

NIROP TECHNICAL COMMITTEE MEETING
Pittsburgh, PA April 12 and 13, 2000

ATTENDEES:

MPCA: John Betcher, Mark Ferrey

Navy: Joel Sanders, Cliff Casey (by phone for ACP discussion)

Tech Law: John Koehnen

CH2MHill: Venky Venkatesh

Tetra Tech: Mark Sladic, Keith Henn, Tara Beckman, Steve Ruffing, Andy Kendrick

OU3 REMEDY

The Navy stated that there was some confusion in how to split out the OU3 RI/FS and the proposed ground water modifications to be undertaken as changes to the OU1 ROD. The Navy asked that the regulatory agencies clarify how to split these tasks and how to proceed with the OU3 RI/FS. The MPCA and EPA representatives said they would take these concerns back to their respective agencies for resolution.

Joel stated that funding already awarded includes one extraction well inside the building, and three extraction wells outside the main plant building. The Navy is committed to proceed with these projects, and will make other improvements later, if necessary. The Navy has committed these funds to support the requirements of the Five-Year Review.

On July 1, 2000, the Navy plans to award funds for an Anoka Park Remedy. The Navy command has supported moving forward with these remedial projects, even if it means making adjustments later.

Joel said that the ESD will formalize a contingency that if the proposed extraction well inside of the building is not having the expected impact (i.e., mass reduction) after two years, the evaluation of additional remedy(ies) will be revisited.

A conceptual model for the site was agreed to by the group. The model included:

- A high concentration TCE source area (potential DNAPL area) exists under the building.
- At present there exists no technology to remediate DNAPL
- A dissolved TCE plume is emanating from the high concentration source area
- Prior to the implementation of the OU1 remedy the dissolved TCE plume traveled from under the building and eventually discharged to the Mississippi River.
- The objective of the OU1 ROD is to capture the TCE plume at the NIROP property boundary
- Currently full capture of the plume is not achieved
- The high concentration TCE area in Anoka County Park is residual contamination from the plume traveling from under the building to the River (ie no Anoka County Park source areas have been identified).
- Capture of the plume may be achieved by system upgrades.
- There is a need for a pumping well(s) just downgradient of the high concentration TCE source area under the building to removed high concentration dissolved TCE ground water.
- Capture is necessary to ensure the success of Anoka County Park remedy
- A remedy to enhance the reduction of TCE in ACP should be pursued.
- Some natural attenuation is occurring at the NIROP site.

In determining consensus with the concept of installing a proposed extraction well inside of the building the team identified considerations:

- The remedy should not unduly interfere with operation of the plant;
- The project must meet schedule;

- The remedy should reduce mass in the source area, so as to ultimately reduce the pumping time of the line of containment extraction wells outside the building;
- Existing treatment should be augmented to meet ROD/5YR goals;
- Mass removal closer to the source is more cost effective than mass removal downgradient;
- The cumulative extraction well pumping rate should stay below the GWTF maximum capacity of 1000 gpm ; and,
- The innovative technologies investigated in ACP may be applicable later under the plant.
- The group identified an area under the building that it agreed should be influenced by any remedy installed under the building (see map).
- The group agreed that the monitoring wells defining the high concentration TCE area under the building should be sampled again to confirm the initial sampling results.

Evaluating the considerations, the technical committee recommended that it would be best to install the OU3 source removal well now. Modifications to the existing pump out system will be developed and finalized to better achieve capture of the plume. Concurrently the Navy will proceed with ACP pilot testing of other treatment technologies. The ACP results will be considered when evaluating the performance of the OU3 well after a couple years. It may be possible that if ACP treatment technologies prove to be promising that the same technology might be considered for under the building.

