Teleconference Minutes
Northrop Grumman, USGS, and EPA
December 8, 2010

Purpose of Teleconference: to provide answer EPA's and USGS's questions about NG's groundwater fate and transport model.

Attending: Rob Alvey, Carol Stein, and Mike Poetzsch (EPA); Stephen Terracciano, Paul Misut, and Chris Schubert (USGS); Steven Scharf and John Swartout (NYSDEC); Kent Smith, John Cofman, and Edward Hannon (NG); Lora Fly (Navy); David Brayack (Tetra Tech NUS); Carlo San Giovanni, Rob Porsche, and Doug Smolensky (ARCADIS); Joel Balmat (EMAGIN)

The salient points of the meeting follow:

1. EPA's 12/7/10 email to NG requested that the following be addressed during the call: (1) a brief verbal summary again on how the groundwater model was initially developed and updated over the years; and (2) a summary of what specific questions the current version of the model is being used to address.

2. NG first discussed the topic of what questions the current model is being used to address, i.e., purpose of the model: (1) reduce exposures to site-related VOCs; and (2) reduce VOC mass in the aquifer. For OU2, the model was used initially to design remediation systems that have been effective in containing impacted groundwater.

3. USGS and EPA asked a number of questions regarding use of the model for OU2 and OU3 (see Item 4).

4. The discussion and questions generally fell into the following topics:

    - <u>Recognition of OU3 plume presence during OU2 modeling.</u> The presence of OU3 groundwater impacts was not known until 2003 when monitoring wells were first installed and sampled in the Bethpage Community Park. This was after the initial OU2 modeling was completed.

    - <u>Initial application of the model to OU2</u>. The model was initially developed to help design NG's main facility on-site containment system (ONCT). A modified version of the model was used by Occidental Chemical to evaluate vinyl chloride migration from its Hooker-Ruco Superfund Site (Oxy Site) toward (and possibly impacting) the downgradient ONCT system.

    - <u>Use of the model to establish outpost wells.</u> The model was used to locate and screen outpost wells. First, 30-year particle tracking simulations were done to track particles from the contaminant plume to potentially impacted public supply wells. Then, reverse particle tracking was used to "back up" to the locations of outpost wells to provide a 5-year warning of potential supply well impacts. Five years is generally accepted by NYSDEC to provide sufficient response time for design and installation of treatment before a supply well is impacted. NG and the Navy demonstrated the proposed outpost well locations for NYSDEC, which the Department approved.

- Data for source areas included in the model. ARCADIS explained that the latest version of the model uses water quality data from monitoring wells at the NG and Oxy sites, vertical profile borings (VPBs) throughout OU2 and OU3, and water supply wells. In general, the water quality data from monitoring wells and supply wells was averaged from data collected from 2004-2007. In the case of VPB-based water quality, all available data were used; borings drilled by NAVY pre-date the 2004-2007 period, while those drilled by ARCADIS during the OU3 investigation may be more recent than 2007. OU2 and OU3 are not continuing sources of contamination in the model; they are being effectively controlled by the OU2 and OU3 IRMs. The design of those IRMs did not require source area contaminant concentrations because they both provide complete hydraulic cutoff of the onsite plumes.

- Defining the core of the plumes. A single core of elevated VOCs emanating from the Park (OU3) was defined. That is not the case for the OU2 plume, which was spread over a wider area due to supply well pumping and recharge in the area. The density of sampling was greater downgradient of the Park than in the regional plume, allowing better definition of the OU3 plume and its boundaries.

- Supply well data used in the model. The average pumping rates for 2004-2007 within the model domain were used for supply wells.

- Model calibration. All calibration targets were equally weighted but focus was placed on those closest to the site. USGS will request in writing the names of the most important targets and the top residual outliers.

- Current use of model. NG and EPA discussed that the model has been used for specific purposes, including designing interim and final remedial measures for containing and treating contaminated groundwater; EPA noted that it may need modifications to meet the objectives of the EPA and USGS.

- Next Schumer Committee meeting. NYSDEC has some concerns that the Schumer Committee meeting scheduled for 12/15/10 will not allow time for USGS to do an adequate evaluation of the model and provide their comments before the meeting. EPA will talk internally and get back to the participants in this call whether the meeting is still on, and if so, provide a draft agenda.

5. The meeting concluded with two action items: (1) USGS will request in writing the names of the most important targets and the top residual outliers; and (2) EPA will talk internally and get back to the participants in this call whether the 12/15/2010 Schumer Committee meeting is still on, and if so, provide a draft agenda.