

NYS Department of Environmental Conservation Community Fact Sheet

Prepared for the 9/19/07 NRC Relicensing Environmental Scoping Meeting for
Indian Point Energy Center

Indian Point Energy Center Buchanan, NY

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If you would like more information about the DEC or DOH activities relative to the groundwater investigations at Indian Point, please contact one of the representatives listed below:

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Background/History

The Indian Point Energy Center is a nuclear energy powered electrical generating station located in Buchanan, NY. It is wholly owned by Entergy Nuclear. There are three commercial reactors on the property. Unit 1 stopped operation in the 1970s and is currently maintained in an unfueled state pending decommissioning. Spent fuel still remains in storage in the spent fuel pool. Units 2 & 3 continue to generate electricity. Entergy has applied to the Nuclear Regulatory Commission (NRC) to renew its operating license for both operating units for an additional 20 years.

The investigation of the leaks from the Unit 1 & 2 spent fuel pools into groundwater on-site is nearing completion. Entergy is performing the investigation under the direct regulatory authority of the NRC, with State review provided by DEC and DOH.

Groundwater Investigation

The New York State Department of Environmental Conservation (DEC) and the New York State Department of Health (DOH) have been participating in the ongoing groundwater investigation of radionuclide contamination in groundwater under the plant, and the release of that water to the Hudson River. The purpose of our involvement is to protect the interests of the citizens and the environment of the State of New York by helping to ensure that Entergy performs a timely, comprehensive characterization of site groundwater contamination, takes appropriate actions to identify and stop the sources of the leak, and undertakes any necessary remedial actions.

General

In 2005 Entergy was preparing to install a new crane at the Unit 2 Spent Fuel Pool (SFP) to support its dry cask spent fuel storage operation. During that work, Entergy discovered water leaking from a crack in the exterior of the concrete SFP wall. The subsequent investigation identified tritium (radioactive hydrogen or H-3) contamination in groundwater on-site coming from the vicinity of the Unit 2 SFP and radioactive Strontium-90 (Sr-90) and other isotopes coming from the Unit 1 SFP.

Entergy hired a hydrology contractor who, with involvement from the NRC, USGS, DEC, and DOH, determined that there were two active groundwater plumes on site;
- a H-3 plume coming from the Unit 2 SFP, and
- a Sr-90 plume coming from the Unit 1 SFP.

State Activities

- Collecting split samples of water from on-site and off-site monitoring wells, focusing on wells along the riverfront and to the south of the sources of the leaks.
- Recommended that Entergy enhance its Hudson River fish sampling program this year to help answer

questions regarding potential Sr-90 impacts.

- Collected split samples of fish flesh from this enhanced effort, as well as unilaterally analyze bone samples.
- Analyzing samples at the DOH Wadsworth Center public health laboratory. Compare results with Entergy's.
- Participating in and provide recommendations on the hydrology investigation into the extent and movement of contaminated groundwater on the site, including independent review of contractor work.
- Performed an independent assessment of potential public health impacts.
- Participating in periodic stakeholder calls and meetings.

