

Rikhoff, Jeffrey

From: Rikhoff, Jeffrey
Sent: Wednesday, September 01, 2010 3:31 PM
To: Klementowicz, Stephen
Subject: RE: Salem - Hope Creek -EJ - Radiological Exposure - Steve revision

Thanks, Steve. Will do. I really appreciate the help.

jeff

From: Klementowicz, Stephen
Sent: Wednesday, September 01, 2010 3:05 PM
To: Rikhoff, Jeffrey
Subject: Salem - Hope Creek -EJ - Radiological Exposure - Steve revision

Jeff, the attached file is my revision to the EJ radiological exposure discussion. It replaces in total, AECOM's Radiological Exposure discussion.

I shortened it, revised it to use some of the discussion in 4.8.2, and added a note to see section 4.8.2 for a detailed discussion of radiological issues.

You said you did not like AECOM's format, so you can insert this section wherever you feel is appropriate.

So, with this, I will rely on you doing the EJ section revision and submitting the changes to Leslie.

Steve K

D-155

Radiological Exposure

As part of addressing environmental justice associated with license renewal, the Staff also analyzed the risk of radiological exposure through the consumption patterns of special pathway receptors, including subsistence consumption of fish and wildlife, native vegetation, surface waters, sediments, and local produce; absorption of contaminants in sediments through the skin; and inhalation of plant materials. The special pathway receptors analysis, discussed below, is important to the environmental justice analysis because consumption patterns may reflect the traditional or cultural practices of minority and low-income populations in the area.

Section 4-4 of EO 12898 (59 FR 7629) directs Federal agencies, whenever practical and appropriate, to collect and analyze information on the consumption patterns of populations that rely principally on fish and/or wildlife for subsistence and to communicate the risks of these consumption patterns to the public. In this draft SEIS, the Staff considered whether there were any means for minority or low-income populations to be disproportionately affected by examining impacts to American Indian, Hispanic, and other traditional lifestyle special pathway receptors. Special pathways that took into account the levels of contaminants in native vegetation, crops, soils and sediments, surface water, fish, and game animals on or near Salem and HCGS were considered.

PSEG has an ongoing comprehensive Radiological Environmental Monitoring Program (REMP) at Salem and HCGS to assess the impact of site operations on the environment (see section 4.8.2 of this draft SEIS for a complete discussion of the REMP). To assess the impact of the plant on the environment, samples of environmental media are collected and analyzed for radioactivity. A plant effect would be indicated if the radioactive material detected in a sample was significantly larger than the background level.

The REMP measures the aquatic, terrestrial, and atmospheric environment for radioactivity, as well as the ambient radiation. In addition, the REMP measures background radiations (i.e., cosmic sources, global fallout, and naturally occurring radioactive material, including radon). Ambient radiation pathways include radiation from radioactive material inside buildings and plant structures and airborne material that may be released from the plants. Thermoluminescent dosimeters (TLDs) are used to measure ambient radiation. The atmospheric environmental monitoring consists of sampling and analyzing the air for radioactive particulates and radioiodine. The aquatic pathways include fish, surface water, fish, crabs, and sediment. The terrestrial environmental monitoring consists of analyzing locally grown vegetables and fodder crops, drinking water, groundwater, meat, and milk. During 2009, analyses performed on samples of environmental media showed no significant or measurable radiological impact above background levels from Salem and HCGS site operations (PSEG, 2010b).

Previously, PSEG had also tested muskrat populations in the area. Muskrats are trapped and consumed by the local population (PSEG, 2006c). As of 2006, no muskrat samples have been available for testing as the trappers who were supplying PSEG with samples were no longer operating (PSEG, 2007c). The last muskrat data was collected in 2005; only one sample detectable levels of potassium-40; no other radionuclides were detected (PSEG, 2006c).

The results of the 2009 REMP sampling and previous REMP reports (including the consideration of 2005 REMP muskrat data) demonstrate that the routine operation at Salem and HCGS has had no significant or measurable radiological impact on the environment. No elevated radiation levels have been detected in the offsite environment as a result of plant operations.

The NJDEP's Bureau of Nuclear Engineering performs an independent Environmental Surveillance and Monitoring Program (ESMP) in the environment around the Salem and Hope Creek Nuclear Generating Stations. The ESMP provides a comprehensive monitoring strategy that 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 specific objectives of the ESMP are to monitor pathways for entry of radioactivity into the environment in order to identify potential exposures to the population from routine and accidental releases of radioactive effluent, and to provide a summary and interpretation of this information to members of the public and government agencies.

The Staff reviewed the NJDEP's 2008 report (the most recent report available to the Staff at the time this draft SEIS was prepared) which contains information on the environmental sampling conducted during the time period of January 1, 2008 through December 31, 2008. The State reported the following: "Overall, the data collected by the NJDEP's ESMP throughout 2008 indicate that residents living in the area around Oyster Creek and Salem/Hope Creek nuclear power plants have not received measurable exposures of radiation above normal background" (NJDEP, 2009a).

Additionally, NJDEP BNE monitors the groundwater on site at Artificial Island in conjunction with the remedial action being undertaken by PSEG to address tritium contamination detected in shallow groundwater near Salem Unit 1. There is no evidence that the tritium has reached any areas outside of the PSEG property. Analyses of fish, shellfish, vegetation, and sediment samples contained only potassium-40, a naturally-occurring radionuclide. Trace amounts of strontium-90 were detected in all milk samples, at levels consistent with what is expected as a result of past atmospheric nuclear weapons testing (NJDEP, 2009b).

Based on these monitoring results, concentrations of radioactive contaminants in native leafy vegetation, sediments, surface water, and fish and game animals in areas surrounding Salem and HCGS have been low. Consequently, no disproportionately high and adverse human health impacts would be expected in special pathway receptor populations in the region as a result of subsistence consumption of fish and wildlife.