IPRenewal NPEmails

From: John White
Sent: Friday, May 30, 2008 10:17 AM
To: Timothy Rice
Cc: James Noggle; Marsha Gamberoni; Darrell Roberts; Marjorie McLaughlin
Subject: RE: Public Meeting
Attachments: Groundwater Slides Public mtg handout.ppt

Actually, I think the meeting went better than expected. About 60 members of the public attended, poster sessions relative to Groundwater, License Renewal, Emergency Planning, Dry Cask Storage, Plant Operations and Performance, as well as NRC-invited poster sessions by Riverkeeper and IPSEC were made available. Entergy did a presentation on its groundwater investigation and characterization activities, and NRC presented its assessment of Entergy's performance, the basis for NRC's conclusions relative to negligiable public health consequence of the current conditions, the basis for acceptance of monitored natural attentuation as an appropriate remedial action for the current circumstances, NRC's plans for continued inspection relative to Unit 1 spent fuel removal and drain-down by end of 2008, and confirmation of the implementation and effectiveness of the licensee's Long Term Monitoring Program. About a 90 minute question and answer session followed. Tom Nicholson and I did the NRC presentation. I acknowledged DEC's contribution to, and participation in, several aspects of the NRC inspection effort. Most of the public attendees were from Riverkeeper, IPSEC, et al. Attitudes remained as expected.

Next public meetings:
(1) On June 18, 2007, the NRC will hold a public exit meeting to inform Entergy management of the results of the NRC team inspection covering the scoping and aging management portions of the Indian Point Energy Center application for a renewed license.

2) On July 2, 2007, the NRC will hold a meeting with Entergy to discuss the NRC's assessment of the safety performance of the Indian Point Nuclear Generating Station Units 2 and 3 for calendar year 2007. The NRC's assessment is documented in a letter dated March 3, 2008.

Informational poster sessions on groundwater will be available at both...probably Jim and I will support.

"Certa Bonum Certamen"

-----Original Message-----
From: Timothy Rice [mailto:tbrice@gw.dec.state.ny.us]
Sent: Friday, May 30, 2008 7:55 AM
To: Don Mayer; John White
Subject: Public Meeting

Good Morning Gentlemen,
I hope the meeting went well, or at least as well as could be expected!
Would you be able to provide me with a PDF or PPT copy of your slides so that I can see what was presented, and put them in my file?
Thanks,
Tim

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"Veritas Vos Liberabit"

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From: John White

Created By: John.White@nrc.gov

Recipients:
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NRC ASSESSMENT: INDIAN POINT CONTAMINATED GROUNDWATER

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Agenda

- 6:30 Introductions
  - Marc Dapas, Deputy Regional Adminstrator
- 6:40 Meeting Ground Rules
  - Rich Barkley, Technical Communications
- 6:45 Entergy Presentation
  - Don Mayer, Director of Special Projects
- 7:10 NRC Presentation
  - John White, Branch Chief, Plant Support 2
- 7:50 Break
- 8:00 Questions and Answers

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NRC Inspection and Assessment Team

Principal Inspection Contributors:

- NRC Region I
  - James Noggle, Senior Health Physicist
  - James Kottan, Senior Health Physicist
  - John White, Chief, Plant Support Branch 2
- NRC Office of Research
  - Thomas Nicholson, Senior Technical Advisor-Radionuclide Transport
- US Geological Survey
  - John Williams, Senior Hydrologist

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Coordinating Government Agencies

Federal:

- US Environmental Protection Agency (EPA)
- US Geological Survey (USGS)

New York State:

- Department of Environmental Conservation (DEC)
- Department of Public Health (DPH)

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Purpose

- Evaluate Entergy's performance and provide status of inspection findings associated with the following:
  - Cause of the groundwater contamination
  - Extent and migration of the groundwater releases
  - Radiological significance of these releases
- Ensure that public health and safety and protection of the environment were maintained

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Purpose

- Ensure Entergy's groundwater transport model is correct and tested
- Research prior opportunities for leak discovery and evaluate Entergy's response
- Determine Entergy's conformance with regulatory requirements

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Scope

- Assess Entergy's investigation of the Unit 2 spent fuel pool leak since August 2005
- Examine Entergy's investigation of previous Unit 1 and Unit 2 spent fuel pool leaks identified in 1992

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Scope

- Independent Assessment Effort:
  - Collection and analysis of groundwater samples
  - Verification of licensee's hydrological conclusions
  - Verification of dose assessment to the public
  - Verification of water inventory losses from Unit 1 and Unit 2 spent fuel pools
  - Verification of no detectable environmental impact through the analysis of aquatic food samples from the Hudson River.

