PROJECT REVIEW MONTHLY CALL SUMMARY
FORMER DEFENSE DEPOT MEMPHIS, TENNESSEE
3 November 2015
10:30-11:30 AM ET

LOCATION: Conference Call

ATTENDEES:

Army, Base Realignment and Closure Division (DAIM-ODB): Carolyn Jones (not present)

USACE: Mobile – Laura Roebuck

CALIBRE: BEC - Joan Hutton

TDEC Division of Remediation, DDMT Project Manager: Jamie Woods

U.S. Environmental Protection Agency, Region 4, DDMT Project Manager: Diedre Lloyd, Ben Bentkowski

HDR EOC: Tom Holmes

GENERAL

Per previous request from Diedre Lloyd, the meeting began with a review of vapor intrusion (VI) issues for the Main Installation by Ben Bentkowski, EPA Region 4 lead for VI guidance. Ms. Lloyd noted the discussion was informational and no decisions regarding further activities would be addressed at this time.

Mr. Bentkowski stated that VOCs need to be present at the water table for VI to be a concern. He noted that site conditions with groundwater relatively deep (~70 feet below ground surface [bgs]) and the silty clay of the loess (0 to 30+ feet bgs throughout the MI) would do a good job of attenuating vapors. Conditions at DDMT are favorable in reducing VI issues relative to many other sites.

In conducting his review, Mr. Bentkowski referenced 2014 LTM report Figure 19 with MI TCE concentrations for October 2014. As a first step, he used the vapor intrusion screening level (VISL) calculator, a very conservative excel-based spreadsheet. Inputs are groundwater contaminant concentrations, industrial or residential exposure, and temperature. He noted VISL results are temperature dependent and that VI risk can be indicated with VOCs at only a couple of parts per billion (ppb) in groundwater. There are elevated, but relatively low, VOC concentrations on the MI (less than 100); the high TCE concentration on Figure 19 was 68 ppb at MW-97 in the south-central MI.

A second method which allows input of more site-specific conditions is the Johnson-Ettinger (J-E) model. Mr. Bentkowski stated some exposure factors for TCE were recently revised and had to be used for this model and for the VISL calculator (unit risk factor 4.1×10^{-6} and reference concentration factor 2×10^{-3}). These revisions lowered screening levels considerably and added considerations for women of child-bearing age. Mr. Holmes noted that PCE was present throughout the MI at similar concentrations and suggested that we'd need to look at all the COCs. Mr. Bentkowski stated TCE almost always drives the risk so he began with TCE but didn't have time to look at other COCs. Mr. Bentkowski stated that when a site has various chemicals, he sticks with the COC with the biggest risk because the screening level is much lower. In a VI survey, he recommends looking at 6 to 8 locations and calculating risk there. The J-E model calculated risk for MW-97 was 1.7×10^{-6} which is

at the bottom of the risk range for requiring additional VI study; site factors were 35 feet of loess and 88 feet of sand and gravel. A general practice in Region 4 is if anything is in the risk range with J-E, additional work is needed.

Mr. Bentkowski noted that cross-sections show well screens for shallow fluvial wells are below the water table in most cases. The model assumes input concentrations are at the water table where volatile contaminants can enter soil vapor. Mr. Holmes stated that many wells targeted concentrations above the clay at the base of the aquifer above the clay. Cluster wells were installed at some locations where the aquifer depth was greater. Mr. Bentkowski stated he is only concerned about TCE concentrations at the water table and the ability for phase transport from groundwater to the vadose zone. Mr. Bentkowski suggested well construction details, water table elevation, groundwater temperature and the thickness of various lithologies be determined at locations with the highest CVOC concentrations and input to J-E for risk evaluation. For sampling, Mr. Bentkowski suggested taking triangulation samples – subslab, indoor air and ambient air samples. In the last couple of years, they have moved to taking these samples when conditions warrant it. He was not recommending it for DDMT now because risk hasn't yet been defined.

Mr. Bentkowski asked whether previous VI studies had been conducted at DDMT. Mr. Holmes summarized the VI study conducted prior to implementation of the off depot AS/SVE system. Groundwater concentrations in the area were much higher than on the MI. Vapor samples were collected in the loess near residences and a control sample in the fluvial deposits vadose zone. No residences were located over the core of the plume. Samples were collected before and after startup of the AS/SVE system. Low concentrations were detected in the loess (below screening levels) with little correlation to the high concentrations in the sample from the fluvial deposits. The VI study concluded that loess is a good barrier for VI. Following submittal of the report, EPA and TDEC agreed that no further work was needed. Mr. Woods pointed out that another issue at the MI is that residual TCE/PCE in loess, although small, may be more of an issue than what is in groundwater.

