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February 9, 1996

Ms. Nicole LaPlant
Wisconsin Department of Natural Resources
1125 North Military Avenue
P.O. Box 10448
Green Bay, Wisconsin 54307-0448

RE: Additional Subsurface Investigation and Interim Remedial Action Plans
Ansul Fire Technology Center
Pierce Avenue
Marinette, Wisconsin
LUST# 38-01345

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ERS DIVISION

Dear Ms. LaPlant:

Enclosed are copies of the technical proposals for Additional Subsurface Investigation and Interim Remediation for the Ansul Fire Technology Center facility located in Marinette, Wisconsin. The documents present the proposed activities to further assess the extent of impact associated with a release of petroleum hydrocarbons at the site and recover the free floating product discovered during a previous site investigation. Implementation of the proposed activities are scheduled to begin the week of February 19, 1996.

Please review the documents at your earliest convenience. If you have any questions or require additional information, please do not hesitate to call.

Respectfully,

Dames & Moore, Inc.

Jeffrey H. Danko
Hydrogeologist

Enclosure



BISHOP'S WOODS EAST, 13255 WEST BLUEMOUND ROAD, SUITE 202, BROOKFIELD, WISCONSIN 53005
(414) 782-7281 FAX: (414) 782-7289

November 1, 1995

Mr. George Rogers
Ansul Fire Protection
One Stanton Street
Marinette, Wisconsin 54143

Re: Technical Proposal for Interim Remediation
at the Ansul Fire Technology Center
Pierce Avenue
Marinette, Wisconsin

Dear Mr. Rogers:

At your request, Dames & Moore has prepared the following technical proposal for interim remedial action at the Ansul Fire Technology Center (AFTC) located in Marinette, Wisconsin. The activities presented in this technical proposal are in response to evidence of floating free product discovered during previous subsurface investigation activities at the site. The initial subsurface investigation was conducted to assess soil and ground water impacts resulting from the operation of a gasoline underground storage tank (UST) system.

The Wisconsin Department of Natural Resources (WDNR) requires that interim remedial actions be undertaken where it is necessary to contain or stabilize a discharge of a hazardous substance or environmental pollution, in order to minimize any threat to public health, safety, welfare or the environment. The proposed activities will be performed in accordance with applicable WDNR and U.S. Environmental Protection Agency (EPA) guidelines and regulations. Presented below is a brief description of the proposed interim action to address the floating free product in the vicinity of ground water monitoring well AFTC-28 located at the AFTC site.

Description of Work Tasks

The proposed scope of work at the AFTC property includes removal of the floating free product and periodic assessment of the ground water flow direction and product thickness. The following tasks describe the proposed product recovery activities, the assessment of the ground water flow direction, and product thickness assessment.

Task 1 - Product Recovery

Interim remedial actions at the AFTC site will consist of floating free product recovery operations using a vacuum-lift truck to remove the floating free product located in the vicinity of ground water monitoring well AFTC-28. Dames & Moore will subcontract with a waste disposal contractor to recover and dispose of the recovered fluid.

We propose to conduct the recovery operations on a weekly basis. For budgetary purposes, an estimated 26 recovery operations will be required at the site. During each operation, the contractor will insert a pipe into the monitoring well to the depth of the floating product layer and initiate recovery activities. Fluid, consisting of floating free product and ground water, will be withdrawn from the monitoring well for approximately one hour. Following completion of the recovery operation, the subcontractor will document the volume of total fluid and free product recovered. Floating free product recovery operations will continue until one of the following conditions occur:

- All free floating product at ground water monitoring well AFTC-28 is recovered; or
- A permanent remediation system is installed.

Task 2 - Ground Water and Free Floating Product Assessment

The purpose of this task is to assess the ground water flow direction and to document the thickness of floating free product at the ground water monitoring well AFTC-28 location. To accomplish this task and minimize costs to Ansul Fire Protection, Dames &

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Moore proposes to collect ground water elevation data and floating free product thickness information on a monthly basis. A total of seven rounds of data will be collected during the estimated 26 week interim remediation period.

Ground water elevation data will be collected from each existing monitoring well at the AFTC facility. The data will be used to assess the ground water flow direction and horizontal hydraulic gradient. The collected information will be used to evaluate fluctuations in the ground water table and determine the potential direction of ground water contaminant migration.

Floating free product thickness data will be used to evaluate the effectiveness of the product recovery operations at the site. Based on the results of the evaluation, Dames & Moore will revise the interim remedial action, as necessary, to recover the floating free product.

