



Protecting, maintaining and improving the health of all Minnesotans

October 26, 2001

Refer to: TN2408a

Mr. Joel Sanders, P.E.
Department of the Navy – Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
2155 Eagle Drive
North Charleston, South Carolina 29419-9010

Dear Mr. Sanders:

Subject: Request for a Variance from Minnesota Rules, Chapter 4725, to Inject Soybean Oil, Lecithin, and Magnetite/Ferrous Iron to Enhance In-Situ Bioremediation in the NE ¼ of the NE ¼ of the NW ¼ of Section 27, Township 30 North, Range 24 West, Anoka County, Minnesota.

This letter is in response to your request for a variance from Minnesota Rules, Chapter 4725, to inject a vegetable oil solution into three wells in Anoka County Riverfront Park, located in Fridley, Anoka County. The park is located immediately west of the Naval Industrial Ordnance Plant (NIROP). The purpose of the variance is to allow a pilot-scale investigation to assess the effectiveness of adding vegetable oil to enhance in-situ bioremediation of groundwater contaminated with chlorinated solvents. A plume of contaminated groundwater has been identified in the park.

Details of the injection proposal, bioremediation mechanisms, and groundwater monitoring are included in the "Final Work Plan for Field Application to Enhance In-Situ Bioremediation of Chlorinated Solvents via Vegetable Oil Injection", dated September 19, 2001, and prepared by Parson's Engineering Science, Inc. (hereinafter referred to as Final Work Plan). A one-time injection of a total of approximately 3600 gallons of food-grade soybean oil, 300 pounds of food-grade lecithin, and 30 pounds of magnetite/ferrous iron particles mixed with a fatty acid dispersant will be injected in three wells (PES-INJ-1, PES-INJ-2, and PES-INJ-3). Approximately 7000 gallons of native groundwater will also be injected. Details of the soybean oil, lecithin, and magnetite materials are included in a September 21, 2001, submittal from Mr. Venky Venkatesh of CH2M Hill Constructors, Inc. This submittal is an attachment to the variance request application. This submittal was further amended, based on a communication via electronic mail on October 22, 2001, from Mr. Venky Venkatesh to Mr. Michael Convery of my staff, to eliminate the use of mineral oil as a dispersant for the magnetite. The dispersion of the vegetable oil solution and effectiveness of bioremediation will be monitored for at least one year after injection using 13 monitoring wells, sampled at roughly 2, 5, 8, and 12 months after injection.

Minnesota Rules, part 4725.2050, prohibits the use of wells or borings for disposal of surface water, groundwater, or any other liquid, gas, or chemical. The purpose of this rule provision is to protect groundwater quality.

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In accordance with Minnesota Rules, Chapter 4725, and based on the information provided in your variance request application and attachments, **your request for a variance is granted.** The variance is granted because of the need for remediation of ground water contamination at the site. Enhanced bioremediation is being investigated because hydraulic controls have not been fully effective in reducing contaminant levels, especially in the park. The area of highest ground water contamination within the park appears to be a stagnation point in the ground water flow regime at the site and is not greatly influenced by the ground water extraction occurring at the NIROP facility, upgradient of the park. The variance is granted with the following conditions:

1. You must contact Mr. Steve Bennett of the MDH at (651) 643-2113 at least 24 hours prior to the start of injection.
2. The ground water monitoring plan, as detailed in Sections 4 and 5 of the Final Work Plan, must be followed.
3. The contingency plan, as detailed in Section 6 and in Attachment 2 of Appendix D shall be followed to mitigate generation and migration of vinyl chloride.
4. The Field Application Results Report, to be prepared by Parsons Engineering Science, Inc., shall be submitted to the MDH within 30 days of completion of the report and approval by the U.S. Navy.

All other requirements of Minnesota Rules, Chapter 4725, are in effect.

Alternative measures or conditions attached to the variance have the force of law and effect of applicable rule. If a party violates the alternative measures or conditions attached to the variance, the party is subject to enforcement actions and penalties provided in the applicable law or rule.

The variance is conditioned upon the applicable acceptance of and compliance with the conditions of the variance. Failure of the applicant to comply with the conditions of the variance will result in the immediate expiration of the variance.

If you have any questions, please contact Mr. Ed Schneider at (651) 215-0827 or Mr. Steve Bennett at (651) 643-2113.

Sincerely:

for 

Daniel A. Wilson, Manager
Well Management Section
Division of Environmental Health
P.O. Box 64975
St. Paul, Minnesota 55164-0975

DAW:MPC:dg

cc: Jeff Perry, Anoka County Parks and Recreation
David Douglas, Minnesota Pollution Control Agency
Tom Bloom, U.S. Environmental Protection Agency
Venky Venkatesh, CH2M Hill Constructors, Inc.
Daniel Griffiths, Parsons Engineering Science, Inc.