Mr. Bentkowski stated a possible path forward is to use the site-specific geology, i.e., measuring soil gas in the loess. He clarified that soil gas is the relevant medium for VI, not soil or groundwater.

Mr. Holmes also described the MIP investigation and soil sampling for the source investigation on the MI. Areas with elevated VOC concentrations were identified but concentrations were below remediation goals established for Dunn Field; soil contamination was not an issue and clean-up levels were not established on the MI. The timing of the soil sampling (2008-2009) was discussed; Mr. Bentkowski stated conversion of concentrations from soil to soil gas was difficult and the data was probably not usable for VI. While he wouldn't want to use these old data in any kind of ongoing soil gas VI, Mr. Bentkowski suggested the data might be used to identify areas of focus for the VI evaluation. The goal for Mr. Bentkowski's review was to answer some questions in order to determine if VI investigation should be recommended to Ms. Lloyd. For himself, Mr. Bentkowski would look at the past data and the conceptual site model and get a good idea of what the VI answer might be. He would look at the source area investigation reports for soil, look at six or so of the highest groundwater contaminants and run this information through J-E, and then reconvene to discuss. Ms. Lloyd reminded that we were not discussing recommendations, only guidance now.

Mr. Woods noted that remedial action was focused on groundwater not sources in the soil and that the loess held contaminants in place. He considered the MI soil samples to be relevant.

Ms. Lloyd stated options were being discussed, not recommended, and that all the data would be considered. She also noted the depth of the water table and that additional remedial action may reduce concentrations further. She suggested the supplemental remedial investigation be completed prior to determining a path forward on VI.

Ms. Hutton stated the discussion was useful in helping to focus efforts. DoD has it's own policy guidance that will look at to mesh in with EPA's policy. Mr. Bentkowski noted he had worked on VI on the Ft. Gillem BRAC using DOD guidance prior to EPA guidance being issued; he felt the differences were procedural in nature and not significant. Ms. Hutton stated the discussion provided a good starting point; funding was not yet available but may be in spring 2016. She asked how VI affects the Five Year review and Ms. Lloyd stated it would be addressed in the protectiveness statement.

Mr. Bentkowski suggested inclusion of HHRA data in the SRI to address the VI risk; Mr. Holmes stated that risk assessment was not included in the scope of the SRI because the remedial action objectives and cleanup levels (MCLs) would remain as stated in the ROD. Further work could be considered based on comments on the SRI.

Mr. Bentkowski left the call and the remaining agenda was covered quickly.

MAIN INSTALLATION

Remedial Action - No current remedial action

Supplemental Remedial Investigation/Focused Feasibility Study

Mr. Holmes stated the SRI draft should be submitted for internal review by Army next week.

DUNN FIELD

Remedial Action - FSVE system shut down in 2012. AS/SVE system operating.

Mr. Holmes stated AS/SVE operations continued without any problems. The air sparge system has been closed since early October and will be re-opened next week.

AS/SVE Y5Q2 EPA comments were received on 10/19 and responses will be provided along with the third quarter report.

LONG TERM MONITORING

LTM continuing with 99 wells on the MI and 86 wells on Dunn Field/Off Depot Area.

Mr. Holmes stated analytical results for the October LTM had been received and data validation was in progress. Tables for the data have not been prepared yet and he could not provide an update on the results.

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A downhole camera survey for MW-257 is scheduled for later this week; the well could not be sampled in October due to a blockage. In response to a question from Mr. Woods, Mr. Holmes stated that samples from MW-257 had been non-detect for VOCs in the past.

