Message

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Sent: 1/5/2016 3:12:52 PM
To: stan carey [scarey@massapequawater.com]
CC: Harrington, Jim (DEC) [jim.harrington@dec.ny.gov]; Scharf, Steven (DEC) [steven.scharf@dec.ny.gov]; Karpinski, Steven (HEALTH) [steven.karpinski@health.ny.gov]; Pirrung, Thomas J (AS) [thomas.pirrung@ngc.com]; Fly, Lora B CIV NAVFAC MIDLANT, IPTNE [lora.fly@navy.mil]; Garbarini, Doug [Garbarini.Doug@epa.gov]; Swartwout, John (DEC) [john.swartwout@dec.ny.gov]; Schick, Robert (DEC) [robert.schick@dec.ny.gov]; jdefranco@nassaucountyny.gov; Mike Boufis (mboufis@bethpagewater.com) [mboufis@bethpagewater.com]; fkoch@sfwater.com; Brian.Bruce@amwater.com
Subject: CSIA Well Sample Request

Importance: High

Dear Mr. Carey:

Happy New Year.

In response to the Massapequa Water District's ("MWD") request of November 4, 2015 to sample groundwater, Northrop Grumman is willing to cooperate with MWD with respect to collecting samples from Well 1. We understand that MWD has also requested sample collection access to five Navy monitoring wells (RE 103 D3, TT1 01 D2, BPOW 3-4, BPOW 5-6, and BPOW 5-4). We further understand from MWD's letter that it intends to perform Compound Specific Isotope Analysis (CSIA) and that the CSIA results will be used to "test for a correlation between the TCE in the monitoring wells and the TCE emanating from the source plume."

While Northrop Grumman is willing to cooperate with MWD, use of CSIA presents numerous technical challenges and complicating factors. Contrary to MWD's characterization of CSIA as straightforward, it is actually a highly specialized analysis that requires an in-depth understanding of stable isotope behavior to be able to provide a credible interpretation. Moreover, use of CSIA is far from the relatively straightforward procedures and protocols used for standard parameter sampling, analysis, quality control, and data interpretation. As you may be aware, U.S. EPA has described CSIA as a new approach, with no widely accepted standards for accuracy, precision and sensitivity, and no established approaches to document accuracy, precision, sensitivity, and representativeness.

In light of the above, Northrop Grumman requests the opportunity to review and agree upon a work plan for the proposed sampling effort. We expect that such a work plan will include at least the sample collection and analysis protocols, quality assurance/quality control procedures, and interpretation protocols. MWD's work plan should be consistent with the applicable procedures and protocols provided in U.S. EPA's "A Guide for Assessing Biodegradation and Source Identification of Organic Ground Water Contaminants using Compound Specific Isotope Analysis (CSIA), EPA 600R-08/148, Dec. 2008." MWD's work plan should also include a discussion of the qualifications and experience of its selected laboratory and technical consultant in conducting CSIA analyses and data interpretation. Further, an acceptable protocol should take into account issues such as the following:

- The isotopic composition of the compounds of interest (COI) may have changed with time due to changes in manufacturers, manufacturing processes, and changes in stock materials used in the manufacturing process. Please specify how the testing regime will account for this issue.
- Given the extent of the plume, there are questions about whether CSIA can be used to adequately characterize the plume without perhaps 30 or more sampling locations upgradient,

sidegradient and downgradient that are sampled at multiple depth intervals. For example, there are known sources of TCE upgradient from the Northrop Grumman site, yet no off-site upgradient sampling locations are currently proposed. We believe that this deficiency in the current proposal will lead to interpretation difficulties. Moreover, because Well 1 is under pumping conditions and draws water from a large area, including from off-site areas, this well draws water from a much larger area than a conventional monitoring well. The mixing of potential multiple sources at Well 1 caused by such pumping means that the isotopic composition of COIs at Well 1 may not be representative of the COI sources that contributed to groundwater sampled at the five proposed monitoring wells. The proposed protocol should address these issues.

- There is limited published literature available on CSIA for 1,4-dioxane. In particular, there are no published studies regarding potential changes in the stable isotopic composition of 1,4-dioxane due to microbial degradation. Therefore, interpretation of CSIA results for 1,4-dioxane may be difficult. Please suggest the methodology for any analysis of 1,4-dioxane that MWD intends to perform.

We look forward to reviewing and agreeing upon a work plan, and subsequently working with you in connection with your sampling request.

If you have any questions or would like to discuss the above further, please do not hesitate to contact me.

Sincerely,

Edward J. Hannon

Manager Environmental, Safety, Health and Medical

Northrop Grumman Corporation