



Minnesota Pollution Control Agency

**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

May 2, 2006

Commanding Officer
Southern Division
Naval Facilities Engineering Command
Attn.: Dan Owens, Code ES32
P.O. Box 190010
North Charleston, SC 29419-9010

RE: Naval Industrial Reserve Ordnance Plant Superfund Site

Dear Mr. Owens:

The Minnesota Pollution Control Agency (MPCA) staff has reviewed report entitled, "Report for a Field Application to Enhance In-Situ Bioremediation of Chlorinated Solvents via Vegetable Oil Injection at Naval Industrial Ordnance Plant Fridley, Minnesota," ("Report") dated March 2006 e-mailed to MPCA staff by Mr. Venky Venkatesh on March 3, 2006. The Report is for Operable Unit 1 of the Naval Industrial Reserve Ordnance Plant (NIROP) Superfund Site was submitted pursuant to the Federal Facility Agreement, dated March 27, 1991, between the MPCA, the U.S. Environmental Protection Agency, (U.S. EPA) and the U.S. Navy (Navy).

The MPCA staff hereby approves the Report as modified pursuant to Attachment I of this letter.

If you have any questions regarding this letter, please call me at (651) 296-7818.

Sincerely,

A handwritten signature in black ink that reads "David N. Douglas".

David N. Douglas, Project Manager
Superfund Unit 2
Superfund and Emergency Response Section
Remediation Division

DND:csa

cc: Thomas Smith, U.S. EPA, Region V (w/enclosures)
Mark Sladic, Tetra Tech NUS, Inc. (w/enclosures)
Venky Venkatesh CH2M Hill Constructors, Inc. (w/enclosures)

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Attachment I

Modifications to the Report Entitled, "Report for a Field Application to Enhance In-Situ Bioremediation of Chlorinated Solvents Via Vegetable Oil Injection at Naval Industrial Ordnance Plant Fridley, Minnesota," Dated March 2006

Section 5 Conclusions and Recommendations

It is the MPCA staff's understanding that the conclusions and recommendations of the Report will be the subject of a forthcoming NIROP partnering and/or technical subcommittee meeting and that at this meeting, the future direction of the application of this technology for the NIROP Site will be determined. The MPCA staff recommends that this meeting be scheduled as soon as possible.

Section 5 Conclusions and Recommendations

The MPCA staff requests that the Navy explain how and when Mr. Hal Davis' final United States Geological Survey capture evaluation report will be factored into the Report, including the final conclusions and recommendations for application of this technology at the NIROP Site.

Section 5 Conclusions and Recommendations

The MPCA staff requests that the Navy identify any findings contained in the report entitled, "2005 Annual Monitoring Report Naval Industrial Reserve Ordnance Plant Fridley, Minnesota," dated April 2006, that impact the conclusions and recommendations of the Report and identify how any such findings will be incorporated in the Report.

Technical Memorandum, dated March 2006, from Dan Griffiths and Bruce Henry of Parsons to Dan Owens and Cliff Casey, NFESC; Venky Venkatesh, CH2M Hill Constructors, Inc.

Technical Memorandum: Volatile Organic Compound Analyses in Soil, page 11, second paragraph

This paragraph discusses contaminant mass. The last sentence states that "...the fine grained silt/clay units contain more contaminant mass than the more transmissive sand units and will likely serve as secondary sources of contaminant mass for some time." The MPCA staff requests that the Navy explain whether or not this contaminant mass accounts for the trichloroethylene (TCE) mass transported in the ground water. Was the mass of TCE in the ground water estimated in the calculation cited in this section?

Technical Memorandum: Site Hydrology, page 14, paragraph 4

This paragraph discusses viscosity. If the vegetable oil is completely hydrophobic, then it "lowers the relative permeability of the aquifer matrix" as stated. However, if it decreases the viscosity of the interstitial ground water, then it inherently lowers the hydraulic conductivity as dynamic viscosity is proportional to the intrinsic permeability of porous media. The MPCA staff requests that the Navy identify whether or not the phase of the vegetable oil been established in the aquifer matrix.

Technical Memorandum: Volatile Organic Compound Analyses In Groundwater, page 16, fourth paragraph

This paragraph states that "VC [vinyl chloride] has not (sic) [been] detected at concentrations above the MDL [method detection limit] in any of the contingency wells...or the new downgradient monitoring well cluster PES-MW-12A/B, during the course of the pilot test."

The concentration of TCE in PES-MW-12A increased from 80 to 350 micrograms per liter (ug/L) from April to November 2005. Over the same period, the concentration of TCE at PES-MW-12B went from 330 to 290 ug/L. The latter was essentially stable. If TCE is not trending downward at these wells, the MPCA staff requests that the Navy explain how the Navy knows that the pilot remedy has affected ground water at the new downgradient monitoring well cluster PES-MW-12A/B at all. The MPCA staff requests that Navy continue to monitor for declines in TCE concentration and vinyl chloride at this well cluster.