

Indian Point and Oyster Creek; A Comparison of Closure Agreements

**When Indian Point Closes:
A Regional Forum on Workforce Transition
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Age

Oyster Creek

- Oldest operating nuclear plant in the U.S.
 - Single unit completed in 1969
 - Flawed Mark 1 design



Indian Point

- Slightly younger than Oyster Creek
 - IP1 completed in 1962 (now in SAFSTOR)
 - IP2 completed in 1974
 - IP3 completed in 1976

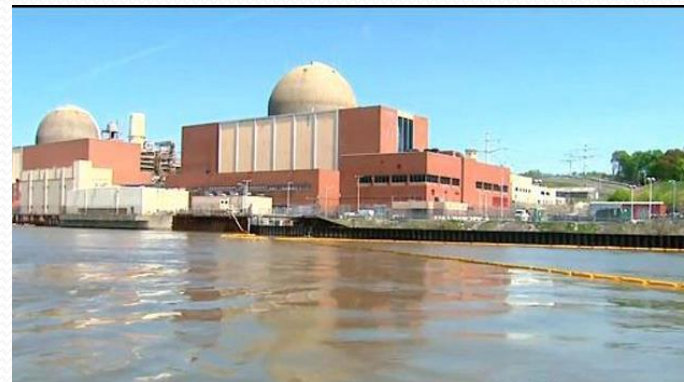
Size & Generating Capacity

Oyster Creek

- Single 673 MW reactor
- 662 MGD intake
- ~700 Acre Plot
- Roughly 550 workers
- Local taxes and fees estimated at \$13.5 million

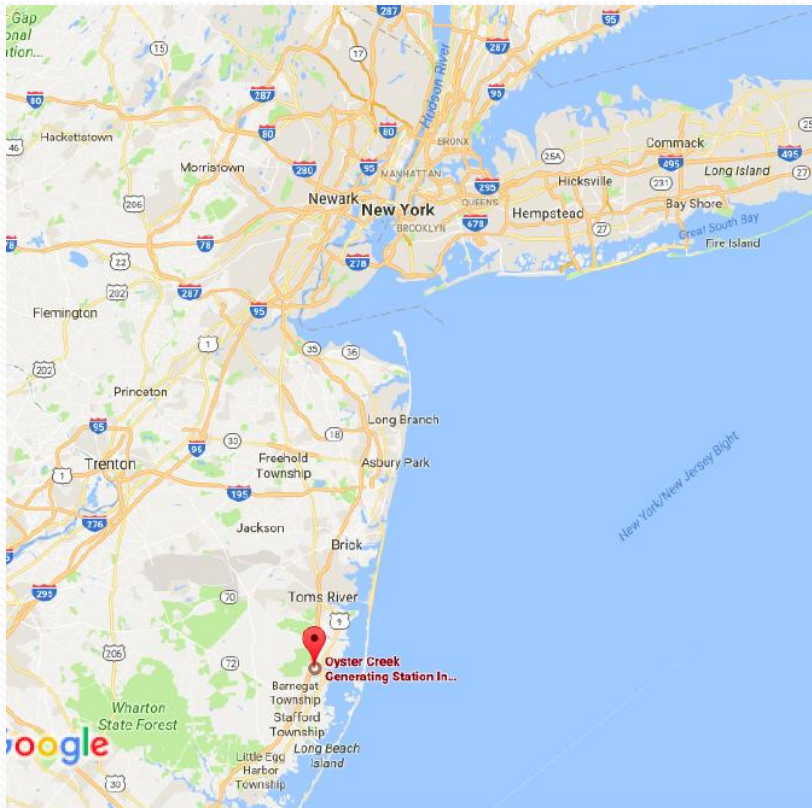
Indian Point

- Two reactors produce 2,000 MW
- 2,420 MGD intake
- ~224-Acre Plot
- Over 1,000 workers
- Taxes and payments estimated at \$30 million



