



## Minnesota Pollution Control Agency

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July 1, 2009

Mr. Douglas Hildre, P.E.  
Environmental Affairs Manager  
BAE Systems Land and Armaments  
4800 East River Road  
Minneapolis, MN 55421-1498

RE: Response to Comments on the Source Area Investigation and Natural Attenuation  
Evaluation Technical Memo Source Area Investigation and Natural Attenuation Evaluation  
Technical Memo, Rev. 1 Source Area Soil Investigation Work Plan

Dear Mr. Hildre:

The Minnesota Pollution Control Agency (MPCA) has reviewed the above referenced documents dated May 19, 2009 and has the following comments:

### **The MPCA Comments on the Response to Comments on the Source Area Investigation and Natural Attenuation Evaluation Technical Memo:**

- BAE Systems Land and Armaments (BAE) has incorporated most of the comments requesting changes to figures, tables, and MPCA's request for a Source Area Soil Investigation Work Plan.
- BAE's response to Comments No. 4, 6, 7 and 9 indicate you are not utilizing data from several monitoring wells as requested by the MPCA. The use of this data will provide a more accurate depiction of site conditions and should be used as requested by the MPCA in the technical memo to BAE Systems on February 13, 2009. Data from the Naval Industrial Reserve Ordnance Plant (NIROP) Site are publicly available through the MPCA.
- BAE's response to Comment No. 7 indicates that previous reports show a separation between the BAE Systems and NIROP plumes. Based upon our review of that report, separation of the plumes is not clear.
- BAE's proposed groundwater sampling plan includes the sampling of MW-UD-611 on annual basis. However, this well is identified as a source area well and therefore, should be sampled on a semi-annual basis.
- In addition, BAE did not include the sampling of USGS-9, UST MW-2 and 20-S, as requested by the MPCA. Given the locations of these wells, they should be sampled as requested to provide further definition of the plume.

**Comments on the Source Area Investigation and Natural Attenuation Evaluation Technical Memo, Revision 1:**

- Temporary well TW-UD03-2 is referenced in the text of the document (Page 2) and Figure 3, but not shown on Figures 1 and 2. The figures should be updated to include this temporary well.
- BAE's elimination of the several potential source areas (Machining Area, Pump Assembly/Hydraulics Test Area, and Former Paint Storage Dry Well) relies on limited data points from temporary wells, which are not reproducible. Additional investigation of these areas is necessary to conclusively show they are not acting as sources.
- The MPCA agrees with BAE's conclusion that further site activities are necessary to demonstrate that monitored natural attenuation is an appropriate remedy for the site. Should BAE continue to pursue the use of monitored natural attenuation as the Site's remedy, the scope of that work should include a comprehensive delineation and characterization of the source area(s).
- In accordance with the MPCA's *Workplan Checklist for Natural Attenuation*, which is included in the MPCA's *Guidelines: Natural Attenuation of Chlorinated Solvents in Groundwater* (June 2006):
  - Additional groundwater sampling locations as specified in that guidance (i.e. background, downgradient, etc.).
  - Geochemical data from each of the groundwater sampling locations (at a minimum this should include the field and laboratory parameters specified in the MPCA's Work Plan Checklist for Natural Attenuation, as well as Volatile Organic Compounds (VOCs) by U.S. Environmental Protection Agency (U.S. EPA) Method 8260).
  - Additional calculations, analysis and modeling to verify that natural attenuation is occurring and has the potential to reduce contaminant concentrations within a reasonable timeframe.
  - A long term monitoring plan including a proposed groundwater sampling schedule, parameters, compliance monitoring well locations and criteria, and a contingency plan for unexpected plume expansion.

Please submit a work plan to address the above referenced items. The work plan must clearly indicate how BAE plans to address all the requirements specified in the *Workplan Checklist of Natural Attenuation* (Attachment 1. of the *Guidelines: Natural Attenuation of Chlorinated Solvents in Groundwater* (June 2006). Please note that the MPCA in its letter dated November 9, 2006 requested BAE to follow these guidelines if BAE wished to pursue the Monitored Natural Attenuation option as the remedy for the site.

**Comments on the Source Area Soil Investigation Work Plan:**

- As defined in BAE's *Source Area Investigation and Natural Attenuation Evaluation Technical Memo, Revision 1* dated May 19, 2009, the purpose of this investigation is to collect soil contaminant concentration data to facilitate estimation of source area boundaries in accordance with MPCA technical guidance on monitored natural attenuation remedy demonstrations. The proposed soil boring locations appear to target definition of the eastern boundary of one potential source area. Additional soil borings will be necessary in order to adequately define this potential source area's boundaries in all directions. The work plan should be revised to include additional soil borings in and around the potential source area(s), as well as a contingency plan for subsequent soil borings to be completed if impacts extend beyond the locations proposed.
- BAE's statement on Page 3 of this document that indicates "If no soil impacts above the saturated zone are observed during this investigation event, these findings will be presented as a demonstration that the release area was discrete and not likely to be a significant reservoir for contaminant mass." The MPCA does not feel that this conclusion could be made without additional soil and groundwater sampling.
- BAE states that the soil borings will be completed to a depth just above the water table, which is assumed to be approximately 20 feet below ground surface. Given the potential for contaminant mass to exist below the water table, select soil borings should be completed to a depth to facilitate definition at that interval by collecting groundwater samples.
- Soil samples should also be collected and submitted for analysis of VOCs by U.S. EPA Method 8260 from each soil boring, if elevated photoionization detector (PID) readings are not observed. In all soil borings, soil samples should be collected from the appropriate depth intervals in order to allow both horizontal and vertical extent of the source areas to be delineated.
- Delineation of the source area should also include groundwater sampling in each of the potential source areas. The work plan should be revised to include the installation of temporary wells in select soil borings and the collection of groundwater samples from those borings. Groundwater samples should be submitted for analysis of VOCs by U.S. EPA Method 8260.

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I look forward to working with you and consultant to remediate the BAE Systems' RCRA Site. I will contact you in the near future to discuss any items that may need further clarification. In the meantime contact me at 651-757-2572 or email me at [deepa.dealwis@state.mn.us](mailto:deepa.dealwis@state.mn.us) if you have any further questions.

Sincerely,



Deepa deAlwis  
Project Manager  
Superfund, RCRA, & Voluntary Cleanup Section  
Remediation Division

DSD:csa

cc: John Estes, Delta Consultants  
Brad Koons, Arcadis U.S., Inc.