hexane Extractable Material (SGT-HEM; Non-polar Materials) by Extraction and Gravimetry, EPA 821-R-98-002, February 1999* or SW-846 Method 9071B *n-Hexane Extractable Material (HEM) for Sludge, Sediment, and Solid Samples*. Method 418.1 which uses fluorocarbon-113 as an extraction agent has been replaced by Methods 1664 Revision A and 9071B which uses n-hexane as an extraction agent.

10. Page 21. The second paragraph states "during the excavation activities, four composite soil samples will be collected from proposed area to be excavated in accordance with the QAPP". The standard operating procedure (SOP) for the collection of the four composite soil samples is missing from the QAPP.

11. Section 3.7 references the QAPP for the laboratory that will perform the analyses. This information along with the laboratory's standard operating procedures (SOPs) is missing from the QAPP. Please provide the name of the laboratory that will perform the chemical and physical analyses.

12. Table A2-2. The "Action Level" for leachate PAHs is missing.

13. Table A3-1. It is not clear why the "RPD" criteria for the metal "Matrix Spike Compound" are listed as "NA". Table A5-1 Field and Laboratory Quality Control Samples listed "Matrix Duplicates (inorganic)" being collected. Since these matrix spike/matrix spike duplicate inorganic (metal) samples are being collected for analyses, Table A3-1 needs to include the "RPD" criteria for these samples.

14. Table A3-2. It is unclear on whether the soil "MDL" and "Reporting Limit" for the "Non-Critical Parameters" are based on wet or dry weight. They should be based on dry weight. Also, please clarify why the "Reporting Limit" is set at the "Action Level". Normally the "Reporting Limit" is set below the "Action Level".

15. Table 4-1 mentions the reduction of soil permeability and an increase in unconfined compressive soil strength as primary performance measures. What is the baseline data for such comparison.

16. Sample preservation requirements and holding times should be included in Section A4.2.4 or to an appropriate table in the QAPP.

17. Table A5-1 references the field and laboratory quality control samples. However, there are no performance criteria listed for these samples. Performance criteria should be included in the QAPP.

18. Section A5.1.2 lists the laboratory quality control samples that will be analyzed. However, there are no performance criteria listed for these samples. These performance criteria need to be added to the QAPP.

19. Section A6.1 states "assessments performed for the Site 6 demonstration may include the following (1) performance evaluation, (2) technical system audit, (3) technical reviews, and (4) field audits". Since this project is a demonstration study and the results of the study have potential to determine if the Encapco process would be an appropriate remedy for the site, it is important that assessments be performed. EPA suggests the above sentence be changed to read "will include" rather than "may include".

20. Page 58. Please identify who will perform the data validation. The reviewer must be independent of the laboratory.

Also, the reference should be changed to the *National Functional Guidelines for Organic Data Review to the Region 1, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analyses, July 1996, Revised December 1996*. This document and other quality assurance documents can be downloaded from the Region 1 Internet site at the following address: "<http://www.epa.gov/region01/lab/qa/qualsys.html>".