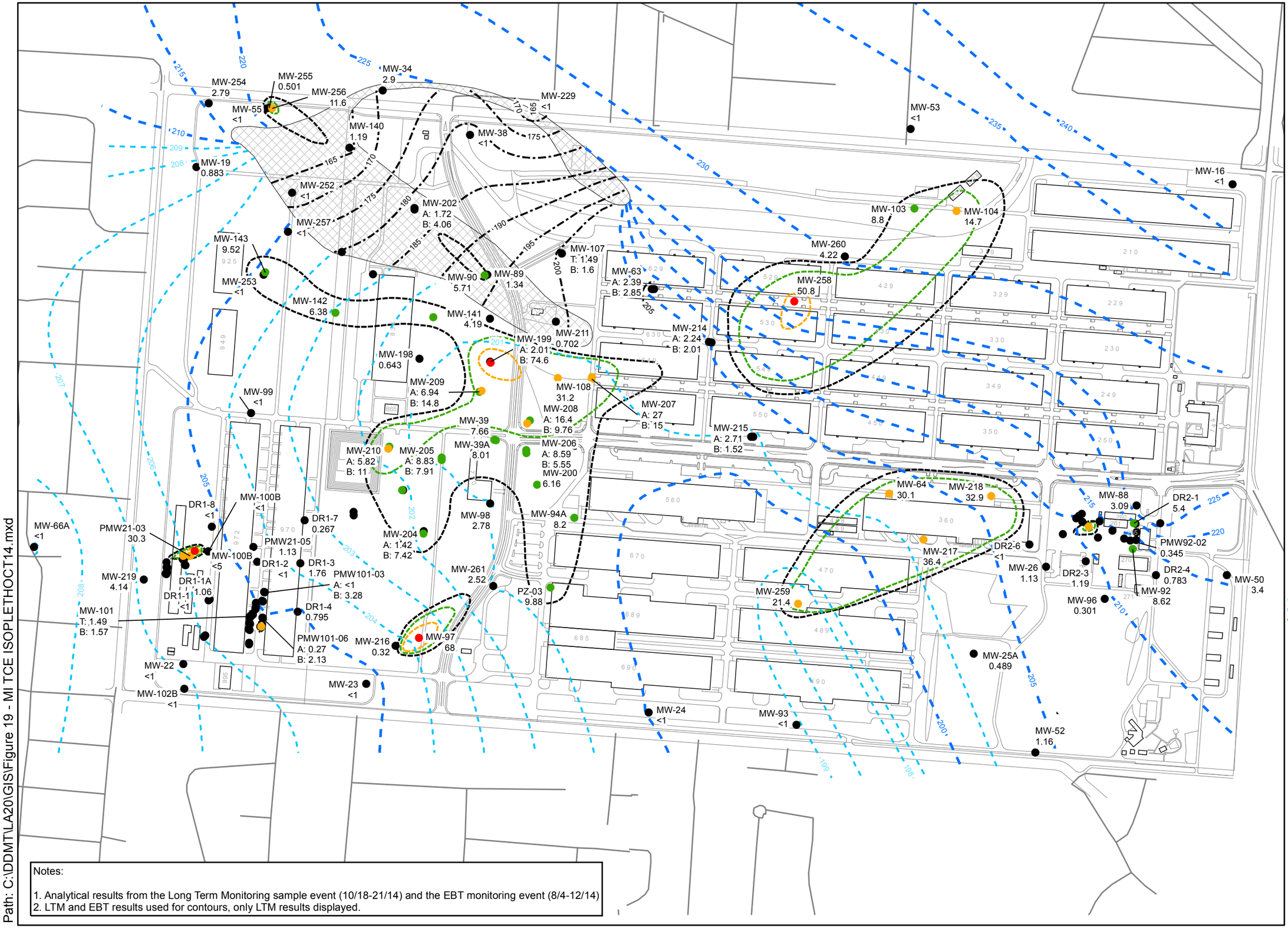
OTHER ISSUES

Mr. Holmes stated responses to EPA comments on the annual LUC report were submitted on 10/22 and will be discussed once Ms. Lloyd has an opportunity to review the responses.

Ms. Lloyd re-stated that further VI review should be conducted after the SRI is completed. VI is not an apparent risk at DDMT due to the deep water table, relatively low concentrations and loess confining layer. She would prefer an aggressive remedy to reduce groundwater concentrations. Mr. Holmes stated that the feasibility study following the SRI would consider an enhanced/expanded remedy.

Ms. Hutton stated the next call would be Tuesday December 15th at 10:30 AM ET. She will bring Ms. Jones up to date on the discussion from this call since she was unavailable.

Attachment: Figure 19, Main Installation TCE Concentrations, October 2014



Notes:

1. Analytical results from the Long Term Monitoring sample event (10/18-21/14) and the EBT monitoring event (8/4-12/14)
2. LTM and EBT results used for contours, only LTM results displayed.

Path: C:\DDMT\LA20\GIS\Figure 19 - MI TCE ISOPLETHOCT14.mxd

Figure 19

MAIN INSTALLATION TCE CONCENTRATIONS, OCTOBER 2014

ANNUAL LONG TERM MONITORING REPORT - 2014

DEFENSE DEPOT MEMPHIS, TENNESSEE

Legend

TCE Ranges ug/L

- 0 - 5
- 5 - 10
- 10 - 50
- 50 - 100
- 100 - 300
- Not Sampled

TCE Isopleth ug/L

- 5
- 10
- 50
- 100

Clay Elevation Exceeds Groundwater Elevation

- Potentiometric surface of the Fluvial Aquifer 1-ft. contour
- Potentiometric surface of the Fluvial Aquifer 5-ft. contour
- Potentiometric surface of the Intermediate Aquifer 5-ft. contour

0 200 400 800

Feet

Date: December 2014
Edition: Rev 0