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March 16, 1995

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LMD SOLID WASTE

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

RE: Work Plan for Additional Subsurface Investigation
Ansul Fire Technology Center
Pierce Avenue
Marinette, Wisconsin

RECEIVED
JUL 14 2000
ERS DIVISION

Dear Ms. LaPlant:

As discussed in our March 15, 1995 telephone conversation, enclosed for your files is the proposed work plan for further subsurface investigation activities at the Ansul Fire Technology Center, Marinette, Wisconsin. Per our discussion, the field activities may be conducted without prior Wisconsin Department of Natural Resources (WDNR) approval of the work plan. Therefore, Dames & Moore anticipates that the geoprobe investigation will be completed by April 1, 1995, followed by completion of the soil boring/monitoring well investigation by the end of April, 1995. Details of the findings of the investigation will be presented to the WDNR following completion of the investigation activities. If you have any questions concerning the proposed work plan or require additional information, please do not hesitate to call.

Respectfully,
Dames & Moore, Inc.

Jeffrey H. Danko
Hydrogeologist

Enclosure

NTP
issued
in May of
1994



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

December 6, 1994

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

Re: Technical Proposal for Additional Subsurface Investigation Activities
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 activities at the Ansul Fire Technology Center (AFTC) located in Marinette, Wisconsin. Based on conversations with the Wisconsin Department of Natural Resources (WDNR), this proposal will also fulfill the work plan and status report submittal requirements established by the WDNR. 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 a subsequent phase of subsurface investigation activities.

The WDNR requires that the approximate vertical and horizontal extent of the impact be evaluated prior to initiating remedial action. The proposed subsurface investigation 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 second phase of subsurface investigation, identification of remedial options, and reporting requirements and has been designed to address Ansul's concerns regarding the source of the impacts.

History of Activities

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 directions and gradient. Based on the 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 results of the second round of ground water sampling, impacted ground water was detected at the locations of monitoring well AFTC2A, located northeast of the UST, and monitoring well AFTC3, located southeast of the UST. Therefore, it appears that the horizontal extent of the impact to the east and south of the former UST location has not been sufficiently evaluated to determine appropriate remedial options for the site.

Description of Work Tasks

The proposed scope of work at the AFTC property includes a two-phased 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 - Geoprobe Investigation

The initial task of the second phase of subsurface investigation activities will be conducted with the use of a geoprobe sampling device. The geoprobe is a hydraulically-operated device that is inserted into the soil to retrieve soil and ground water samples. Because the purpose of the additional investigation activities is to sufficiently evaluate the extent of the impact, the geoprobe can be used in a cost-effective manner to determine the approximate boundaries of the impact.

The initial task will consist of advancing the geoprobe at selected locations at the site to a depth of approximately six feet below ground surface. Ground water samples will be collected from each location and analyzed for the presence of petroleum organic compounds (PVOOC) using an on-site gas chromatograph. Water samples will be collected and analyzed at increasing distances from the former UST and existing monitoring well locations until impacts to the ground water are no longer detected.

Task 2 - Data Evaluation

Following completion of the geoprobe investigation, the information obtained will be evaluated. The purpose of the evaluation is to determine the most appropriate location for additional ground water monitoring wells at the site that will sufficiently evaluate the extent of the impact.

Task 3 - Monitoring Well Installation and Ground Water Sampling

The proposed scope of this phase of the investigation is comprised of the installation of up to three soil borings at the site, and collecting environmental samples for field screening and/or laboratory analysis. The soil borings will be located to assess the 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 to the laboratory. 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 GRO method);
- PVOC (Wisconsin-modified method 8020); and,
- Total Lead (EPA Method 6010).

The borings will be converted into monitoring wells and will be developed and sampled in accordance with Wisconsin Administrative Code NR 141. One ground water sample from each well (a total of three) will be analyzed for:

- 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 4 - 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. We will submit a draft of the report to you for review and comment and will revise the report as necessary. The report will be finalized for submittal to the WDNR.

Task 5 - 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. Geoprobe sampling may be completed within two weeks of authorization. Data evaluation may be completed within one week of completion of site activities. The soil boring/monitoring well installation may be completed within two weeks following completion of the data evaluation and will require two days to complete. 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 thirteen to fourteen weeks from your authorization to proceed.