From: Ackerman, Jeff A - DNR
Sent: Thursday, August 21, 2014 10:34 AM
To: 'stephen.mcclure@gardnerdenver.com'; Mark McColloch (mmccolloch@newfields.com)
Subject: DB Oak file review
Attachments: 3851_001.pdf

Hi Stephen and Mark,

I reviewed the DB Oak file and would like to supply you with my observations.

The SVE system appears to have been successful in reducing contaminant mass in the unsaturated zone. Also, the groundwater remediation efforts have shown dramatic reductions at some of the monitoring wells. Based on these factors it is reasonable to consider how to finalize the project. Along these lines, the groundwater report for 2013 suggests that if the groundwater data show stable trends closure may be considered. That makes sense, but you will probably need to consider additional things before the project is considered complete by our closure committee:

- Vapor migration pathway(s) should be evaluated. This should be the priority for future work. Here is the link to our vapor guidance http://dnr.wi.gov/topic/brownfields/vapor.html

- The site map should show more features, including subsurface utility lines (and especially those that could act as a conduit for groundwater, including the sewer lines and SVE system), potential source areas like the degreasers and wastewater tanks (which were discussed in Newfields' February 11, 2005 report), and the surface topography. Surface topography is probably more important at this site than at others because parts of the site are internally drained.

  Attached is a map of storm sewers, which was sent to me by the City of Fort Atkinson engineering department.

- Two unusual conditions with the groundwater flow should be more thoroughly evaluated. First is the groundwater discharge in the vicinity of MW-2; how much groundwater is discharging, is the water contaminated, and does that create a threat to human health or the environment? Second is what appears to be groundwater mounding at the MW-4 well nest; what the likely cause and how does that influence groundwater flow and contaminant migration?

- Off-site groundwater contamination has not been fully evaluated. I understand there is concern that the down-gradient Lorman property is a source of chlorinated chemical contamination, but that concern should not preclude off-site investigation for the DB Oak case. The maximum contaminant concentration at DB Oak is about 1000 times higher than at Lorman, and the compounds at Lorman were mostly breakdown products. In addition, the contamination at Lorman was found within the till in the vicinity of the storm sewer line that drains the ditch at the DB Oak site. It seems plausible the contamination found at the Lorman site was from a leaking sewer line, which received contaminated water from the ditch at the south side of the DB Oak site.

- The vertical extent of contamination needs further consideration. More at-depth wells may be needed, and certainly more evaluation is needed at MW-3C. MW-3C is the only "C Zone" monitoring well and its integrity is questionable. Given the current data I believe that well should be replaced. A well in sand with that much head should produce more water. A review of the installation documentation shows the borehole was allowed to fill with collapsed material in the bottom 15 feet. This method can result in a well that is in very poor communication with the aquifer. Hydraulic conductivity testing and a re-evaluation of the field notes may help in determining the cause of the poor productivity of MW-3C. Given that there is non-aqueous phase to be considered, it could be difficult to close the case with such questions surrounding that deep well.

Please incorporate these concepts into your future plans for the site. Feel free to call me to discuss any of these items.

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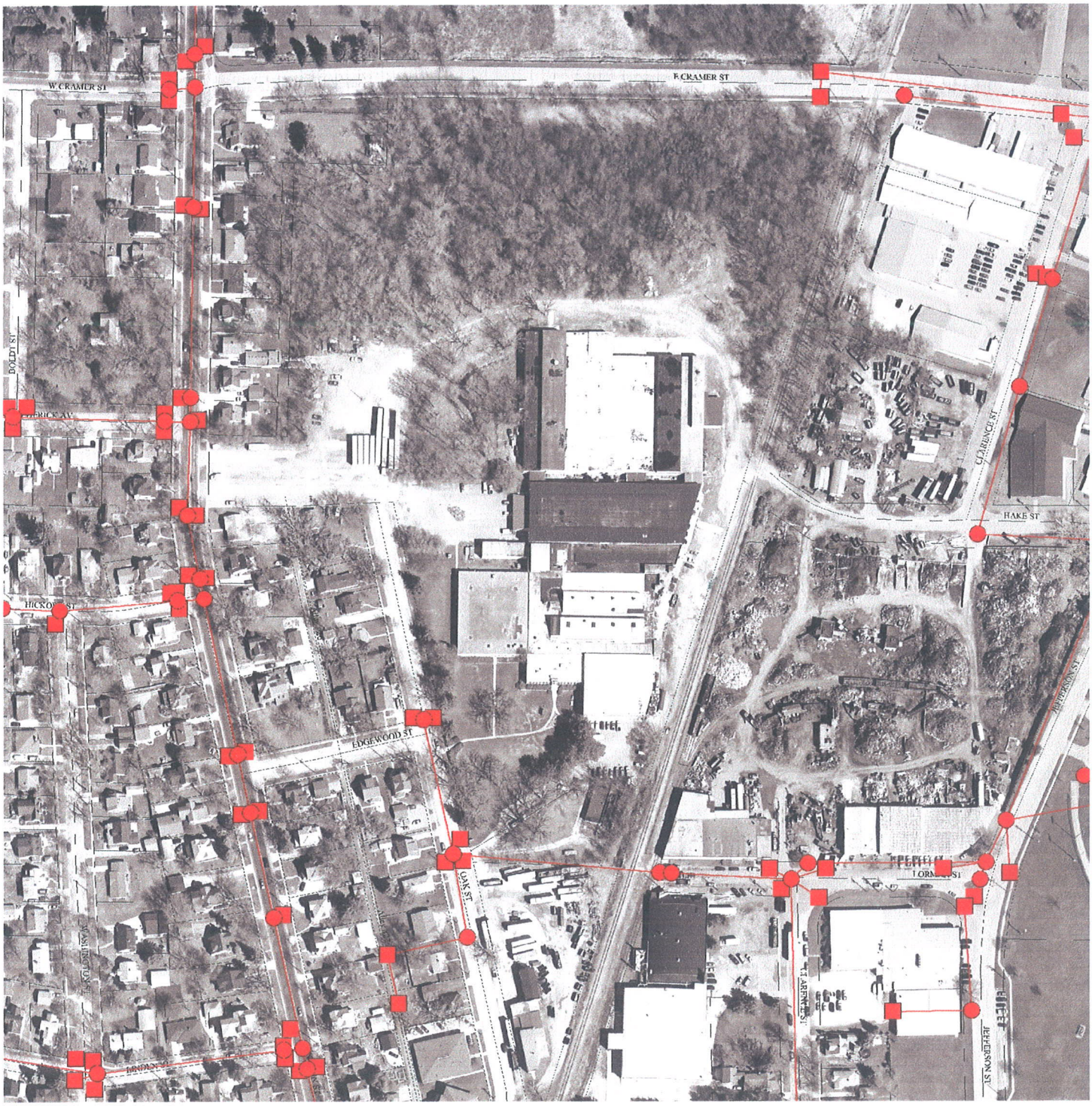

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