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Mr. David Douglas
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Division of Ground Water and Solid Waste
520 Lafayette Road
St. Paul, Minnesota 55155-4194

Subj: NAVAL INDUSTRIAL RESERVE ORDNANCE PLANT, FRIDLEY - 1996 ANNUAL
MONITORING REPORT

Dear Mr. Douglas:

The Navy is providing this letter in response to your letter dated September 24, 1997, which provides comments to the "1996 Annual Monitoring Report". As the Project Team has previously discussed, the 1996 AMR will not be reissued, rather, appropriate changes will be reflected in the 1997 AMR.

Attachment I Modifications:

1. The Project Team has agreed that a discussion of containment/system effectiveness will be included in future AMRs rather than reported under separate cover.
- 2.a A "Conclusions and Recommendations" section, providing a discussion on how the remedy is performing based on evaluation of the data and any recommendations for improving the performance of the remedy will be included in future AMRs.
- 2.b A discussion of the potential or actual impact to the Mississippi River and the Minneapolis Water Works (MWW) from groundwater contamination west of East River Road is appropriate for inclusion in future AMRs. The Navy agrees that identifying the risk to the river and MWW intake from discharge of contaminated ground water needs to be better understood. The Navy believes that a meaningful evaluation of impacts and risk could not be completed prior to issue of the 1997 AMR, but would be more appropriately addressed in the 1998 AMR.
- 2.c A discussion of the fluctuating TCE concentrations observed in wells located west of East River Road will be included in the 1997 AMR.

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- 2.d An evaluation of how known sources impact groundwater at the different intervals and how this relates to the effectiveness of the remedy will be more appropriately addressed after potential OU3 sources are defined and the Groundwater Numerical Model (GNM) is updated. The Navy expects that a more meaningful discussion of this issue will be provided in the 1998 AMR.
- 2.e A discussion of the need for improvements to the monitoring network will be discussed in future AMRs.
- 2.f A discussion of the need for improvements to the extraction system in order to achieve remedial goals will be discussed in future AMRs.
- 3. The Navy agrees that discussing well data in terms of aquifer interval, rather than strictly by geographical area will provide a more useful discussion of the effects of the remedy on the condition of the groundwater. The Project Team has agreed that it would be more appropriate to discuss the aquifer intervals in terms of an upper unconfined drift, lower confined drift and bedrock aquifer rather than shallow drift, intermediate drift, deep drift and bedrock aquifers in order to more accurately depict actual geological conditions at the site. The wells in the monitoring network identified as "intermediate" are actually in the lower region of the upper drift, and will be viewed as shallow drift monitoring wells in the future.

A discussion of the upgradient groundwater conditions, known and potential source areas (as it relates to their known or potential impact to groundwater), capture/non-capture, residual contamination beyond the capture zone (and its potential impact to the river), and vertical head relationships are all suitable subjects to discuss in the AMR in terms of aquifer interval.

- 4. The AMR states that impure decontamination fluid was the likely source of the acetone problem. Field sampling techniques were adjusted to correct this problem and the acetone has dissipated from the wells in question. The 1997 AMR will provide a brief follow-up discussion to the 1996 AMR to bring this issue to closure. The sampling methods were modified to ensure proper purging of the wells prior to sampling. This method has been successful. The Navy intends on revising the Remedial Action Monitoring Plan (RAMP) which will provide for consistency of sampling methods. The Navy does not intend on using well packers for sampling at this time.
- 5. The Navy will consider increasing the sampling frequency of 18-S and 27-S if the Project Team collectively agrees that there is value to be gained by collecting this additional data.

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As you know, the Navy is in the process of utilizing the USGS for data collection services to obtain data to help refine the GNM, including placing data loggers on some wells. The MPCA has shown an interest to coordinate with the USGS and the Tetra Tech modeling staff to determine where the limited number of data loggers will be best served. The Navy supports this coordinated effort.

6. When the OU3 monitoring well data is evaluated, the Project Team will make a determination which wells located inside the plant should be included in the regular monitoring network. Any data derived from wells located within the plant will be incorporated as appropriate into the AMR, the same as ground water data collected elsewhere at the site.
7. The Project Team will determine if and where additional monitoring wells are needed to assess the potential impact from North 40 source areas after the revised GNM is evaluated.
8. The Navy does not recommend installing Prairie du Chien (PDC) monitoring wells through a highly contaminated zone. The Navy considers that doing this will pose an unnecessary risk of spreading contamination vertically and impacting a drinking water supply. PC -1, PC-2 and PC-4 should provide information on how potential source areas may impact Fridley well 13. The Navy will consider sampling these PC wells more frequently. The current understanding of the hydrogeology at the site is that there is an upward gradient from the PDC to the overlying aquifer. The highest concentrations remain in the upper drift. Concentrations in the lower drift are considerably lower. After evaluation of data from the deep OU3 wells and determining how this relates to vertical gradients, as reflected in the updated GNM, future consideration to the value of additional PDC wells will be given. The Navy considers that this is an issue the Project Team should come to consensus on.
9. After evaluation of recently collected data in Anoka County Park, potentiometric surface data to be collected by the USGS, and evaluation of the updated GNM, the Project Team will determine where additional monitoring wells should be placed along the river.

The Project Team has agreed, and it is reflected in the Site Management Plan, that the groundwater issues associated with Anoka County Park are part of OU1.

10. The Navy agrees that assessing the impact of groundwater contamination to the MWW intake is an important issue. The Project Team should determine, after evaluating the MDH data collected at the intake, how to best evaluate this condition. The Navy believes that sampling procedures for collecting samples at the intake should be incorporated into the upcoming revision of the RAMP.

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Should you have any questions or comments, please contact me at (803) 820-5587.

Sincerely,

"SIGNED"

SCOTT A. GLASS, P.E.
Remedial Project Manager
Installation Restoration II Division

Copy to:

US Environmental Protection Agency, Region V, Mr. Thomas Bloom

Tetra Tech NUS, Mr. Mark Sladic

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