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NIROP FRIDLEY
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Minnesota Pollution Control Agency

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

August 30, 2000

Mr. Douglas Hildre, P.E.
Environmental Control Manager
United Defense L.P.
Armament Systems Division
4800 East River Road
Minneapolis, MN 55421-1498

RE: FMC Corporation Superfund Site

Dear Mr. Hildre:

The Minnesota Pollution Control Agency (MPCA) staff has reviewed the document entitled "Work Plan for Site Work to Complete Tasks 1 and 2," (Report) dated July 27, 2000. The Report was submitted in response to the recommendations of the CERCLA Five-Year Review Report, dated March 30, 1999, for the FMC Corporation Site

The MPCA staff hereby modifies the Report pursuant to Attachment I of this letter. Please find comments to the Report in Attachment II to this letter. United Defense L.P. (UDLP) does not need to respond to Attachment II.

The MPCA staff considers the sampling of existing wells and the limited installation of new monitoring wells to be the first phase in the evaluation of the monitoring well network. Further monitoring well network evaluation may result in the installation of additional monitoring wells.

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

Sincerely,

David N. Douglas, Project Manager
RCRA/Superfund Unit
Site Remediation Section
Metro District

DND:csa

Enclosure

cc: Thomas Bloom, U.S. Environmental Protection Agency (w/enclosure)
Joel Sanders, U.S. Navy (w/enclosure)

Attachment I
Modifications to the Document Entitled,
"Work Plan for Site Work to Complete Tasks 1 and 2,"
Dated July 27, 2000

1.) **Visualization of Geology, Well Construction, and Groundwater Data**, page 2 – The report refers to Figure 2 that shows the clay surface elevation and the unconfined aquifer ground water elevations. For a large portion of the FMC Corporation (FMC) Site, no equipotential lines are drawn on the figure. The inability to map the equipotentials over a large portion of the site attests to the lack of an adequate number of shallow monitoring wells at the FMC Site. Ground water elevations are available for some FMC areas from Naval Industrial Reserve Ordnance Plant (NIROP) monitoring wells. The MPCA staff requests that (UDLP) revise the figure using the NIROP data to show a more complete unconfined aquifer equipotential map for the FMC Site.

2.) **Visualization of Geology, Well Construction, and Groundwater Data**, page 2 – The MPCA staff requests that UDLP extend cross-section B-B' to the south to include information from wells FMC-28, FMC-44 and RW-2. Also, the MPCA staff requests that UDLP extend the cross-section to the north to include information from NIROP monitoring wells 9-D and MS-40D. The modified cross-section will provide for better visualization of the geology along the general line of FMC Site pumpout wells.

3.) **Site Work Recommended for Task 1 and 2 – Groundwater Sampling and Analysis**, page 7 – The MPCA staff requests that methane, ethane and ethene be added to the list of parameters sampled to evaluate natural attenuation. The MPCA guidance document for natural attenuation is located on the web at: http://blue.pca.state.mn.us./cleanup/pubs/natatten.pdf

Any questions regarding the natural attenuation guidance document should be referred to Mark Ferrey of the MPCA staff at (651) 296-7775, or at mark.ferrey@pca.state.mn.us.

4.) **Site Work Recommended for Task 1 and 2 – Groundwater Sampling and Analysis**, page 7, **Figure 9 and Table 2** – The MPCA staff requests that UDLP add monitoring wells FMC-20, FMC–35, FMC-45, FMC-37 and FMC-38 to the chemical sampling in the work plan. FMC-20 is a shallow well that helps define the shallow plume. FMC-45 has shown relatively high trichloroethylene (TCE) concentrations in the past and is downgradient of the former dump area and areas where contaminated soil was excavated. FMC-35 is a shallow unconfined well downgradient of the former dump area and areas where contaminated soil was excavated. FMC-37 and FMC-38 are offsite wells that have not been sampled for a considerable time period. The inclusion of these wells will make full use of the existing monitoring wells available to determine offsite plume conditions. Data can be used to evaluate the adequacy of the current monitoring well network.

5.) **Site Work Recommended for Task 1 and 2 – Groundwater Sampling and Analysis, Table 2** – The MPCA staff requests that UDLP modify Table 2 to add the monitoring wells requested in modification 4.

The MPCA staff requests that for long-screened monitoring wells, sampling depths be used so that an individual sample, within a set of samples from a long-screened well, is collected roughly over no more than a twenty-foot interval. For example, for well MW35, with a 100-foot screen, the staff requests that five samples be collected. FMW-54 has roughly a screen length of 80 feet and the staff requests that four samples be collected. The MPCA staff requests that Table 2 be modified as in these two examples to reflect a 20-foot sampling interval for long-screen wells.

6.) **General Modification** - The MPCA staff requests that UDLP include new figures in the final report. The figures include "overlay maps" showing the location of the former dump area; the location and extent of excavated contaminated soil; the containment and treatment vault location; and the relationship (location) of each on the isoconcentration and equipotential maps.