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Scope

- Comprehensive assessment of groundwater transport pathways and contaminant plume behavior
- Historical conditions

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NRC Assessment

- Independent analysis confirms offsite migration is limited to the Hudson River
- The groundwater transport model was based on well-developed data, measurements, and field observations

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NRC Assessment

During site visits and teleconferences, questions posed:

- to evaluate the Conceptual Site Model assumptions, and
- to pro-actively engage Licensee's contractor in developing corroborating field data
- to understand ground-water plume sources, extent, and behavior

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NRC Inspection Focus and Activities

- NRC Staff from Region I and Office of Nuclear Regulatory Research provided technical oversight of IPEC ground-water contamination studies
- U.S. Geological Survey scientist provided technical support to the technical oversight
- Initial ground-water contamination identified in leak from Unit 2 Spent Fuel Pool
- Site visits focused on technical questions concerning the contaminant sources, pathways, potential receptors, and monitoring to detect future leaks
- Field data from rock cores, monitoring wells, geophysical surveys, hydraulic tests and tracer tests independently reviewed

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NRC Assessment Questions

- What are the source(s) of the ground-water contamination?
- Where do they intersect the accessible environment?
- Are there fast and preferential pathways?
- Do the contaminant plumes move under the Hudson River?
- Are local drinking water sources affected?
- Are the plumes captured by the Discharge Canal?
- What are the hydraulic controls on the plume(s)' behavior as reflected in the Conceptual Site Model?
- What remediation is appropriate?
- How can future leaks be detected?
- What surveillance is needed to confirm dose assessments remain below regulatory limits?

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NRC Assessment

Fundamental Understanding for the Conceptual Site Model

- Nature of the leaks and initial pathways through backfills and fractured rock at or above the local water table.
- Role of fractures and possibility of solutioning & connectivity
- Interaction of ground-water flow with the Hudson River
- Location and relationships to local drinking water sources
- Ground-water flow gradients, vertical and horizontal flow directions related to the sources, Discharge Canal, and River
- Movement of H-3, Sr-90, Cs-137 and Ni-63 to the River
- Benefits of a long-term ground-water monitoring program

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NRC Assessment Conclusions

- Unit 1 and 2 are the source(s) of the ground-water contamination
- Plumes move west, intersect the Hudson River but not under to Rockland County
- Backfills and connected fractures are the preferential pathways
- No local drinking water sources are affected
- Discharge Canal captures some but not all of the plume
- Ground-water gradient and flow direction controlled by local hydrology
- Monitored natural attenuation is the appropriate remediation approach
- Future leaks can be detected by monitoring wells near Units 1 and 2
- Long-term monitoring is needed to confirm dose assessments remain below regulatory limits during plant operations

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NRC Assessment

- Entergy implemented timely actions to investigate source, and determine dose impact
- Entergy conformed to regulatory survey requirements with 1 minor violation of quality control of sample analyses
- Groundwater contamination resulted only from leakage attributed to Unit 1 and Unit 2
- Entergy's site characterization was based on state-of-the-practice monitoring wells, tests, and analysis methods

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NRC Assessment

- Exposure pathway to man is aquatic food from Hudson River (fish, invertebrates)
- Calculated exposure to maximum exposed individual is 0.002 mrem/yr total body and 0.01 mrem/yr maximum organ
- Calculated exposures are less than 0.1% of NRC regulatory limit

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Radiation Dose Perspective

- Background (est.) 360 mrem/year (NCRP 94)
- Public Dose Limits 100 mrem/year (10CFR20.1301)
  25 mrem/year (40CFR190)
- Liquid Effluent Limit 3 mrem/year, total body
  10 mrem/year, organ (10CFR50, App. I)
- Estimated Dose Rate 0.002 mrem/year, total body
  0.01 mrem/year, bone
- EPA drinking water limits (40 CFR 141.16)
  Tritium (H-3) 20,000 pCi/L
  Strontium (Sr– 90) 8 pCi/L

(EPA maximum contaminant level based on 4 mrems per year)

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NRC Assessment-Regulatory Requirements

- Entergy is monitoring and reporting the groundwater effluent release condition in accordance with NRC regulations

- Relative to Unit 1, there was no condition in which the licensee failed to meet a regulatory requirement or standard that was reasonably within its ability to detect or correct

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NRC Assessment

- Removal of Unit 1 fuel and drainage of the pools will eliminate the source of Sr-90, Ni-63, Cs-137
- Entergy has initiated a long-term monitoring process to:
  - Report groundwater liquid releases
  - Measure the effectiveness of remediation and natural attenuation
  - Detect new or changing groundwater contamination conditions

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NRC Lessons-Learned

NRC Lessons Learned Task Force Identified:

- No regulatory guidance for detecting, evaluating, and monitoring releases via unmonitored pathways
- No regulatory requirement / guidance for remediation of groundwater conditions
- No requirement to assure leaks and spills will be detected before migration off-site

Actions have been initiated to address these and other identified issues.

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Planned and Continuing NRC Inspection and Assessment

- Assessment of Long-Term Groundwater Monitoring Plan
- Inspection oversight of Unit 1 fuel removal and pool draining activities
- Baseline inspection now includes aspects of groundwater protection and assessment
- Inspection initiative to confirm licensee implementation of Industry Groundwater Protection Initiative

Additional Information

- NRC Homepage
  - www.nrc.gov
- Indian Point 2 Current Performance Summary
  - www.nrc.gov/NRR/OVERSIGHT/ASSESS/IP2/ip2_chart.html
- Indian Point 3 Current Performance Summary
  - www.nrc.gov/NRR/OVERSIGHT/ASSESS/IP2/ip3_chart.html
- Indian Point "Specific Plant of Interest" Page
  - www.nrc.gov/reactors/plant-specific-items/indian-point-issues.html
- Indian Point License Renewal Review Status
  - www.nrc.gov/reactors/operating/licensing/renewal/applications/indian-point.html
- USGS Open-File Report on Flow-Log Analysis
  - http://pubs.usgs.gov/of/2008/1123/