

NUCLEAR ENERGY IN NEW JERSEY

NJDEP RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAMS

The NJDEP Bureau of Nuclear Engineering (BNE) has operated an independent Environmental Surveillance and Monitoring Program (ESMP) for the environs of the Oyster Creek and Salem/Hope Creek Nuclear Generating Stations as a result of the enactment of N.J.S.A. 26:2D-43g in 1981. By developing and implementing a comprehensive monitoring strategy, the BNE ensures that New Jersey citizens are aware of and, if necessary, protected from harmful exposure to radioactive effluent discharges from New Jersey's nuclear power plants during normal or accident operations. The ESMP includes (1) Radiological Environmental Monitoring (REMP), including groundwater monitoring onsite, and a (2) Thermoluminescent Dosimetry (TLD) program.

REMP media consists of air and potable (drinking) water samples collected by BNE staff and the Bureau's contractor. Other media (aquatic sediment, milk, fish/shellfish, surface water, and vegetation) are collected by each nuclear power plant operator and split with the BNE for analysis. Background (control) samples are collected to measure ambient levels of radioactivity. Each year, the BNE collects and independently analyzes approximately 800 routine REMP samples, using a private Radioanalytical Contract Laboratory to analyze all environmental samples. Results obtained through the REMP are compared to background readings, historical results, and to US Nuclear Regulatory Commission (NRC) regulatory limits. In addition to routine REMP samples, the BNE independently analyzes around 200 surface and groundwater samples annually in response to tritium leaks into the groundwater at Oyster Creek, Salem Units 1 and 2, and Hope Creek nuclear generating stations to assure that tritium is not impacting public health and safety.

New Jersey's Radiological Environmental Monitoring Programs *Annually Sample*



Air



Aquatic
Sediment



Fish



Milk



Potable
Water



Surface + Ground
Water



Vegetation

**1,000+
Samples Collected**



**Ensuring no
impacts to public
health and safety**



The BNE also maintains a TLD program, independent from that of each nuclear power plant operator, in the environs of the Oyster Creek and Salem/Hope Creek Nuclear Generating Stations. TLDs are passive radiation detectors that require no power source and are designed to have the same sensitivity to radiation as human tissue.

TLD badges are placed at locations offsite near each nuclear site's property line and out to distances of ten (10) miles in each standard wind compass sector (such as North, South, North-Northeast), in addition to areas of special interest such as population centers. There are currently 25 TLD stations in the environs of Oyster Creek and 18 TLD stations in the environs of Salem/Hope Creek. In addition, the BNE monitors several locations around the Independent Spent Fuel Storage Installations at each nuclear site and two (2) background locations that are more than twenty (20) miles from each nuclear facility.



New Jersey's Thermoluminescent Dosimetry (TLD) Program



TLDs are passive radiation detectors



TLDs have the same sensitivity as human tissue



TLDs are placed at locations near nuclear sites and population centers



**New Jersey has:
25 TLD stations at Oyster creek and
18 TLD Stations at Salem/Hope Creek**

Analysis results from the BNE's ESMP have found no offsite impacts from the operation of Salem/Hope Creek or Oyster Creek nuclear generating stations.

LOOKING AHEAD: ADVANCED NEW REACTOR ENVIRONMENTAL OVERSIGHT

The NRC enforces the same foundational, strict environmental protection regulations for advanced nuclear reactors as it does for existing plants. Both must comply with the overarching environmental mandates set forth in 10CFR Part 51, which implements the agency's National Environmental Policy Act (NEPA) process, ensuring the same stringent standards for radiation protection and site impact. Like current reactors, advanced reactor developers are required to submit an environmental report, which prompts the NRC to carry out an Environmental Impact Statement (EIS) that details the project's ecological, historical, and socioeconomic effects.

The regulatory application process itself has been modernized. Rather than requiring advanced reactors to align with frameworks built exclusively for traditional large light-water reactors, the NRC has updated its approach:



Technology-Inclusive Framework

The NRC finalized a new optional licensing pathway, known as 10CFR Part 53, to accommodate diverse advanced designs while maintaining environmental compliance.



Streamlined Reviews

The NRC finalized a Generic Environmental Impact Statement for new reactors to speed up approvals, allowing developers to apply generic environmental findings rather than evaluating issues on a project-by-project basis, without sacrificing regulatory rigor.



Modernized Hearings

Mandatory (uncontested) public hearings for new reactor applications have been moved to earlier stages of the review process, improving visibility and transparency.