Draft Meeting Notes

NWIRP/Northrop Grumman-December 14, 2016 Groundwater Quarterly Coordination Meeting Agenda

Catherine opened the meeting noting that the she had spoken with Martin and they agreed that DEC would be the lead for leading and coordinating future coordination meetings. She highlighted concerns about the length of the project schedule for implementation of the remedy for Hotspot RE-108 and the need to identify other options for securing property for the remedy and expediting the schedule.

Martin and Catherine agreed that the agenda was quite lengthy and that it made sense to focus on critical issues rather than move through the agenda as constructed. As a result, the notes below reflect the discussion under general topics rather subtopic by subtopic.

1. OU 2 Update

Lora presented recent sampling data. She noted that relatively clean water is appearing in wells immediately downgradient of the ONCT system at the plant site. She noted that it is important to identify continuing sources that may exist when designing for RE-108. Lora indicated that there may be some wrap around from other sites as well as OU3, so can't be entirely sure that have clean water coming in. Freon and other contaminants may be of concern. The Navy wants to get back up to the North to get a better handle on upgradient levels. Rich indicated getting a handle on what is coming around from east or west is critical. Navy will put more wells to west in 2017. The Navy is working with USGS on modelling to determine capture zones around NYAW. Lora indicated that most of the time, water plants are pulling things down. She noted that just north of southern state one well (RE117) has TCE in the teens, compared to a concentration in the single digits when the well was installed. At VPB 131, located south of Hempstead Turnpike, Freon is mostly present with low levels of TCE.

The concept of increasing the volume of water produced at Plant 6 Well 2 came up. NYSDOH explained that established procedures are to put the best source of water possible into a supply; pulling more water from Well-6-2 in order to provide enhanced remediation of the plume may not be consistent with these procedures/preferences.

Richard M asked that DOH consider the big picture. That use of the Well 6-2 would result in reduced impacts to other downgradient wells, such that additional or more extensive treatment that might otherwise be required may not warranted; in addition cleanup of the plume would occur sooner so that impacts over the long-term would be lessened.

There was some discussion about what might occur when Plant 6 is taken off-line for upgrades. Mike B noted that BWD will continue to be proactive about providing clean water. Rich H note that BWD is the only plant with on-line VOC monitoring. At some point, 10 years maybe longer, they will be out of the plume. There is a concern about 1,4-dioxane and a need to be aware of potential for new standards that may be put in place to regulate it. Mike B explained that the data has shown that during startup of Well

6-2, the concentration of total VOCs creep up and ultimately reach a steady state when pumping full time at about 1200. Mike B further noted that higher pumping rates or longer run times of Well 6-2 have not shown to change/increase the maximum concentrations of total VOCs reported in Well 6-2. The data implies that the higher concentrations of contaminants are located to the west of Plant 6. South Farmingdale plant 3 has air stripping...but can only handle about 300 ppb. When Plant 6 shuts down the treatment at SFW Plant 3 may not be able to address likely higher levels of contamination. Rich H noted that BWD Plant 5 could also potentially be impacted.

The Navy reported that prior to expressing interest in purchasing a property they must get congressional approval to acquire property. They have prepared paperwork that describes the size and characteristics of the property that they need however, it may take a year or more to get approval to acquire property. As a result, the Navy has not been able to put actively pursue properties. It was noted that property acquisition was a critical driver to the schedule and participants explored possible work arounds.

A question was raised as to whether NG might be able to acquire the property in a more timely manner. Ed H noted that NG was also subject to the same requirements as the Navy and couldn't acquire property any quicker. Later in the meeting Ed was asked to clarify why this was the case. He indicated that it was because NG receives a large part of their funding for the site from the Navy. It was suggested that NG may be able to do this work under the NG-DEC consent order for OU2. Ed indicated that if a formal request was made he could check on this with his legal team.

The concept of the Navy acquiring Plant 6 from the BWD for purposes of remediation only was raised. Richard M indicated that at one point the Navy had made an offer to MWD to move some of their wells, contingent upon the Navy being relieved of responsibility if the new wells became contaminated by other sources. BWD noted that offer was never made to them; Rich M would have been very interested in pursuing such an offer if it was made as BWD wants to be out of the plume.

Richard M noted that Sandra Levy and Bethpage attorney are currently talking on other issues and suggested that they should add this to their discussion. Mike B. agreed that this would be a good idea. Rich H noted that you could take over plant 6 (6- 1 and 2 and facility), and pump other wells that might be needed back to the facility. The depth of the two Plant wells could be modified if necessary to optimize capture. It was noted (Rich or Ed?) that it took 8 years to get easement and hundreds of K from state parks for another new well on Park property. Martin indicated that DEC might be able to help work with Parks to expedite the process in the future (if it involved Parks property).

There was discussion about the preference to pump the Plant 6 Well 2 (and perhaps Well-1) at an increased capacity while in the process of securing a long-term goal of getting new replacement wells in clean water. Lloyd Wilson, noting that he was speaking from his own perspective and should not be taken as providing the official DOH positon, indicated that considering this would be a temporary scenario, increased capacity would not pull in higher concentrations of contaminants, and a big picture view of the potential impacts to the downgradient water districts, then increased pumping might not be inconsistent with the public water supply objective of using the best source of water.

