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LETTER AND THE ATTACHED MINNESOTA POLLUTION CONTROL AGENCY COMMENTS REGARDING THE DRAFT SAMPLING AND ANALYSIS PLAN FOR SOURCE AREA INVESTIGATION NIROP FRIDLEY MN
04/26/2013
MINNESOTA POLLUTION CONTROL AGENCY

April 26, 2013

Harvey Pokorny
Environmental Project Manager
NAVFAC Midwest
201 Decatur Avenue, Building 1A
Great Lakes, IL 60088-2801

Re: Draft Sampling and Analysis Plan: Source Area Investigation, Navy Industrial Reserve Ordnance Plant, Fridley, Minnesota

Dear Mr. Pokorny:

The Minnesota Pollution Control Agency (MPCA) has completed its review of the Draft Sampling and Analysis Plan: Source Area Investigation for the Navy Industrial Reserve Ordnance Plant (NIROP), Fridley, Minnesota, dated March, 2013. The MPCA comments are attached.

Please contact me at (651) 757-2572 or email me at deepa.dealwis@state.mn.us if you have any further questions.

Sincerely,

Deepa de Alwis, M.S.
Project Manager
Site Remediation and Redevelopment Section
Remediation Division

DSD:csa

Enclosure

Cc: Sheila Desai, U.S. EPA (via email)
John Estes, Antea Group USA (via email)

MPCA Comments on Draft Sampling and Analysis Plan: Source Area Investigation, Naval Industrial Reserve Ordnance Plant, Fridley, Minnesota dated March, 2013

April 24, 2013

General Comments

1. While the plan proposes a significant amount of field work, the scope of work has expanded beyond the initial focus of the source investigation. Seven of the proposed sampling locations appear to be directed at assessing the potential contaminant migration pathways associated with the known BAE source area at the former Paint Shop. The inclusion of the evaluation of potential pathways was not part of the source investigation discussed during the October, 2012 meeting or as stated in the Executive Summary section of this document:

   > *"The purpose of the project is to delineate the horizontal and vertical extent of source areas contributing to TCE impacts in the groundwater and to collect data needed for designing potential future remedial actions."*

   This section continues to describe the areas under the building to be investigated as:

   > *"Based upon results of previous investigations, the presumed source areas appear to be the east plating room, which will be a primary focus area for this investigation. Secondary source areas to be investigated are AOC-17 in the northwest portion of the building (a former wash rack sump), and the area east and north of monitoring well MS-33I (referred to as 7th and Broadway). These three potential source areas and the associated groundwater flow pathways are the focus of this investigation."*

   The MPCA requests that the Navy maintain the focus of this investigation to be delineation of the source area(s) as agreed to in the past by the three agencies.

2. Project goals are often restated within the document, which are inconsistent with the above stated purpose. For consistency and to avoid misinterpretation of data at a later time. The MPCA requests that the Navy consistently identify the investigation goals throughout the document as stated in the Executive Summary.

3. It is rather difficult to conduct a source investigation without clear definition of a source and step in/out criteria. During past team meetings, both the MPCA and EPA requested that Navy develop a clear definition of the source and step in/out criterion. Please provide a clear definition of what the Navy considers a source area and how the proposed investigation will delineate the source area(s) with high degree of confidence.

The MPCA is questioning the number of vertical profiling borings vs. MIP borings, as the vertical profiling would be more expensive. If the Navy can demonstrate that MIP is effective in delineating the extent and magnitude of the source area through confirmation sampling at selected points, it could be a less expensive way to meet the objectives of this investigation and allow for additional delineation points to fill data gaps during the investigation phase. Please consider modifying your approach to allow additional data points or contingency points to successfully meet the purpose of the proposed investigation.

4. The Navy has indicated the area north and east of the MS-33 wells (7th and Broadway) is a probable source area and has included several sampling locations below the water table in this area. Previous investigations (January 30, 1997 – Dahl and Associates, Inc.) in the vicinity of 7th and Broadway have indicated elevated TCE concentrations in the unsaturated zone to the north and west of MS-33 wells. Based on the previously identified unsaturated zone concentrations the Navy should consider including additional sampling of unsaturated soil and/or MIP probes in the vicinity of 7th and Broadway in order to evaluate all potential sources in this area. Figures in the White Paper document all relevant information in this regard. Where applicable please revise the QAPP to address revisions to the sampling plan which address this source area.