Location

Oyster Creek



Indian Point

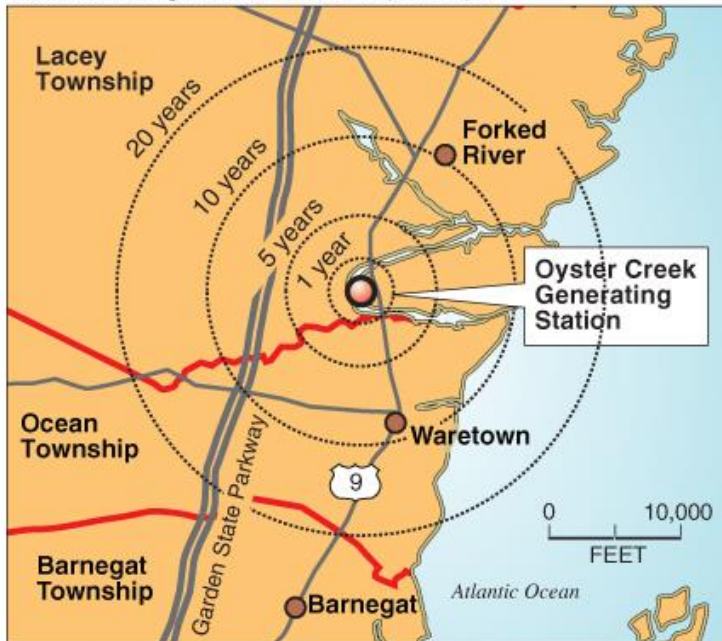


Groundwater Contamination

Oyster Creek

Tritium leak

In 2009, 180,000 gallons of water containing tritium, a radioactive isotope, leaked from the Oyster Creek Generating Station in Lacey Township into the Cohansey Aquifer. The contaminated water is in a plume that is moving at a rate of 1 to 3 feet per day. At this rate, it will take 14 to 15 years to reach the nearest residential wells in Lacey Township. The map shows how far the plume could move if nothing is done to clean up the spill.