There was some discussion regarding the potential that 1, 4-dioxane may be regulated in the future and that the regulatory standard may be below some of the levels currently found in the wells. It was noted that treatment of 1, 4-dioxane is not that well established and that some treatment processes may result in the generation of other contaminants that may be equally or more problematic. Rich H indicated that

the results of a pilot study that used chlorine as an oxidant was expected to be submitted to DOH within the next few weeks. He said the results were promising and that rather than use the treatment at the end of the treatment train, it could potentially be used up front as is also able to treat other contaminants (e.g., PCE, TCE) well, however, it is ineffective with certain organics, so additional treatment may be needed for these contaminants.

Note see also Navy's PowerPoint presentation attached.

a. Navy report on pre-design activities since last meeting – focus on presenting WQ trends in MWs over time and identify areas of increasing trend (Navy)
b. Navy/NG coordination on RE108 hot spot work (Navy/NG)
c. Property acquisition for RE108 hot spot system (treatment plant and discharge)-report out on work session – provide detailed history/timeline of property acquisition process of properties pursued and status (Navy)
d. Additional delineation (Navy)
e. Public water supply protection program-monitoring of new sentinel wells (Navy)
f. Overview of white paper (Navy)
g. Recent production from Well 6-2 (BWD)
h. Plant 6 treatment upgrade project (BWD)
i. Open discussion: perspectives on dual use of Plant 6 (all)
j. Public water supply protection program – monitoring of new sentinel wells (Navy)

2. OU 3 Update

a. Status of field work completed, to be completed and schedule (NG)
b. Status and overview of treatment system design (NG)
c. Present recent WQ data from VPB, MWs and EWs, including 1,4-dioxane and radium (NG) (DEC will report out on status of radium evaluation)

NG presented a PowerPoint presentation (attached). Mike W noted that they were having problems getting approvals for one extraction well. Two of the 3 planned extraction wells are in; NG has not been given a permit for the 3rd, RW-20, because residents have complained about the location of the well. The location of this well cannot be changed. The Town wants NG and residents to work it out. NG is hoping that the system can be operational by late summer/fall next year. Pipes from extraction wells to treatment plant will be double walled and each well will have its own pipe for transmission to the plant. PSEG rights associated with Town owned properties at or near basins is complicating matters, as is the potential for cultural resource. Can only work 9-5 M-F and not on Town holidays. Next Town meeting in January or possibly February. NG will see if they can get all issues resolved and reviews, legal paperwork completed prior to the meeting.

There was some discussion about NGs interest in using soil washing for PCB contaminated soils at the site. NG noted that treatability study samples were going to labs this Friday to evaluate the treatment potential on site specific soils. It will also be necessary to get a better delineation of soils with PCBs above and below 50. With this information NG plans on making an application to EPA for approval of the

technology and approach. However, a modification of the DEC remedy would also be necessary (in late Feb/early March NG will work with DEC on modifying the ROD).

NG is also continuing to do some more work with respect to the Park containment system; additional monitoring is being performed to demonstrate that modifications to pumping have been effective.

3. Status of efforts regarding Chapter 543 of the Laws of 2014 – evaluation of options relative to the groundwater plume associated with the former Navy/Grumman Bethpage facility – and next steps following the HDR report (DEC)

Martin reported that DEC continues to evaluate comments and that the concept is still very much alive with DEC. He thanked the stakeholders for submitting comments. Noting that only $150k was available for the study, it is relatively basic; the study was meant to address the legislation. Martin noted that there was some merit to continue to explore/consider other options for getting water back into the aquifer and for addressing potential impacts associated with the large withdrawals and discharge of groundwater. While DEC is not yet in a position to detail the schedule for next steps, they should have a better plan after first of year. DEC has been talking to elected officials, water districts etc.

Martin noted that new federal legislation was recently enacted that addressed the site plume. Rich M indicated that the Navy would address the requirements specified in the legislation.

4. Discussion of the DEC taking over the role of running the quarterly meetings

5. Calendar review for dates for next quarterly meeting (target March unless meeting results suggest an earlier meeting date is warranted) (all)

It was suggested that the next meeting take place in February and that they continue to be held quarterly. It was also suggested that the meeting location be rotated through 3 locations: Nassau County (Ralph A offered his conference space), NYSDEC and EPA. NYSDEC will make arrangements for the next meeting and may try to schedule several meeting in advance.

6. Follow up items from last meeting:

    a. White paper on disposal options – Navy to draft w/ NG input: Revised white paper submitted September 26
    b. Property acquisition (really access) workshop July: Not held?
    c. Meeting w/ DOH to discuss discharge to public water supply – timing dependent on receipt of white paper from Navy: Received Sept 23, 2016
    d. Saladino Report release – Bob Schick to look into: Report was released on August 3, 2016

e. JBH to reach out to F&W: Jim H contacted Rob Marsh R1 FW&MR
f. DOT 11-acre basin - get contact at DOT: Stan Carey provided contact on May 16
g. DEC to engage NYS Parks regarding use of treated water at Bethpage State Park: Update to be provided at 12/14/16 meeting
h. EPA to have Jon Gabry review draft Pace Analytical CSIA report: Review completed on July 14
i. NG/DEC development of a plan for additional community outreach on NG work: Update to be provided at 12/14/16 meeting