Task 3 - Report Preparation

Dames & Moore will prepare draft reports to document the details of the remedial actions and ground water assessments on a quarterly basis. The reports will meet the requirements of Wisconsin Administrative Code NR 700. We will submit a draft of the reports to you for review and comment and will revise the reports as necessary. The reports will be finalized for submittal to the WDNR.

Project Schedule

The proposed work will be initiated upon your authorization. The recovery operations will begin within two weeks following authorization to proceed. For budgetary purposes, we estimate the recovery operations will require 26 weeks to complete. The draft report will be submitted for your review within approximately four weeks following the completion of each quarter of field activities.



BISHOP'S WOODS EAST, 13255 WEST BLUEMOUND ROAD, SUITE 202, BROOKFIELD, WISCONSIN 53005
(414) 782-7281 FAX: (414) 782-7289

October 17, 1995

Mr. George Rogers
Ansul Fire Protection
One Stanton Street
Marinette, Wisconsin 54143

Re: Technical Proposal for Additional Subsurface Investigation
at the Ansul Fire Technology Center
Pierce Avenue
Marinette, Wisconsin

Dear Mr. Rogers:

At your request, Dames & Moore has prepared the following technical proposal and work plan for additional subsurface investigation at the Ansul Fire Technology Center (AFTC) located in Marinette, Wisconsin. The activities presented in this technical proposal are in response to evidence of an environmental impact discovered during removal of a gasoline underground storage tank (UST) system and further evaluated during subsequent subsurface investigation activities.

The Wisconsin Department of Natural Resources (WDNR) requires that the approximate vertical and horizontal extent of the impact be evaluated prior to initiating remedial action. The proposed activities will be performed in accordance with applicable WDNR and U.S. Environmental Protection Agency (EPA) guidelines and regulations. The proposed scope of work describes the tasks associated with the third phase of subsurface investigation, identification of remedial options, and reporting requirements.

Background

In November 1992, Ansul Fire Protection retained E & K Hazardous Waste Services, Sheboygan, Wisconsin to remove a 560-gallon gasoline UST from the AFTC property. During the removal activities, adverse environmental impact to the soils surrounding the UST were discovered.

As a result of the conditions encountered during the UST removal operations, Ansul Fire Protection retained Dames & Moore to evaluate the degree and extent of the impact to the soil and, if necessary, the ground water. Dames & Moore conducted an initial phase of subsurface investigation activities in May 1993. The scope of the investigation included the advancement of four soil borings, installation of three ground water monitoring wells and one piezometer, collection and analysis of soil and ground water samples, and evaluation of the hydrogeologic properties of the site.

Details of the initial subsurface investigation were presented in the Site Investigation Report, Ansul Fire Technology Center, January 1994.

Soil and ground water samples were collected during the investigation activities and were submitted for laboratory analysis in accordance with WDNR Leaking Underground Storage Tank (LUST) Analytical Guidance (April 1992). Based on the laboratory analytical results, it was concluded that impacts to the soil and ground water in the vicinity of the former UST location had occurred. However, it was noted that during ground water sampling activities, vapors, apparently from adjacent above ground storage tanks, may have affected the validity of the ground water sample analytical results.

During the initial subsurface investigation activities, ground water elevation information was collected to evaluate the ground water flow direction and gradient. Based on this information, the ground water flow direction appears to be to the east-southeast with a horizontal ground water gradient of approximately 0.005.

Based on the findings of the initial investigation, Dames & Moore recommended that the ground water be re-sampled at the existing monitoring wells to verify the magnitude of the ground water impact at the site. The additional round of ground water sampling was conducted on February 14, 1994. The second round of ground water sampling identified impacted ground water at the location of monitoring wells AFTC2A and AFTC3 located north and east of the former UST location, respectively.

Based on the results of the second round of ground water sampling, a second phase of investigation was conducted at the site. Details of the second phase of investigation were presented in the Phase II Subsurface Investigation Report, Ansul Fire Technology Center, August 1995. The second phase of investigation consisted of two tasks. The initial task included the advancement of 23 soil borings to define the approximate extent of soil and ground water impacts. The second task included the advancement of five additional soil borings, which were converted to ground water monitoring wells. Soil and ground water samples were collected for in-field laboratory analysis with selected samples submitted to Anatech Laboratories for analysis.

Following completion of investigation activities, Dames & Moore concluded the following:

- Soil impacts exceeding Wisconsin Administrative Code (WAC) Chapter NR 700 cleanup criteria are present at the site;
- The approximate horizontal extent of impacts to soil has been established;

- Ground water impacts at concentrations that exceed the WAC Chapter NR 140 Enforcement Standards are present at the site;
- The horizontal and vertical extent of the ground water impacts has not been sufficiently defined; and,
- Floating free product is present on the ground water table in the vicinity of monitoring well AFTC-28 at the site.

