



**DEPARTMENT OF THE NAVY**

SOUTHERN DIVISION

NAVAL FACILITIES ENGINEERING COMMAND

P.O. BOX 190010

2155 EAGLE DRIVE

NORTH CHARLESTON, S.C. 29419-9010

Code ES32

20 September 2001

Minnesota Department of Health  
Attn: Mr. Edward C. Schneider  
Well Management Section, Metro Square Building  
Post Office Box 64975  
St. Paul, MN 55164-0975

Subj: VARIANCE REQUEST APPLICATION, PILOT-SCALE STUDY TO ENHANCE  
IN-SITU BIOREMEDIATION OF CHLORINATED SOLVENTS AT THE ANOKA  
COUNTY PARK, FRIDLEY, MN

Dear Mr. Schneider:

Attached is a completed Variance Request Application for the planned pilot-scale study to enhance in-situ bioremediation of chlorinated solvents at the Anoka County Park in Fridley, MN.

The variance is specifically sought for the following:

1. Installation of 8 monitoring wells that are deeper than the MDH allowed 50' maximum. These 8 monitoring wells will be installed to a depth of 70' to help with imaging the distribution of vegetable oil.
2. Injection of emulsified food-grade soybean vegetable oil. The emulsion will consist of approximately 300 pounds of non-toxic natural food-grade lecithin, 3,600 gallons of food-grade soybean oil, 30 pounds of non-toxic magnetite or ferrous iron particles, and 7,000 gallons of native extracted ground water.

Similar vegetable oil injection studies have been performed at several sites throughout the country by Parsons Engineering Science. The results of which were presented to you at the NIROP Facility in February of this year. The oil imaging study will be performed by USGS to delineate the distribution of vegetable oil injected. Non-toxic magnetite or ferrous iron particles will be added to the emulsion to enhance the sensitivity of the measuring instruments to image the oil. Product information on vegetable oil and lecithin is attached for your information. Also, MSDS sheets for the magnetite and ferrous iron particles are also included for your review.

All field work will be performed in accordance with MPCA and US EPA Region 5 approved Work Plan titled "*Work Plan for Field Application to Enhance In-Situ Bioremediation of Chlorinated Solvents Via Vegetable Oil Injection at the Naval Industrial Reserve Ordnance Plant (NIROP) Fridley, Minnesota, prepared by Parsons Engineering Science, Inc. dated September 2001*".

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The field work is scheduled to start on October 15, 2001. We look forward to your approval of the request prior to October 10, 2001. We agree to comply with any conditions required by the Minnesota Department of Health.

If you have any questions regarding this, please contact me at (843) 820-5562. We would be glad to arrange for teleconference calls with Navy Technical Staff, Parsons, and/or USGS if you desire to talk to the technical experts in this field.

Sincerely,



JOEL SANDERS, P.E.  
Remedial Project Manager  
Installation Restoration Branch II

Copy to:

Navy Technical Representative, ROICC (Mr. Mark Conti)  
US EPA Region 5 (Mr. Tom Bloom)  
MPCA (Mr. Dave Douglas)  
Minnesota Dept. of Health (Mr. Michael Convery)  
CH2MHill Constructors, Inc. (Mr. Venky Venkatesh)  
Tetra Tech NUS, Inc. (Mr. Mark Sladic)



**VARIANCE REQUEST APPLICATION**

**MINNESOTA DEPARTMENT OF HEALTH**  
 Well Management Section, Metro Square Building  
 P.O. Box 64975, St. Paul, Minnesota 55164-0975  
 (651) 215-0811 or 1-800-383-9808  
 TDD (651) 215-0707 and Fax (651) 215-0978

<b>MDH USE ONLY</b>	
TN Number	_____
Date Received	_____
Amount Received	_____
Deposit No.	_____
Receipt Codes: General Program - 4921 Disclosure Program - 4932	

The party requesting the variance must submit the request in writing, to the address listed on the back of this form, along with the nonrefundable \$120 application fee.

ID No. of Water Well Status Report (if applicable) \_\_\_\_\_

In counties or governmental units which currently have a well program delegation agreement, the variance request must be submitted to both the Minnesota Department of Health and to the delegated program for review.

