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Date: 02/01/2007 6:29:52 PM
Subject: Information request

Attached please find the information Tom Nicholson requested after our meeting on 1/25/07.

<<Workplan revisions.doc>> <<injection well schematic.pdf>>

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REVISIONS TO:
WORKPLAN FOR A GROUNDWATER TRACING STUDY AT
INDIAN POINT NUCLEAR POWER PLANT
BUCHANAN, NEW YORK

January 31, 2007

Philip Moss, RG and PG

Senior Geologist
Ozark Underground Laboratory, Inc.
And
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FOR

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The investigative approach has changed in a number of ways since the August 2006 draft of the workplan, including some refinements to the sampling network for groundwater tracing studies at Indian Point. We anticipate that further minor changes may be deemed necessary in order to achieve the goals of the groundwater tracing study.

Purpose of the Study

The primary purpose of the study is to create a series of dye plumes at Indian Point which are expected to be very similar to the plumes of radioactive contaminants that currently are present at the site. If the dye plumes are very similar to the contaminant plumes, then the sources of radioactive contamination must have been very close to the dye introduction points. If there is poor correspondence among the plumes, then we must conclude that the source areas are or were not very close to the dye introduction points.

Other purposes of the investigation include obtaining empirical groundwater velocity data for both the dye front and the peak dye concentration, and providing a tool for estimating the radioactive contaminant load being discharged into the Hudson River. This is made possible by having detectable concentrations of dye in the river, in spite of undetectable radioactive contamination in the river. It is likely that radioactive contamination is being discharged into the Hudson River, but in quantities that are below detection limits. We can correlate concentrations of dye with concentrations of contaminants where both are detectable and extrapolate to areas where only dye is detectable.

Modifications in Approach

1. There will be four dye introductions, one in the Unit 2 Fuel Storage Building, two traces near Unit 1, and one trace into a pipeline that runs south of Unit 1.
2. Instead of all dyes being introduced on the same day, we anticipate that the Unit 2 dye trace will be completed prior to the introduction of the three remaining traces and that the three remaining traces will be started on the same day or as close together chronologically as possible.
3. Instead of most of the wells and catch basins being sampled intensively, we now plan to have two different sampling schedules. A high intensity network that will be sampled on the schedule found in Revision 1 of the Workplan (August 2006), and a low intensity network that will be sampled every other week. It is our intention to have a halo of sampling locations that are outside the dye plumes. We plan to adjust the sampling network as needed to maintain the halo of nondetections. We believe that the nondetections are necessary for defining the limits of the plumes.
4. Philip Moss of the Ozark Underground Laboratory (OUL) will be onsite as needed to assist with the high frequency sampling period for the first trace.

5. OUL will assist GZA in obtaining field supplies as needed.
6. Any or all dye introduction points will be tested for their ability to transmit adequate quantities of water (at least one gallon minute) into the groundwater system if deemed necessary by OUL personnel.

Consequences of the Modifications

- The duration of tracing will be about twice as long as previously planned.
- Significantly more samples will be collected, shipped, and analyzed.
- A progress report will be drafted following the completion of the first dye trace.
- There will have appreciably more fieldwork, report writing, and travel.

The high and low intensity sampling network locations for the Unit 2 Trace are listed below. These sampling locations were selected by David Winslow and Philip Moss.

High Intensity Network for the Unit 2 Trace

Hudson River D/S	MW-37-57	MW-59-A
Hudson River U/S	MW-49-26	MW-59-B
Hudson River Unit 3 intake	MW-49-42	MW-60
MW-30	MW-49-65	MW-63
MW-31	MW-50-42	MW-63 - 18
MW-32	MW-50-67	MW-63 - 35
MW-33	MW-52-A,B,C,D	MW-62
MW-34	MW-52-12	MW-62-18
MW-35	MW-53-82	MW-62-35
MW-36-26	MW-53-120	MW-66
MW-36-41	MW-54	MW-111
MW-36-53	MW-57-11	I-2
MW-37-22	MW-57-20	MH-5
MW-37-32	MW-57-45	MH-6
MW-37-40	MW-58-28	HR-1
U2-C1	MW-58-65	U3-C1

Low Intensity Network for the Unit 2 Trace

MW-38

MW-39 (67', 86', 100')

MW-41-15

MW-41-42

MW-41-64

MW-42-51

MW-42-79

MW-44-67

MW-44-104

MW-45-43

MW-45-62

MW-46

MW-47-56

MW-47-80

MW-55-24

MW-55-34

MW-55-54

MW-56-55

MW-56-85

MW-65A (39')

MW-65B (74')

MW-107

Sump

North Curtain Drain

U3-3

U3-4D

The networks for the remaining traces have not been entirely resolved as of this date and will be finalized prior to dye injection at Unit 1.