HYDRAULIC CONTAINMENT OPTIMIZATION

The most recent updated site groundwater model suggests that there is a narrow area of incomplete capture in shallow aquifer between AT-2 and AT-3A and North of AT-2. AT-2 is the well screened in the low permeability material. AT-1 and AT-4 were source control wells and are not considered containment wells. The current containment system and some predictive extraction well scenarios were included in the 1999 AMR. Tetra Tech indicated a desire to conduct an extraction system efficiency study.

Tetra Tech made recommendations to abandon AT-1 and AT-4 and to install a new pumping well North of AT-2. There was also a recommendation to increase the pumping rate in AT-5. In addition Tetra Tech views the under the building well as a dual purpose well which serves as a source control well and also a component of the containment system.

Tetra Tech stated that it did not believe that the saturated aquifer between AT-2 and AT-3 was thick enough to sustain a pumping well without cycling of the well being a problem. It was proposed that the under the building well would capture shallow zone contaminated ground water. Tetra Tech proposed that the under the building well would capture shallow zone contaminated ground water and help to achieve capture of the shallow plume between AT-2 and AT-3.

The MPCA expressed concern that highly contaminated ground water existed at the intermediate level and that the shallow well alone would not control the under the building source. The Navy asked the MPCA to review the recommendations in the AMR for under the building and to get any comments back to the Navy ASAP. The MPCA suggested that there be flexibility between the proposed well beneath the building and the proposed three wells outside the building.

ANOKA COUNTY PARK REMEDY

Cliff Casey of the Navy joined the group by phone for a discussion of Anoka County Park (ACP) Remedies. It was discussed that remedies to be pilot tested in ACP will follow EPA's pilot study guidance.

The goals and considerations for ACP remedies were developed by the group.

Objectives for treatment of Anoka County Park:

- Regulatory compliance at river
- Mass reduction
- Evaluate applicability of potential remedies for eventual use under the building

Considerations:

- Overall cost
- Cost versus reduction of contamination
- Schedule
- Physical impact on Anoka County Park (security)
- Constructability (utility needs)
- Permitting requirements – need for MN injection variance
- Breakdown products / mobilizing metals
- Climate (drought)
- Aquifer characteristics (drought)
- UDLP plume
- Delivery of reagents in heterogeneous aquifer
- Capture of upgradient plume needed to maximize ACP remedy effectiveness
- Ground water mound found in Anoka County Park

A “long list” of preliminary options for consideration at ACP includes:

- Molasses (anaerobic)
- HRC – vegetable oil (anaerobic)
- Na, K Permanganate (oxidizers)
- Fentons Reagent (oxidizers)
- Methane with oxygen (aerobic)
- ORC with HRC (aerobic)

Tetra Tech will research and evaluate these options in time to support production of proposals for the ACP work. The Navy wants to receive proposals by the first of June. The MPCA suggested that Tetra Tech contact folks who had developed or used these technologies to gain information on how well the various technologies worked and what they might achieve. There should also be an awareness of how well technologies have worked in similar aquifer conditions to those found at NIROP.

The Navy proposed evaluation of the proposed revised AMR monitoring network in time for this spring's sampling scheduled in May. The proposed modifications include addition of new wells, elimination of some existing wells, abandonment of wells, reduction in sampling frequency and elimination of ketones. MPCA suggested that because of remedy testing, maybe this is not the best time to adjust the monitoring network. The Navy suggested that if we enhance the monitoring network now we can better evaluate the remedy (ies) over the next few years. The MPCA said it would review the proposed monitoring changes with an open mind and that if there were questions that the MPCA and Tetra Tech would get on the phone and discuss the proposed changes.

ACTION ITEMS:

John Betcher (MPCA):

- Work with Dave to define requirements for Table 7-1 in OU-3 RI.
- Review source removal extraction well plan, containment well plan, and LTM network in this year's AMR.

Tara Beckman (TtNUS):

- Evaluation/screening of potential ACP remedial technologies.

Venky Venkatesh (CH2MHill):

- Develop generic work plan for proposed source removal extraction well, plus abandonment of two production wells.