Description of Work Tasks

The proposed scope of work at the AFTC property includes additional subsurface investigation followed by the development of a remedial action plan. Because the most appropriate and cost-effective remedial options for the site cannot be determined prior to evaluating the vertical and horizontal extent of the impact, the details and costs associated with the design and implementation of an appropriate remedial action will be presented following completion of the subsurface investigation.

Task 1 - Monitoring Well Installation and Ground Water Sampling

The proposed scope of this phase of the investigation is comprised of the advancement of six soil borings at the site, and collection of environmental samples for field screening and/or laboratory analysis. The soil borings will be located to assess the potential horizontal migration of the impact. Further, logging of all borings will be performed by an experienced Dames & Moore professional to aid in defining the subsurface strata penetrated by the soil borings.

Soil samples will be collected from each boring location at continuous intervals and will be containerized for laboratory analysis ("primary" samples) and/or in-field analysis ("co-located" samples). Co-located samples will be screened with a photoionization detector (PID), which provides qualitative indications of the ionizable constituent concentrations of soils and aids in the selection of samples to be submitted for laboratory analyses. The PID will be calibrated in the field prior to sample screening and will be checked for proper response between each screening event.

Primary soil samples intended for laboratory analysis will be stored in laboratory-provided containers. One primary sample from each boring will be submitted to the laboratory. The sample submitted from each boring will be chosen based on PID readings or other in-field observations and will be selected to fulfill the objectives of the investigation.

The soil samples will be analyzed in accordance with WDNR guidelines for leaking underground storage tank investigations and are selected to identify the presence or absence of petroleum fractions in the soil. The soil samples will be submitted to a WDNR-certified laboratory for analysis of:

- Gasoline Range Organics (GRO; Wisconsin-modified GRO method);
- Petroleum Volatile Organic Compounds (PVOC; Wisconsin-modified method 8020); and,
- Total Lead (EPA Method 6010).

Following advancement, the soil borings will be converted into ground water monitoring wells or piezometers. Three monitoring wells will be installed to assess ground water quality near the ground water table and identify the presence or absence of floating free product. The remaining three wells (piezometers) will be installed to assess ground water quality at depth and to assess the vertical component of ground water flow. For budgetary purposes, it is assumed the ground water monitoring wells and piezometers will be completed at a depth of 20 feet below ground surface (bgs) and 40 feet bgs, respectively. Following installation, each new and existing monitoring well and piezometer will be developed or purged in accordance with WAC Chapter NR 141. One ground water samples will be collected from each new and existing monitoring well and piezometer (a total of fifteen) and will be submitted for laboratory analysis of:

- GRO;
- PVOCs; and,
- Dissolved Lead (EPA Method 239.2).

The wells will be surveyed to an established or local benchmark and ground water elevations will be measured in order to evaluate local ground water flow direction and gradient. The local ground water flow direction and gradient are important in evaluating the location of a potential ground water contaminant plume and potential contaminant receptors. In addition, aquifer tests will be performed at each well, using the field and analytical methodology presented by Bouwer and Rice (1976), in order to estimate the hydraulic conductivity at each well location. Hydraulic conductivity values will be used to evaluate the most effective means of remediating impacted ground water (if necessary) and can be used, with the ground water gradient, to estimate the ground water velocity.

Task 2 - Report Preparation

Dames & Moore will prepare a draft report to document the details of the investigation, data analysis, and recommendations for site remediations, as appropriate. This report will meet the requirements of Wisconsin Administrative Code NR 700. In addition, a separate report will be prepared to document three viable remedial options for the site. This report will include descriptions of the remedial options, the advantages and disadvantages of each option, and detailed cost estimates for each option. We will submit a draft of the reports to you for review and comment and will revise the reports as necessary. The reports will be finalized for submittal to the WDNR.

Task 3 - Presentation to the WDNR

If requested, Dames & Moore will meet with the WDNR to present the investigation results. We will work with the WDNR to achieve approval of the investigation and the proposed remedial action.

Project Schedule

The proposed work will be initiated upon your authorization. The soil boring/monitoring well installation may be completed within two weeks following authorization to proceed and will require four days to complete. Due to access constraints, it is assumed that investigation activities will be conducted during weekends. Standard laboratory turn-around is three to four weeks. Expedited turnaround may be requested; however, the laboratory charges a premium for these services. The draft investigation report will be submitted for your review approximately four weeks following the completion of all field and laboratory work. A final report of the subsurface investigation activities will then be completed for submittal to the WDNR within one week of receipt of your comments. Therefore, completion of the initial investigation is expected in approximately nine to ten weeks from your authorization to proceed.

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