RES

From: Thomas Nicholson
To: dwinslow@gza.com; Jacob Philip; James Noggle; Larry Rosenmann; Matthew Barvenik; Ralph Cady
Date: 01/05/2007 12:33:06 PM
Subject: Questions for the "Pumping Test Report" Review Teleconference

Jim, Larry, Matt, Dave, Mike, Ralph and Jake:

As requested, I have prepared the attached questions to help facilitate discussion of GZA's Pumping Test Report. I would propose that we address these (or other questions) as we proceed through the report.

Thanks.....Tom

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****

>>> "Matthew Barvenik" <mbarvenik@gza.com> 01/05/2007 8:44 AM >>>
HI,

Thanks Dave, but let's all assume we will use conf call line that Jim provided [redacted] followed by the passcode: [redacted] Ex2

Ex2

Matthew J. Barvenik, LSP

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[redacted] Ex6

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-Proud participant & supporter of the Pan Mass Challenge-

-----Original Message-----

C126

From: David Winslow [mailto:dwinslow@gza.com]
Sent: Friday, January 05, 2007 8:37 AM
To: 'Hinrichs, Gary H'; mbarvenik@gza.com; 'Jim Noggle'; 'Thomas Nicholson'
Cc: 'Matthew Gozdor'; 'Mike Powers'; 'Adler, Joseph J.'
Subject: RE: Pumping Test Review Call

You can use this call in information

[redacted] The passcode is [redacted] Ex 3

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[redacted] Ex 6

-----Original Message-----

From: Hinrichs, Gary H [mailto:ghinric@entergy.com]

Sent: Friday, January 05, 2007 8:29 AM

To: mbarvenik@gza.com; Jim Noggle; Thomas Nicholson

Cc: Matthew Gozdor; Mike Powers; dwinslow@gza.com; Adler, Joseph J.

Subject: RE: Pumping Test Review Call

9am works for us. Do we have a conference line or do you want to use mine.

If so I can send out the number and passcode.

-----Original Message-----

From: Matthew Barvenik [mailto:mbarvenik@gza.com]

Sent: Friday, January 05, 2007 1:56 AM

To: 'Jim Noggle'; 'Thomas Nicholson'

Cc: 'Matthew Gozdor'; 'Mike Powers'; adler@tlgservices.com; Hinrichs, Gary H; dwinslow@gza.com

Subject: Pumping Test Review Call

Hi Jim, Tom,

We (GZA pump test team) can make the call on the 8th @ 9:00 as you suggested, assuming Jay and Gary can make it (Jay, Gary, does this work for you?).

However, to make this as productive as possible, we need Tom's list of questions (as you suggested) this AM so we can be sure we have info at hand on Monday to best address them.

When we talked yesterday PM, it didn't dawn on me that the 8th was only Monday (Jim, did I get the date correct?). This doesn't provide much time for Tom, but I understand your time constraints.

Let's see if we can ake this happen

mjb

CC: Gary H' 'Hinrichs; John Williams; Joseph J.' 'Adler; 'Matthew Gozdor'; 'Mike Powers'; Sher Bahadur; W Ott

Discussion Questions for Review of Pumping Test Report

To better understand the ground-water system at the Indian Point Energy Center and to evaluate the need for and possible affects of long-term pumping in recovery well (RW-1) in the vicinity of the Unit 2 Spent Fuel Pool, we have developed the following questions concerning the recently completed pump test and draft report.

1. What assumptions were made with regard to conditions and processes in the ground-water flow system related to the RW-1 pump test and recovery analyses?

a. Is the system behaving as a confined or unconfined system? Is the system subject to transient conditions and leakance?

b. Were the major fractures identified in the cores and downhole geophysical surveys targeted for observation of piezometric fluctuations during and after the pump test? Which wells were assumed to reflect direct fracture connectivity with RW-1?

c. How were the coincident water-quality observations determined, and what prior monitoring data and analyses were performed to determine them?

2. Which step-drawdown versus time and distance analyses methods were selected, and what assumptions were made in these analyses as to flow and transport conditions and geometries?

a. Since the Theis method was chosen, what confinement exists to assume confined flow conditions?

b. Since the Jacob Straight-Line Distance-Drawdown Method was used to calculate transmissivity and storativity, what observed behavior indicated non-equilibrium radial flow to RW-1 with minimal to no leakance? What assumptions does this method imply as to flow and transport in the vicinity of Unit 2?

3. What uncertainty exists in the variable extent and behavior of the capture zone when RW-1 is pumped at 2 gpm? How uniform will the capture zone be, and what local conditions may affect its geometry? For example, if the pumping rate is not continuous, how will the capture zone change due to local recharge?

4. Is there a need to understand long-term pumping influences (beyond 48 hours)? Would longer-term pumping and its monitoring see the effects of higher hydraulic conductivities and specific yields in the porous back fills and large fracture zones in the vicinity of Unit 2 and Unit 1?

5. Upon detailed inspection and analyses of both the drawdown and recovery plots, which wells are directly and quickly affected by RW-1 pumping? Can the local flow (and transport) be directional?

6. What is the uncertainty that transmissivity varies and is directional, and storativity varies?

7. What further analyses need to be performed to determine which wells can serve as indicator wells to understand ground-water behavior and variability in the contaminant capture zone?

8. How are the pump test results being factored in the tracer test(s)?

9. What information was obtained on the H-3 and Sr-90 plumes' behavior, prior to, during and following the pump test (i.e., in RW-1 and the surrounding monitoring wells)?

10. How can the transport pathways for the Sr-90 and H-3 contaminant plumes emanating from Unit 1 and Unit 2 spent fuel pools be affected by future pumping in RW-1? Will the anthropogenic features (e.g., pipe trenches and curtain drain) be affected by RW-1 pumping?

11. Based on the pump test results, which performance monitoring wells and what performance indicators are anticipated to be included in the long-term monitoring plan? What would be the frequency of monitoring and how can this data be useful in calculating doses for current and future radionuclide releases (both monitored and unanticipated, abnormal releases)?