



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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REPLY TO THE ATTENTION OF:

SR-6J

November 14, 2003

Commander
Southern Division
Naval Facilities Engineering Command
Attn: Dan Owens, Code ES32
P.O. Box 190010
North Charleston, SC 29419-9010

**RE: Naval Industrial Reserve Ordnance Plant (NIROP) - Field Sampling Plan
Addendum to the Additional Investigation at the Anoka County Riverfront Park**

Dear Mr. Owens:

U.S. Environmental Protection Agency (EPA) has completed its review of the Naval Industrial Reserve Ordnance Plant Field Sampling Plan Addendum to the Additional Investigation at the Anoka County Riverfront Park dated September 2003. Upon review, EPA has the following comments:

GENERAL COMMENTS

1. The Field Sampling Plan Addendum to the Additional Investigation at Anoka County Riverfront Park (FSP Addendum) (pg. 1-1) indicates that "a copy of the Technical Committee 'meeting notes' summarizing the subcommittee meeting can be found in Appendix A." The FSP Addendum (pg. 2-1) similarly indicates that Section 2 "describes the scope of work and rationale to achieve the objectives outlined in the technical meeting memorandum (Appendix A)." However, no Appendix A is provided in the FSP Addendum, and it is not clear what technical meeting memorandum is being referred to. The FSP Addendum should be revised to include a copy of Appendix A.
2. The FSP Addendum (pg. 1-2) indicates that the planned "aquifer tests follow a protocol developed by the USGS and previously distributed to the Partnering Team (see Appendix B)." However, Appendix B is not provided with the FSP Addendum, and it is not clear what United States Geological Survey (USGS) protocol is being referred to. The FSP Addendum should be revised to include a copy of Appendix B.
3. Boring SB-10 has been identified as a proposed soil boring on Figure 2-1. However, except to indicate that it will be installed (pg. 2-1), no further mention of this soil boring has been provided in the text of the FSP Addendum. The FSP Addendum should discuss the purpose of the proposed boring SB-10 and indicate how, if at all, the lithology

identified at this boring will influence the installation of monitoring wells at the other boring locations proposed in the FSP Addendum.

4. The objectives of the proposed investigation, as cited in the FSP Addendum (pg. 2-1), include better definition of the trichloroethylene (TCE) plume in the shallow and intermediate intervals of the unconsolidated aquifer(s) west of AT-10. The installation of monitoring well cluster MS-54 is proposed to address this objective. The proposed location of this well cluster is shown on Figure 2-1. While not clearly stated, it appears that the primary purpose of this well cluster is to better evaluate the degree of capture achieved in the hydraulic feature observed in the intermediate zone in the area of 12-IS and 13-IS. This area has frequently been referred to as the hydraulic 'nose.'

In response to an ongoing review of this FSP Addendum, Hal Davis of the USGS has suggested (in an E-mail dated October 10, 2003) moving well cluster MS-54 further north along the median of East River Road into an area associated with the flatter part of the cone of depression of extraction well AT-3A. However, moving the well into an area more obviously controlled by AT-3A may not be helpful for evaluating capture in the area of the hydraulic nose.

When reviewing the potentiometric maps prepared by the USGS for the intermediate zone, it has been noted that these maps do not include water level data from monitoring well MS-41I. In the December 2002 USGS capture zone analysis, MS-41I was moved into the deep zone. However, as discussed during the NIROP Technical Committee meeting held on July 8 and 9, 2003, it may not be appropriate to eliminate the intermediate zone at many of the locations, as was done in the USGS capture zone analysis, including at MS-41I. As shown by Figure 4-8 of the 2001 AMR, if the water-level datum for the pumping scenario from MS-41I is included in the intermediate potentiometric map, the hydraulic nose feature becomes much more evident. This alternate depiction of the potentiometric surface in the intermediate zone under pumping conditions may influence the USGS's analysis of groundwater flow in this area and should be considered in future decision making.

5. The FSP Addendum (pg. 2-2) indicates that the new well cluster MS-54 will be installed "only if the intermediate monitoring interval is encountered at soil boring SB-08 or SB-09." Given the heterogeneity previously observed in the lithology in this general area, limiting the installation of MS-54 only if the intermediate monitoring zone is encountered in the area of SB-09 does not appear sufficient. If the intermediate flow zone is not found initially at SB-09, additional borings should be completed in this general area to identify this zone. Otherwise, the intermediate flow zone may inadvertently be missed.

Also, the strategy of placing only one other boring some 200 feet north of SB-09 at SB-08 should be justified. Based on the current conceptual model of the site, it would seem unlikely that an intermediate flow zone would be found this far to the north.

Consequently, an approach that steps out from SB-09 in smaller increments would appear more appropriate for delineating the northern extent of the intermediate zone in this area. In addition, this was the approach that was discussed in the July 2003 Technical Committee meeting.

6. The FSP Addendum pg. (2-3) indicates that if both SB-08 and SB-09 "show the presence of the intermediate monitoring interval then well cluster MW-55S/I will be installed at SB-09." No rationale has been presented for this decision.

As shown on Figures 19 and 23 of the USGS Capture Zone Evaluation, the presence of an intermediate zone at SB-08 would differ significantly from that assumed during the USGS evaluation. The depiction of potentiometric contours and groundwater flow lines shown on these figures may change significantly with such a scenario. Consequently, additional analysis of probable flow paths under these conditions would appear necessary to identify appropriate monitoring well locations. The above decision rule may be based on the observed distribution of TCE in the intermediate zone. However, due to a lack of monitoring wells in this area, the distribution of TCE north of well cluster MS-36 does not appear to be well established; and previous depictions of TCE may not provide a good basis for locating additional well locations.

Based on the conceptual model for the site, the presence of the intermediate zone at SB-08 would appear unlikely. However, if the intermediate flow zone is found to be present at both locations (SB-08 and SB-09), it may be best to consider installing well clusters at both locations. SB-08 is approximately 200 feet from SB-09, and the influence of extraction well AT-3A may not extend to SB-08. The installation of a well cluster only at SB-08 would leave approximately 400 feet of the 'funnel' in the intermediate zone between SB-08 and MW-36 locations unmonitored. The rationale for choosing the final location(s) for the monitoring well cluster(s) should be clearly described and properly justified.

If you have any additional questions or concerns, please contact me at (312) 886-7058.

Sincerely,



David P. Seely
Remedial Project Manager
U.S. Environmental Protection Agency

cc: David Douglas, MPCA
Mark Sladic, Tetra Tech, NUS