SPECIFIC COMMENTS

Executive Summary

1. **2nd Paragraph, page i** - For consistency with past investigations and reports, please refer to the "overburden" aquifer as the "unconsolidated drift" aquifer.
2. **2nd Paragraph, page i** – Current scientific literature identifies that NAPL presence is indicative where dissolved phase VOC concentrations are in excess of 1 percent of the VOC's solubility limit. The Navy should utilize 1 percent of the solubility limit in evaluation for the presence of NAPL as the current scientific practice.
3. **Bullets on Page ii** – Definitions of OU's should match those stated in their respective RODs. OU-1 also includes the aerial extent of groundwater contamination. OU-3 should also specify that it applies only to the former Navy owned property similar to OU2.
4. **Paragraph following bullets on Page ii** – This paragraph should clarify that proposed investigation points outside of the building are not part of NIROP OU3 since the defined boundaries for OU3 apply only to former Navy owned property.

Acronyms and Abbreviations

5. Both XSD and HSD are used to define Halogen Specific Detector. Please use consistency in the use of abbreviations throughout the document and revise the document to use only one abbreviation for defined terms.

QAPP Worksheets

6. **Worksheet #1**: Since the US EPA and the MPCA have regulatory oversight for the project, NAVFAC should identify the regulatory contacts that will approve the QAPP.

7. **Worksheet #6-3**: Navy should include the notification of the MPCA Project Manager of any analytical data quality issues.

8. **Worksheet #6-4**: Navy should include the notification of the MPCA Project Manager of any non-usable data.

9. **Worksheet #7-1**: Navy should identify the persons who can approve the QAPP and who has the responsibility and authority to stop work on the project. Navy should also identify the person responsible for notifying the regulators when there are problems, corrective actions need to be initiated, schedule changes, etc.

10. **Worksheet #7-1:** Responsibilities of the project personnel. Under MPCA Project Manager, please include: "Represents the interests of MPCA with regard to project expectations and requirements of existing decision documents."

11. **Worksheet #8**: Navy did not identify any training or certification requirements for field personnel or the laboratory staff. Navy can reference Appendix B for field SOPs and Appendices C and D for laboratory certification records and SOPs that cover the analytical scope of work for the project.

12. **Worksheet #9**: January 2013 Partnering Meeting Action Items – the MPCA is in general agreement with the level of effort proposed, however the number of paired vertical profile sampling points with the proposed MIP sampling points seems to be excessive for comparison purposes.

13. **Worksheet #10: Conceptual Site Model:**

    a) **10.1 – Bullet No. 3.** - Please provide a brief explanation of how the Navy plans to evaluate if source remediation would accelerate the cleanup timeframe.
    b) **10.1** – Note that concentrations previously detected at AOC-17 were only found in groundwater indicating a source upgradient from this point. Please explain how the proposed investigation locations will further evaluate and delineate the source of impacts at AOC-17 when none of the proposed locations are up gradient of AOC-17.
    c) **10.1** – Please use definitions of site operable unit boundaries consistent with ROD definitions and clarify that investigation points outside of the building may not be applicable by definition to OU3 unless they are on former Navy property.
    d) **10.2, Item 3.** – The proposed purpose of the investigation as previously stated does not correspond with this item. The stated goal provides data to evaluate known and suspected Navy source areas, this investigation should be designed to sufficiently address the stated and agreed upon goals related to the Navy obligations before adding additional objectives. The MPCA desires a complete delineation of source areas related to VOC released from the Navy property (i.e., the three areas identified by Navy).
    e) **10.3.1**, **Bullet No. 4**. - For consistency please use "Shop" instead of "Room" to identify the Paint Shop that is believed to another source area and currently addressed by BAE.
    f) **10.3.1**, **2nd Paragraph** - The Navy has inferred that dense solvent has saturated the fine-grained stratigraphic units. The SAP should include a sampling methodology to evaluate whether fine-grained units are actually solvent saturated or not. This is a key issue with respect to bullet No. 3 under Section 10.1 and in evaluating potential remediation

alternatives. The Navy should also consider obtaining soil samples from areas found to contain significant soil impacts for bench testing for remedial alternatives.

g) **10.5** - The Navy proposes to "model" the MIP data for illustration purposes. The MPCA believes that 3D visual modeling of the primary source area's geology and chemistry data would be extremely helpful in evaluating the extent of source areas and remediation alternatives.

h) **10.5.1** – "The MIP results will be used to create a 3-D map…" Please clarify whether the Navy is proposing an electronic 3D visual model or simply a fence diagram.

i) **10.5.2** – Please revise this section to address typos and readability issues.
Please include discussion of unsaturated soil sampling near 7th and Broadway for evaluation related to the redevelopment activities similar to the East Plating Room Area.

j) **10.5.3** – Correlation of MIP data should be a goal of the confirmation VAP locations. This correlation should be completed prior to mobilization for installation of the placement of monitoring wells. Monitoring well locations should be selected for their ability to provide accurate evaluation of groundwater conditions in the long term and be based on data from both the MIP and VAP data.