**The variance request must contain the following information. (Please print or type)**

<b>A. Name of Applicant (i.e., well/boring/sewer/other owner)</b> Joel Sanders		<b>Company Name (if applicable)</b> US Navy, Southern Division, Naval Facilities Engg Command	
<b>Street Address</b> 2155 Eagle Dr.			
<b>City</b> N. Charleston	<b>State</b> SC	<b>Zip</b> 29406	<b>Telephone No.</b> ( ) 843-820-5562
<b>B. Name of Property Owner (if different from above)</b> Jeff Perry		<b>Company Name (if applicable)</b> Anoka County Parks Department	
<b>Street Address</b> 1350 Bunker Lake Blvd.			
<b>City</b> Andover	<b>State</b> MN	<b>Zip</b> 55304	<b>Telephone No.</b> ( ) 763-767-2896
<b>C. Name of Contractor (if applicable)</b> Rob Caho		<b>Company Name (if applicable)</b> Bergerson-Caswell, Inc. MDH License# 27058	
<b>Street Address</b> 5115 Industrial St.			
<b>City</b> Maple Plain	<b>State</b> MN	<b>Zip</b> 55359	<b>Telephone No.</b> ( ) 763-479-3121
<b>D. Well or Boring Location</b>	<b>Fraction</b> 1/4 1/4 1/4	<b>Section No.</b>	<b>Range No.</b>
<b>Street Address of Well or Boring</b> East River Road, Anoka County Park		<b>Township No.</b>	<b>Township Name</b>
<b>City</b> Fridley	<b>State</b> MN	<b>Zip</b> 55421	<b>Fire No.</b>
<b>MN Unique Well No. (if known)</b>			
<b>E. Rule(s) from which variance is requested (cite specific rule(s)).</b> (1) 4725.6650 - depth of 8 wells will be 70', which is > 50' allowed			
(2) 4725.2050 - Injection of ~ 3,600 gal of food-grade soybean oil; ~ 300 lbs of food-grade lecithin; ~ 7,000 gal of native groundwater; and ~ 30 pounds of non-toxic magnetite or ferrous iron particles			
<b>F. Reason(s) rule cannot be met (include supporting evidence).</b> The deeper wells are required for imaging the oil to delineate			
the distribution of oil. The vegetable oil is used to enhance bioremediation. The lecithin is added as an emulsifier. Native groundwater			
is added to better emulsify the oil prior to injection. The magnetite or ferrous iron particles are added to do the imaging study. Product information and MSDS sheets for the vegetable oil, lecithin, magnetite, and ferrous iron are included for your review.			
<b>G. Alternative or additional protective measures to be taken to assure a comparable degree of protection to health or the environment.</b>			
Sampling and analyses of groundwater will be performed at 2, 5, 8, and 12 months as specified in Section 4.4 & 4.7 the Final Work Plan Rev.1, Dt Sep.19, 2001. All the wells will be properly sealed in accordance with MDH requirements after the completion of the study.			
<b>H. Well Information</b>	<b>Estimated Depth</b>	<b>Casing Depth</b>	<b>Casing Diameter</b>
	<b>Casing Type</b>	<b>Method of Drilling</b>	
	<b>Depth to Water</b>	<b>Grout Materials</b>	
	<b>Description of Construction Methods and Anticipated Geologic Conditions.</b>		
Refer to Section 4.3 of Final Work Plan, Rev. 1, Dated September 19, 2001.			

**I. A scaled map showing the location of the well or boring in relation to property lines, structures, utilities, and contamination sources (use additional sheets as necessary and note distances from contamination sources and wells on adjacent properties). Refer to Figure 1-1 of the Final Work Plan for Map**

Please include the following information for a variance request from isolation distances.

**A. Description of the age, design, size, and type of construction of any existing or potential contaminant sources (such as septic systems; petroleum storage; unused, unsealed wells; etc.). Include contamination sources on adjacent properties.**

Refer to Work Plan Section 2.0 for details.

**B. Information on the soil type from a soil survey, percolation test, or soil boring report.**

Refer to Work Plan Section 2.0, Table 2.1 for details.

**C. Other relevant information, such as any testing, inspection, or certification data (please attach reports or data).**

Refer to Section 4.0 of the Work Plan

Incomplete applications cannot be processed and will be returned to the applicant. Please submit a complete application including application fees, scaled map, and signatures of well owner and contractor (if applicable). Please include with this request any relevant information necessary to properly evaluate the request and a copy of any review of any contamination sources by a local or state unit of government under other applicable regulations.

The nonrefundable variance fee of \$120 along with the variance application, signed by the applicant and the contractor, with supportive information, must be returned to the Well Management Section, Minnesota Department of Health, Metro Square Building, P.O. Box 64975, St. Paul, Minnesota 55164-0975.

This variance is conditioned upon the applicants acceptance of, and compliance with the conditions of this variance. Failure by the applicant to comply with the conditions prescribed in this variance will result in the immediate expiration of this variance.

If the variance is granted, I agree to comply with any conditions required by the Minnesota Department of Health.

Date	First Applicant Name (print) Joel Sanders	First Applicant Signature
Date	Second Applicant Name (print)	Second Applicant Signature
Date	Contractor Name (print)	Contractor Signature