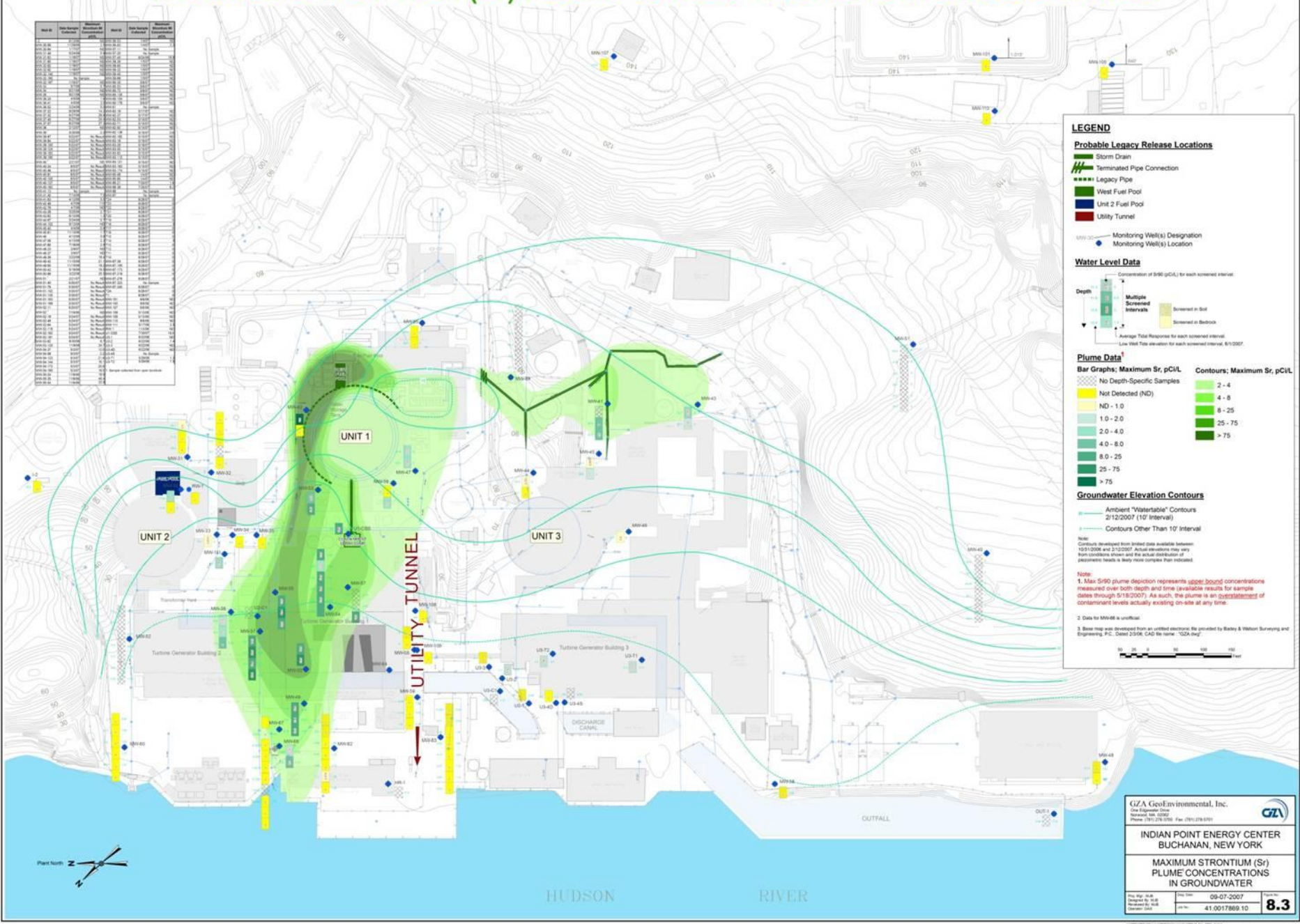
Press graphic by Krishna Mathias

Indian Point

- Plumes of contamination leaching towards and into the Hudson River:
 - Tritium
 - Strontium-90
 - Cesium-137
 - Cobalt-60
 - Nickel-63

MAXIMUM STRONTIUM (Sr) PLUME¹ CONCENTRATIONS IN GROUNDWATER

Well ID	Well Name	Well Type	Well Status	Well Depth (ft)	Well Diameter (in)	Well Construction	Well Completion	Well Casing	Well Liner	Well Screen	Well Seal	Well Head	Well Valve	Well Access	Well Notes
MW-01
MW-02
MW-03
MW-04
MW-05
MW-06
MW-07
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MW-100



LEGEND

Probable Legacy Release Locations

- Storm Drain
- Terminated Pipe Connection
- Legacy Pipe
- West Fuel Pool
- Unit 2 Fuel Pool
- Utility Tunnel

Monitoring Well(s) Designation
Monitoring Well(s) Location

Water Level Data

Concentration of Sr90 (pCi/L) for each screened interval

Depth

Multiple Screened Intervals

Average Total Response for each screened interval

Low Water Table elevation for each screened interval, 6/1/2007

Plume Data¹

Bar Graphs: Maximum Sr, pCi/L

- No Depth-Specific Samples
- Not Detected (ND)
- ND - 1.0
- 1.0 - 2.0
- 2.0 - 4.0
- 4.0 - 8.0
- 8.0 - 25
- 25 - 75
- > 75

Contours: Maximum Sr, pCi/L

- 2 - 4
- 4 - 8
- 8 - 25
- 25 - 75
- > 75

Groundwater Elevation Contours

- Ambient "Waterable" Contours 2/12/2007 (10' Interval)
- Contours Other Than 10' Interval

Notes:

Contours developed from limited data available between 10/1/2006 and 2/12/2007. Actual elevations may vary from contours shown and the actual distribution of piezometric levels is likely more complex than indicated.

1: Max Sr90 plume depiction represents upper bound concentrations measured over both depth and time (available results for sample dates through 5/18/2007). As such, the plume is an overstatement of contaminant levels actually existing on site at any time.

2: Data for MW-66 is unofficial.

3: Base map and development on utility structures provided by Brierley & Watson Surveying and Engineering, P.C. (2006) CAD file name: "05A.dwg".

Safety Concerns

Oyster Creek

- Electromatic relief valve failure
- Emergency generator cooling fan malfunction
- Sand bed region of drywell liner corroded

Indian Point

- Baffle bolts impaired
- Malfunctioning O-rings
- Transformer explosions, fires, and oil spills
- No legitimate evacuation plan



Closure Agreement Background

Oyster Creek

- Permitting fights at end of Governor Corzine's tenure:
 - State to require closed-cycle cooling system
- Chris Christie brokered deal to keep status quo for 10 years
- Exelon has agreed in writing to close plant in 2019

Indian Point

- Permitting fights:
 - State to deny 401 Water Quality Certification and Coastal Consistency Determination
- Deal struck in early 2017 to close IP2 in 2020 and IP3 in 2021

Agreement Terms

Oyster Creek

- Operation: 10 yrs (2019)
- Environmental Fund:
\$1 million
- PSDAR must be filed in 2018
- No agreement for spent nuclear waste transfer to dry cask storage
- No requirement to begin decommissioning

Indian Point

- Operation:
 - IP2: 3 yrs (2020)
 - IP3 4 yrs (2021)
- Community Fund: \$15 million
- PSDAR must be filed 2 years after closure
- Transfer of 4 dry casks per year of spent nuclear waste
- Requirement to commence decommissioning “as soon as reasonably practicable”

Transition

Oyster Creek

- Advisory Panel on safety only, not economic concerns
- No measures for workers
- Push for natural gas replacement plant (30 jobs)
- Hope for immediate decommissioning
- Working towards zoning plan to spur economic growth
- \$750 million fund (one reactor)

Indian Point

- Task Force on replacement energy, safety, and economic issues
- Task force members meeting with union leaders and individual workers
- Site reuse study
- Development initiatives
- \$1.7 billion fund (three reactors)



Thank you!

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