13. **QAPP Worksheet #11:**

a) **Bullet No. 1** - Input of the encountered soil stratigraphy and chemistry data into a 3-D visual model would also be helpful in assessing the orientation of low permeability layers relative to the modeled extent of dissolved phase TCE.

b) **11.3 – Bullet No. 3.1** - As noted above, the MPCA believes the vertical profile borings (VPB) will provide valuable information with respect to the vertical extent of VOCs. However, pairing a vertical profile boring with each of the proposed MIP borings seems to be redundant. While duplication is necessary for MIP correlation purposes at several points, the MPCA suggests that the Navy offset the majority of the vertical profile borings to provide greater data collection coverage between the EPR and the MS-33 source areas using MIP, assuming the MIP technology provides acceptable correlation with selected VPBs.

c) **11.3 – Bullet No. 3.2** – The MPCA suggests that the SAP address discrete profile soil sampling across fine-grained layers encountered beneath the primary source area to assess the penetration and or saturation of solvent/VOCs in these units.

d) **11.3 – Bullet No. 3.2** – For baseline monitoring purposes, the MPCA suggests that the Navy also consider monitoring selected impacted horizons for manganese, chloride, sulfate and dissolved hydrocarbon gases (i.e., ethene, ethane, and methane) as documented in the NAVFAC presentation on "EZVI Treatment of Chlorinated Solvents", RITS Spring 2009 Conference. Additionally; data collected for these parameters from the OU3 RI could be used for comparison purposes to aid in establishing baseline conditions.

e) **11.3 – Bullet No. 3.3** – The MPCA concurs with the proposed unsaturated zone sampling in the primary source area (i.e., EPR). Given the purpose of the SAP, the MPCA requests that the Navy consider completing the proposed soil borings in the unsaturated zone as MIP points or vertical profiling borings with soil profiling and groundwater sampling below water table, to evaluate the potential up gradient presence of VOCs in the saturated horizon in this primary source area. Based on the historical soil sampling results in the area of well nest MS-33 (7th and Broadway Investigation – Dahl, January 1997), VP-17 and VP-18 should include unsaturated zone soil as well as saturated soils or utilize MIP technology.

f) **11.5** – The MPCA Soil Leachate Value (SLV) should also be considered in order to evaluate soil concentrations for the soil to groundwater exposure pathway and soil concentrations as a

continuous source of groundwater impacts. This information will be useful in protecting the groundwater if the proposed redevelopment proceeds.

g) **11.6** - Contingency sampling locations should also include consideration of unsaturated soil sampling depending on the selected location and data gaps identified which indicate contingency sampling is necessary.

Field Measurements, First bullet – The definitions utilized in this section provide a gap between areas defined as a *minor source area* (>1000 ppm) and a *non-source area* (<500 ppm). In addition, the definition provided for a *Source Area* only describes the maximum concentration (up to 10 ppm) and does not discuss a minimum or a classification for areas (if found) exceeding 10 ppm. Please revise these definitions to clarify specific classifications and provide discussion in Section 11.4 when presenting the study boundaries.

14. **Worksheet #12**: field duplicates assess both sampling and analytical error. Please revise the Worksheet to reflect this.

15. **Worksheet #12**: Please set performance criteria for lab duplicates (precision), Laboratory Control Sample spike recoveries (accuracy), laboratory method blanks, surrogate spike recoveries (accuracy), and reporting limit verification (sensitivity).

16. **Worksheet #12**: the MPCA requires spiking of the total analyte list into the Matrix Spike/Matrix Spike Duplicate and the Laboratory Control Samples (see the MPCA Laboratory Quality Control and Data Policy, http://www.pca.state.mn.us/index.php/view-document.html?gid=16288).

17. **Worksheet #12**:

    a) Representativeness can be ensured by the use of Standard Operating Procedures to collect and to analyze the samples,
    b) Performance criteria for comparability need to be defined, and
    c) Performance criteria for completeness need to be defined.

18. **Worksheet #14: 14.2.1- Bullet No.2**: The MPCA suggests that the SAP address discrete profile soil sampling across fine-grained layers encountered beneath the primary source area to assess the penetration and or saturation of solvents/VOCs in these units.