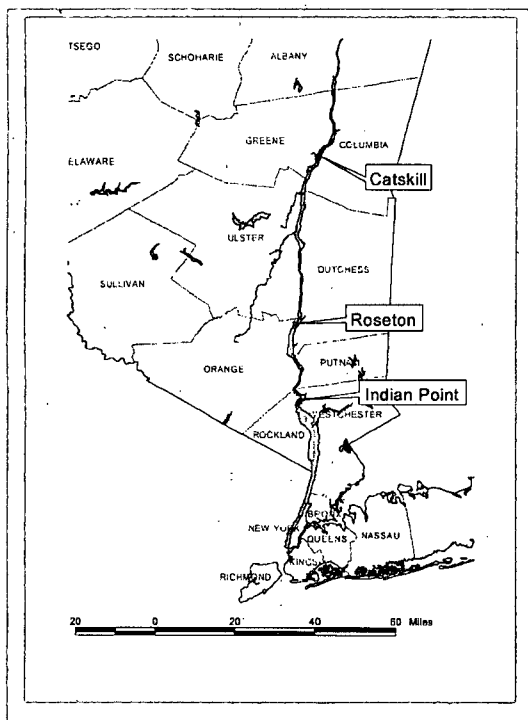
Key Findings to Date

- There are no residential or municipal drinking water wells or surface reservoirs near the plant.
- There are no known impacts to any drinking water source.
- No contaminated groundwater is moving towards surrounding properties.
- Contaminated groundwater is moving into the Hudson River.

- Public exposure can occur from the groundwater entering the Hudson River through consumption of fish.
- The DOH has confirmed Entergy's calculated dose to humans from fish.
- Sr-90 levels in fish near the site (18.8 pCi/kg) are no higher than those in fish collected from background locations across the state.
- Recent Sr-90 data in fish is limited. (New samples are being analyzed.)

Ongoing Activities

- Coordinate an enhanced fish sampling effort.
- Continue to participate in public communication activities.
- Continue to monitor Entergy's progress on determining the source of the Unit 2 H-3 plume.
- Participate in the final assessment of groundwater conditions on the site.
- Evaluate any plans for leak repairs or site remediation.
- Continue to provide an independent source of information for the counties and other interested parties on topics related to the groundwater investigation.
- Evaluate long-term monitoring plans.



Enhanced Fish Sampling

DEC and DOH worked with Entergy and the NRC to develop this year's enhanced fish sampling effort. The intent is to meet these three goals: 1. develop a more scientifically rigorous sampling program, 2. evaluate the appropriateness of Entergy's environmental background (control) location, and 3. perform a thorough evaluation of this potential human exposure pathway. To accomplish this:

- Sampling focused on species that do not migrate over significant distances in the river and are expected to be present at all sampling locations, or are of commercial or recreational importance, including striped bass, blue crab, carp, white perch, American eel, catfish, and sunfish.
- Samples were collected from the area near Indian Point, the existing upstream control area near Roseton, and from far-upstream near the Village of Catskill. (see map)
- Samples of edible portions of each species at each location are being analyzed by NYS, NRC, and Entergy.
- Bone samples are being analyzed by NYS.
- Both flesh and bone are being analyzed for Sr-90 and gamma emitting radionuclides.
- NYS will review the data to assess the current environmental monitoring program, and to evaluate any potential impacts to public health and the environment.

Fish Results to Date

NRC fish results have been received and show no detectable Sr-90 or gamma emitters. Entergy and State analyses are not yet available from our respective labs, but will be

reported to stakeholders when received.

Regulatory Authority

The federal government regulates the use of radioactive materials at Indian Point under the federal Atomic Energy Act.

At present, there are no off-site groundwater impacts, and releases of contaminated groundwater to the river do not violate state surface water standards for H-3 (20,000 pCi/l) and Sr-90 (8 pCi/l).

Remedial Actions

Tritium

Because tritium (H-3) is actually an isotope of hydrogen, it is not feasible to remediate H-3 contaminated groundwater other than by removing the source of contamination. Entergy has identified a leak in a portion of the Unit 2 SFP (a probable source of the H-3 plume) and will repair this leak (and any others discovered) after completion of its inspection of the stainless steel liner.

Strontium

Unlike H-3, Sr-90 contamination can be removed from water through readily available treatment processes. Entergy has reduced the source of the Sr-90 plume by >97% through operation of a water treatment system in the Unit 1 SFP. This has resulted in measurable reductions in Sr-90 groundwater concentrations. The company has also agreed to remove the spent fuel and remaining contaminated water from the Unit 1 SFP in 2008, stopping the contamination source.

The agencies will be monitoring the progress of these source remediation efforts closely and will be reviewing and commenting on the final site hydrology report and long-term monitoring plans Entergy is anticipated to finalize in the next couple of month.