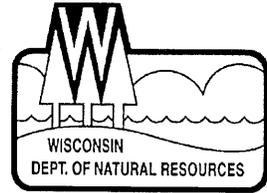


State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
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May 24, 2011

Ms. Joan Kenney
Installation Director
Badger Army Ammunition Plant
2 Badger Road
Baraboo WI 53913-5000

Subject: Request for Revised Proposal for the “Alternative Feasibility Study – Groundwater Remedial Strategy – Badger Army Ammunition Plant”; Sauk County; BRRTS Number 02-57-001002

Dear Ms. Kenney:

On April 28, 2011, the Department received the “Alternative Feasibility Study – Groundwater Remedial Strategy – Badger Army Ammunition Plant” (AltFS) proposal, which was prepared by SpecPro, Inc. on behalf of the Army. As we discussed last week, the AltFS proposal is missing some supporting data and we are requesting additional information and a revised proposal.

The AltFS proposes a water supply system as the primary final remedy for groundwater. Such a system could be effective in mitigating human health risks, but it will not meet the statutory requirement for restoring the environment to the extent practicable [see Statute 292.11 (3)]. For restoration, the Army’s proposed remedy is natural attenuation of the groundwater plumes, with a multi-year study that will involve shutting down the current groundwater removal and treatment system at the propellant burning ground (MIRM). Before we would authorize a shut-down of the MIRM and approve of natural attenuation on a trial basis, the Army will need to illustrate that natural attenuation has a reasonable probability of restoring groundwater to the extent practicable.

The revised AltFS should include fuller illustration and evaluation of the site geology, hydrogeology, contaminant mass distribution, along with spatial and time-series analysis of contamination trends [see NR716 and NR722, Wis. Adm. Code]. These data should be capable of demonstrating natural attenuation is already restoring groundwater affected by the deterrent burning ground and central plume. Geologic cross-sections should illustrate the site geology as a whole, and the geology, soil classifications, contaminant distribution, and groundwater flow patterns at each of the three identified groundwater plumes. Maps should show the plumes at different depths, as appropriate. Time-series concentration data along the center of each plume will also aid in evaluating if the plumes are currently stable or receding.

The predictions made using the groundwater model will need to be more thoroughly supported, in order for the predictions to be weighed into the analysis of remedial options. Fuller definition of the geometries and characteristics of the various geologic units will be needed to support the model assumptions. Isopach maps of the sandstone, outwash, till, and other units should be presented and compared with the groundwater model assumptions. Additional hydraulic conductivity data should be presented in support of the model calibration and verification. Simulations of the propellant burning ground plume without pumping of the MIRM recovery wells should be presented. Additional sensitivity analyses of the solute transport model could also be performed. In considering the value of additional modeling, be aware that the actual data collected to-date (and the presentation requested above) will probably be more persuasive than computer model simulations, which inherently include a number of simplifying assumptions and limitations.

I recognize that preparation and submittal of the revised proposal will require a change in the project schedule.

If you have questions about this request, please call me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeff Ackerman", written in a cursive style.

Jeff Ackerman
Hydrogeologist
(608) 275-3323
jeff.ackerman@wi.gov

cc: Clair Ruenger – SpecPro, Inc.
Bruce Rheineck – DHS
Michelle Mullin – USEPA
Laura Olah – CSWAB