19. **Worksheet #14: 14.2.1- Bullet No.3:** See comments above under - 11.3 – Bullet No. 3.3.

20. **Worksheet #16**: The dates utilized within this table should be revised. Many instances are shown where the deliverable due date falls prior to the completion due date. The Navy should clarify the project timeline throughout this table and where applicable in the SAP.

21. **Worksheet #17**

    a) **1st Paragraph:** Please specify the concentration the Navy plan to delineate to both vertically and horizontally.

    b) **2nd Paragraph:** The Navy should provide the criteria they will use in determining the need for and placement of step-in/out sampling locations.

c) **3rd Paragraph, Bullet No. 1:** The MPCA suggests that the Navy consider reducing the number of paired MIP and VP sampling data points and spread out or offset the proposed vertical profile sampling points to provide a greater data coverage south of the East Plating Room. This would also help to evaluate potential contaminant pathways between the EPR and the MS-33 "source area" where data points are lacking.

Alternatively, if the Navy is uncomfortable with the MIP technology, the MPCA suggests using vertical profile borings instead of the MIP points which would provide 8 additional sampling points that could be used to fill data gaps during the course of the field investigation. If this approach is used, the MPCA recommends that the placement of these additional sampling points be determined by the partnering technical team between the first and second site mobilizations.

d) **17.2.1, 1st paragraph:** See comment No. 21.

e) **17.2.1, 2nd paragraph:** Is the MIP technology compatible with other drilling methods?

f) **17.2.2, 1st paragraph:** See comments No. 24 and 25 regarding the three proposed shallow vadose zone borings. All investigation locations in this section should be re-evaluated considering comments received from EPA and MPCA.

g) **17.2.2, 1st paragraph, Bullet No. 8:** Revise typo to state MS-33 wells. Historic groundwater elevation data collected at the NIROP site does not indicate that the MS-33 wells are down gradient of the referenced BAE wells. Additionally, the UD-69D well referenced in this section is not located in the correct position on the figure provided in the SAP. The Navy should revise the figure attached to this SAP to correctly identify the locations of all BAE wells which are referenced.

h) **17.2.2, 3rd paragraph:** See comment No. 13.e.

i) **17.2.2, 5th paragraph:** The MPCA questions the groundwater profile sampling approach proposed by the Navy. Standard practices involve advancing the probe and screened sampling point to the desired sampling depth and then exposing the screen for sample collection. This approach requires tripping out of the borehole and re-advancing the decontaminated screened sampling point to the next proposed vertical sampling interval. This is the preferred method for collecting discrete groundwater samples during vertical profiling. The approach proposed by the Navy allows the screened interval to be dragged upward through the vertical soil profile where the screened interval can become smeared with fines, resulting in poor hydraulic communication with the formation, and the screened interval cannot be decontaminated between subsequent sampling intervals. Consequently, the Navy cannot ensure that the samples they collect are discrete and representative of the interval being sampled using their sampling approach. The MPCA requests that the Navy reconsider their sampling approach and to use standardized sampling practices.

j) **17.4 –** Screened intervals selected should be determined by the data collected during this investigation. Screening the wells as intermediate zone wells should be confirmed by data collected and corroborated following evaluation of data by the Technical Team.

k) **17.4.2 – 1st Paragraph** – Installation of monitoring wells inside a building may require the Navy to obtain a variance to Minnesota Rule 4725.2175 from the Minnesota Department of Health. Please revise the text in this section to indicate that monitoring wells installed will be compliant with all applicable Minnesota regulations.

l) **17.4.2 – Last Paragraph** – Construction of a well with a riser cut below ground surface may not meet the requirements of Minnesota Rule 4725.6850. Please revise the text in this section to indicate that monitoring wells installed will be compliant with all applicable Minnesota regulations.

m) **17.5 – 1st Paragraph** – In addition to collecting water levels and groundwater samples from the newly installed monitoring wells, Antea Group would recommend that water levels and groundwater samples be collected concurrently from MS-31I, MS-32I, and MS-33I. This synoptic data would be useful in evaluating the groundwater concentrations relative to the mapped groundwater flow direction across the primary source area.

22. **Worksheet #24**: Navy should verify that there aren't more analytical instruments that need to be calibrated (TOC, GC/ECD, etc.).

23. **Worksheet #25:** Navy should verify that there aren't more analytical instruments that need to be maintained, tested, and inspected (TOC, GC/ECD, etc.)

24. **Worksheet #32:** if the assessment findings affect data usability, the regulators need to be notified.