7.) **General Modification** – The MPCA staff requests that the final report contain both shallow unconfined plume (isoconcentration) maps and confined aquifer plume (isoconcentration) maps based on the new sampling.

8.) **General Modification** – The MPCA staff requests that the final report contain both shallow unconfined equipotential maps and confined aquifer equipotential maps based on new water level measurements.

9.) **General Modification** – The MPCA staff requests that the final report address the following:

a. Identification of the monitoring wells to be sampled to characterize the FMC Site plume for the Annual Groundwater Extraction System Report;

b. Recommendations regarding the installation of new monitoring wells required to monitor the offsite plume and discharge of the contaminant plume to the Mississippi River;

c. Recommendations regarding which sampling depths and methods should be used for sampling for the Annual Groundwater Extraction System Report;

d. Recommendations regarding whether or not multiple samples should be collected from long-screened monitoring wells for the Annual Groundwater Extraction System Report;

e. Identification of areas of non-capture of the FMC Site contaminant plume and recommendations made concerning the need for additional pumping wells and/or modifications to existing pumpout wells to achieve capture of the FMC Site plume at the FMC Site property boundary; and

f. A conclusion regarding whether or not natural attenuation is helping to achieve cleanup goals at the FMC Site.

10.) **General Modification** - Prior to the preparation of the final report, the MPCA staff requests that UDLP review the NIROP 1999 Annual Monitoring Report (AMR) data and figures and use the data presented in the report to make interpretations regarding ground water flow and chemistry. (The basis for this request is explained in the comment section below.)

11.) **General Modification** - The MPCA staff requests that UDLP clarify its position with regard to contamination in the wells that the Navy has identified may be coming from the FMC Site. (The basis for this request is explained Item 1 in the comment section below.) Would UDLP be interested in working with the Navy to come to agreement with the Navy on who is responsible for the contamination in the southern part of Anoka County Park?

Attachment II
Comments to the Document Entitled,
"Work Plan for Site Work to Complete Tasks 1 and 2,"
Dated July 27, 2000

1.) **General Comment** – The MPCA staff believes that UDLP should be aware that the Navy has stated that UDLP may be responsible for contamination in a number of the NIROP's southern contaminant plume monitoring wells. In the 1999 NIROP Annual Monitoring Report's (AMR) Conclusions and Recommendations Section that discusses the shallow monitoring interval (page 6-2), the Navy states that

> [t]he lateral extent of the TCE plume has been defined down to the MCL for TCE with the exception of the southern end of ACP [Anoka County Park]. Based upon hydraulic data, it is believed that contamination in this area may have originated from the UDLP site (see Section 4.3.2.1).

On page 6-2, in the discussion of the intermediate interval, the Navy states that

> [i]n most areas, the lateral extent of the plume in the intermediate zone has not been defined to MCLs. Based upon hydraulic data, it is believed that contamination in the southern end of ACP may have originated from the UDLP site (see Section 4.3.2.2).

In Table 6-1 of the AMR, the Navy states that the contamination found in monitoring wells MS-52S, FMC 20, MS-51I, MS-52I and 9-D

> ...may be coming from UDLP.

For monitoring well MS-40D the Navy states that contamination in this well

> ...may be coming from the UDLP based on hydraulic data (?).

For monitoring well 19-S the Navy states that it is

> ...unclear if contamination in this well is from UDLP.

The MPCA staff response to these statements can be found in Item 11 of Attachment I of the July 12, 2000, MPCA staff letter to Navy regarding the AMR. The response states that

> [s]everal references are made that '[b]ased upon hydraulic data, it is believed that contamination in the southern end of ACP may have originated from the UDLP site (see Section 4.3.2.2). The MPCA requests that the Navy and UDLP negotiate and voluntarily agree on a division of responsibility in the southern portion of the plume area.'
>
> The agreement would define the boundary north of which the Navy would agree to be responsible for remediation of contaminated ground water and south of which UDLP would be responsible for remediation of contaminated ground water. The MPCA staff requests that the Navy provide us with a signed letter of agreement regarding this issue that includes the technical justification for the establishment of the boundary and a map which shows the agreed upon division of responsibility.

Although the Navy has not formally responded to this request, the MPCA staff was told at the August 2, 2000, NIROP partnering meeting that it is unreasonable to expect that the Navy and UDLP will come to an agreement on responsibility in the southern plume area.

2.) **General Comment** - In an MPCA staff letter, dated August 22, 2000, that further modified the NIROP 1999 AMR, the MPCA staff further clarified its position regarding Navy statements about certain southern plume monitoring wells. The MPCA staff stated that

> [t]he MPCA staff does not agree that sufficient evidence has been presented by the Navy to determine that the contaminants in the southern portion of the plume originated from the FMC Site.

