

January 28, 2010

MEMORANDUM TO: Harold K. Chernoff, Chief
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Richard B. Ennis, Senior Project Manager */ra/*
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

SUBJECT: HOPE CREEK GENERATING STATION, DRAFT REQUEST FOR
ADDITIONAL INFORMATION (TAC NO. ME2949)

The attached draft request for additional information (RAI) was transmitted on January 28, 2010, 2009, to Mr. Jeff Keenan of PSEG Nuclear LLC (the licensee). This information was transmitted to facilitate an upcoming conference call in order to clarify the licensee's amendment request for Hope Creek Generating Station (HCGS) dated December 21, 2009. The proposed amendment would allow the production of Cobalt-60 (Co-60) by irradiating Cobalt-59 targets located in modified fuel assemblies called Isotope Test Assemblies (ITAs). The amendment would allow the licensee to load up to twelve ITAs into the HCGS reactor core beginning with the fall 2010 refueling outage. The modified fuel assemblies, also referred to as GE14i ITAs, are planned to be in operation as part of a joint pilot program with Global Nuclear Fuel - Americas, LLC and GE - Hitachi Nuclear Energy Americas, LLC. The purpose of the pilot program is to obtain data to verify that the modified fuel assemblies perform satisfactorily in service prior to use on a production basis. The Co-60 is ultimately intended for use in the medical industry for use in cancer treatments, and blood and instrument sterilization; in the radiography and security industries for imaging; and in the food industry for cold pasteurization and irradiation sterilization.

This memorandum and the attachment do not convey or represent an NRC staff position regarding the licensee's request.

Docket No. 50-354

Attachment: Draft RAI

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Attachment: Draft RAI

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DRAFT REQUEST FOR ADDITIONAL INFORMATION
REGARDING PROPOSED LICENSE AMENDMENT
USE OF ISOTOPE TEST ASSEMBLIES FOR COBALT-60 PRODUCTION
HOPE CREEK GENERATING STATION
DOCKET NO. 50-354

By application dated December 21, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML093640193), PSEG Nuclear LLC (the licensee) submitted a license amendment request for the Hope Creek Generating Station (HCGS). The proposed amendment would allow the production of Cobalt-60 (Co-60) by irradiating Cobalt-59 targets located in modified fuel assemblies called Isotope Test Assemblies (ITAs). The amendment would allow the licensee to load up to twelve ITAs into the HCGS reactor core beginning with the fall 2010 refueling outage. The modified fuel assemblies, also referred to as GE14i ITAs, are planned to be in operation as part of a joint pilot program with Global Nuclear Fuel - Americas, LLC and GE - Hitachi Nuclear Energy Americas, LLC. The purpose of the pilot program is to obtain data to verify that the modified fuel assemblies perform satisfactorily in service prior to use on a production basis. The Co-60 is ultimately intended for use in the medical industry for use in cancer treatments, and blood and instrument sterilization; in the radiography and security industries for imaging; and in the food industry for cold pasteurization and irradiation sterilization.

The NRC staff has reviewed the information the licensee provided that supports the proposed amendment and would like to discuss the following issues to clarify the submittal.

- 1) In Table 1, "Equilibrium Cobalt-60 Inventory," on page 14 of Attachment 7 to the application dated December 21, 2009, the licensee uses the same values of neutron flux as that used in a similar table¹ for Clinton Power Station (CPS). HCGS and CPS are boiling-water reactors with different rated thermal power levels and number of fuel assemblies. Explain why the fluxes in Table 1 for the two reactors are the same. If the fluxes at the given exposure are different, please repeat the calculations and modify Table 1.

¹ Reference page 21 of Attachment 3 to letter dated November 4, 2009, from Exelon to NRC (ADAMS Accession No. ML093100313).