

Citizens for Safe Water Around Badger
Recommendations to the U.S. Army at Badger Army Ammunition Plant
June 28, 2010

*Steps to help prevent exposure to contaminated drinking water and
protect groundwater resources from additional contamination.*

ACTION ITEMS FOR NEXT BADGER RAB MEETING:

Propellant Burning Grounds

- **Provide the RAB with a map of all groundwater extraction wells and indicating which wells are currently active. Copies should also be placed in the public repositories.**
- **Determine if the “smear zone” at the PBG is contributing to fluctuations in groundwater contaminant levels.**¹ Please include a discussion about potential correlations with changes in water table elevations at the PBG.
- **Determine if there is a correlation between input values for groundwater extraction wells and contaminant trends in groundwater as a measure of the effectiveness of the MIRM/IRM system.**

Deterrent Burning Grounds/Existing Landfill (1,1,2 TCA)

- **Install deeper wells at ELN-9107A/B to characterize groundwater movement and quality at depth.** (This recommendation is in response to the exceedance of the Enforcement Standard for 1,1,2-TCA at the DBG/Existing Landfill and the recent detection of 1,1,2-TCA in a nearby private well. Deeper wells at this location should be prioritized over new wells in the center of Badger.)
- **Sample the affected private well more frequently to help discern potential trends in 1,1,2-TCA.** (This recommendation is intended to help prevent potential exposure to unsafe levels of 1,1,2-TCA.)

Private Well Testing

- **Maps prepared for the RAB and the public should also show Health Advisory Level (HAL) exceedances.** (Examples include 2,3-DNT, 2,5-DNT, 3,4-DNT, 3,5-DNT, 2-nitrotoluene, 3-nitrotoluene, 4-nitrotoluene, 4A-2NT, 4A-3NT, 2A-4NT and 2A-6NT.)
- **Targeted testing for ALL potential degradation and biotransformation products of DNT should be added to ALL private well testing.** (Recent testing at PBG confirms that 2-nitrotoluene, 3-nitrotoluene, 4-nitrotoluene, 4A-2NT, 4A-3NT, 2A-4NT, 2A-6NT and other degradation/biotransformation products of DNT are elevated and/or greatly exceed HALs for

¹ A smear zone is the area where free product occurred in the soil and was then smeared across the soil when the water table fluctuated between historic high and low water table elevations. It is fairly common when responsible parties request case closure approval to have residual contamination in the smear zone. Since closed sites that have residual soil contamination above standards must be included in the GIS Registry, it's important to know whether geologic material in the smear zone is defined as soil. For more information go to: <http://dnr.wi.gov/Org/aw/rr/archives/pubs/RR712.pdf>

drinking water; current testing protocols for private wells should be amended to accurately detect all these potential drinking water contaminants.)

Bluffview/Maple Park

- **Install additional wells at depth at BGM-9103 to characterize water quality and movement at depth.**
- **Identify additional data needs to better define groundwater flow at BGM-9103.**

Facility-wide

- **Develop and implement a plan for conducting prompt duplicate sampling for extraordinary groundwater test results in boundary and offsite groundwater monitoring wells.**
- **Develop and implement a plan to determine to discern if bis 2-ethylhexyl phthalate and other suspected lab/field sampling contaminants are actually present in groundwater and private drinking water wells. (Timeline: 6 months)**

Comments: The best way to study whether a detect is a lab (or field sampling) contaminant is to review the data on lab and field blanks. There are also trip blanks, which start at the lab, and are carried around with all the bottles on the sampling trip but are never opened. The key thing to look at is how frequent the detections are in a given set (blank or samples) above a particular threshold level. If the threshold is set low, the detects might be J-flagged and lots of blanks and samples might show detects at that level. However, one would expect that the set of blanks will have a lower frequency of detection once the concentrations get close to the PAL or ES.

It's important to note that, even if there is solid evidence from the blanks for presence of 2-ethylhexyl phthalate (or other suspected lab/field sampling contaminant) this cannot be used (by itself) as an argument that the compound isn't present in the groundwater. The goal should be first to eliminate cross-contamination (or find another lab that has), then look again in the field at suspect areas. Alternate and more sensitive methods of analysis might be available - but, in general, phthalates are often detected and often considered a lab or sampling equipment interference.

If the potential source of cross-contamination is in well materials, or sampling equipment, one should be able to find similar detects at other wells with similar well materials and sampling equipment. If the detects are always at the same wells, but not at similar wells (same materials and sampling methods) - it's difficult to argue that the detects aren't special to that well.

Data validation work (if still occurring at Badger) might be able to shed some light on this. And, if not, the third party data validator could be asked to look into the phthalate question.

- **Send board packets at least one week before the meeting to allow for adequate review time.**
- **Keep RAB informed of new studies and requests for changes in remedies.** (One recent example is the Army's Request to Terminate Operation of MIRM Vapor Phase Final Treatment Carbon Adsorption Units and Heaters. We have also found studies conducted at Badger by other contractors in consultation with Army, SpecPro, etc. on the internet that were not shared with the RAB. See Condition #22 of the Infield Conditions Approval for more information.)

TAPP

- Provide the TAPP Committee contact information for all persons in the Chain of Command for Badger Army Ammunition Plant from the local base to the Pentagon level w/ for each. Please also provide the names and chain of command for the U.S. Army Corps of Engineers.