3.) **General Comment** - On August 8, 2000, the Navy forwarded Table 2 (see attached) which contained changes to the proposed long-term groundwater monitoring network at NIROP.

In Table 2, a more definitive statement is made concerning contamination in certain monitoring wells in the south NIROP plume area. For wells MS-52-S, MS-51I, MS-52I, 9-D and MS-52D, the Navy states that

> [b]ased on the MPCA's interpretation of GW contours, contamination encountered in this well originates from UDLP. Thus, this is not the Navy's responsibility.

The MPCA staff responded to these statements in an August 18, 2000, email from John Betcher to Joel Sanders by stating that

> [f]or wells MS-52S, MS-51I, MS-52I, 9-D and MS-52D the Navy claims that UDLP is responsible for contamination. The Navy has not provided sufficient information to attribute contamination in these wells to other sources. It is entirely possible that the contamination in these wells is part of the Navy plume. The Navy argues that the MPCA contour maps prove that this contamination belongs to UDLP.
>
> As the Navy should know, contouring is a highly interpretive exercise and the MPCA staff is not confident that the equipotential lines interpreted in this area represent actual flow conditions due to the low density of monitoring wells in this area. Even in those area where the well density is much higher, the Navy is doing additional studies on its own to determine flow directions in ACP. Due to these uncertainties, the MPCA does not accept Navy's interpretations in this area.

4.) **Monitoring Well Installation**, pages 5-6 – The MPCA staff approval of the installation of two monitoring wells proposed does not preclude or limit the MPCA staff from requesting the installation of additional monitoring wells based on the data that is generated from the work approved in this work plan.

Table 2
Proposed Long Term Groundwater Monitoring Network
NIROP Fridley
Fridley, Minnesota

	Navy's Position		
	October 2000 LTM		
Wells Identified by MPCA for Sampling	Include	Will Not Include	Rationale
7-S	X		The Navy agrees in part It will be revaluated for 2001 LTM
13-S		X	This well has been below MCLs for 8 out of 8 sample rounds It will be revaluated for 2001 LTM.
16-S	X		The Navy agrees in part It will be revaluated for 2001 LTM
17-S	X		The Navy agrees in part. It will be revaluated for 2001 LTM
25-S		X	This well was mislabeled as 26-S. It has been non-detect in last 11 out of 12 sample rounds There is no reason to believe that resampling will add value
MS-29S	X		The Navy agrees in part It will be revaluated for 2001 LTM
MS-33-S	X		The Navy agrees in part It will be revaluated for 2001 LTM
MS-34S	X		The Navy agrees in part It will be revaluated for 2001 LTM
MS-44S	X		The Navy agrees in part It will be revaluated for 2001 LTM
MS-45S	X		The Navy agrees in part It will be revaluated for 2001 LTM
MS-52S		X	Based upon the MPCA 's interpretation of GW contours, contamination encountered in this well originates from UDLP Thus, this is not the Navy's responsibilty
FMC-20		X	This well is owned and maintained by UDLP This is not the Navy's responsibiltity
USGS-8	X		The Navy agrees in part It will be revaluated for 2001 LTM
10-IS		X	his well has been below MCLs for 9 out of 9 sample rounds It will be revaluated for 2001 LTM
MS-42I	X		The Navy agrees in part It will be revaluated for 2001 LTM.
MS-46I	X		The Navy agrees in part It will be revaluated for 2001 LTM
MS-51I		X	Based upon the MPCA 's interpretation of GW contours, contamination encountered in this well originates from UDLP Thus, this is not the Navy's responsibilty
MS-52I		X	Based upon the MPCA 's interpretation of GW contours, contamination encountered in this well originates from UDLP Thus, this is not the Navy's responsibilty
2-D		X	This well is at or below MCL for 9 out of 9 sample rounds It will be revaluated for 2001 LTM.
3-D		X	Impact from offsite sources should be monitored by the respective property owner
9-D		X	Well is not part of agreed upon compliance well network Based upon the MPCA 's interpretation of GW contours, contamination encountered in this well originates from UDLP Thus, this is not the Navy's responsibilty
10-D		X	Impact from offsite sources should be monitored by the respective property owner
14-D		X	Impact from offsite sources should be monitored by the respective property owner It has been non-detect in last 8 out of 8 sample rounds There is no reason to believe that resampling will add value
MS-30D	X		Purpose will be to define conditions under the building Impact from offsite sources should be monitored by the respective property owner The Navy will revaluate for 2001 LTM
MS-36D	X		The Navy agrees in part Purpose will be to monitor effects capture system It will not be used to evaluate ACP remedy The Navy will revaluate for 2001 LTM.
MS-52D		X	Based upon the MPCA 's interpretation of GW contours, contamination encountered in this well originates from UDLP Thus, this is not the Navy's responsibilty.
MS-50PC		X	Conditions in the PC aquifer monitored by two adjacent wells.