March 10, 2010

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

FROM: Travis L. Tate, Chief ***/RA/***
Accident Dose Branch
Division of Risk Assessment
Office of Nuclear Reactor Regulation

SUBJECT: HOPE CREEK GENERATING STATION - AUDIT OF SUPPORTING DESIGN, LICENSING AND OTHER DOCUMENTS RELATED TO LICENSE AMENDMENT REQUEST TO SUPPORT THE USE OF Co-60 ISOTOPE TEST ASSEMBLIES AT HCGS (TAC No. ME2949)

By letter dated December 21, 2009, PSEG Nuclear LLC., in collaboration with Global Nuclear Fuels – Americas, LLC and GE-Hitachi Nuclear Energy Americas, LLC (GEH) requested an amendment for Hope Creek Generating Station (HCGS) to develop and implement a pilot program to irradiate Cobalt (Co)-59 targets to produce Co-60. Co-60 is intended for use in the medical, and food industry. The attached report summarizes description of the GE14i fuel assembly, as well as, descriptions of the nuclear core design and applicability of nuclear and safety analysis methods. GEH has provided detailed documents on nuclear design methods and licensing evaluations to support the license amendment request at the Washington, DC GE offices. The Accident Dose Branch staff intends to perform a regulatory audit of these documents in accordance with LIC-111, "Regulatory Audits." The audit date will be determined later. The plan for our review is attached.

If you have any comments or concerns, please let me know.

Docket No. 50-354

Enclosure:
As stated

CONTACT: Mark Blumberg, NRR/DRA/AADB
301-415-1083

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DATE	03/10/10	03/10/10	

OFFICIAL RECORD COPY

HOPE CREEK GENERATING STATION, PSEG NUCLEAR LLC
AUDIT OF NUCLEAR DESIGN METHODS AND LICENSING EVALUATIONS
RELATED TO LICENSE AMENDMENT REQUEST SUPPORTING THE USE OF
COBALT-60 ISOTOPE TEST ASSEMBLIES AT HCGS

BACKGROUND

By letter dated December 21, 2009, PSEG Nuclear LLC., in collaboration with Global Nuclear Fuels (GNF) – Americas, LLC and GE-Hitachi Nuclear Energy Americas, LLC (GEH) requested an amendment to FOL No. NPF-57 for Hope Creek Generating (HGCS) to develop and implement a pilot program to irradiate Cobalt (Co)-59 targets to produce Co-60.

Attachment 3 to the above letter provides GEH report NEDC-33529P, "Safety Analysis Report to Support Introduction of GE14i Isotope Test Assemblies (ITAs) in Hope Creek Generating Station," dated December 2009. Section 2 of the attachment addresses GE14i (GE14 assembly with few cobalt pellet filled fuel rods) fuel design, nuclear characteristics, mechanical characteristics, and thermal-hydraulic characteristics of the GE14i ITAs. This section describes the compatibility of GE14i ITAs with current GE14 fuel being loaded in to the HCGS.

Section 3 of the attachment addresses core design, and nuclear and safety analyses methods. Section 4 provides information relative to the evaluations that were performed by GNF and GEH to assist PSEG in their evaluation of the effect of implementing GE14i ITAs on the HCGS design and licensing basis.

NEDC-33529 summarizes many of the topics described above. To supplement the summary information provided in the report, GEH and GNF have made available to the NRC staff supporting documents, detailed engineering drawings, analyses and design basis calculations at the GE offices in downtown Washington, DC. The regulatory audit of these documents will be in accordance with NRR procedure, LIC-111.

REGULATORY AUDIT SCOPE

The scope of the regulatory audit is to more efficiently conduct the Staff's technical review and gain insight in to the licensee's license amendment request with respect to the design of the new fuel assemblies (GE14i), GE14i assembly thermal-mechanical design, ITA margin considerations, nuclear design methods, and licensing evaluations. Specific topics and documents subjected to the audit include, but not limited to:

- Design basis dose calculations and engineering assessments used to show that Hope Creek continues to meet Title 10 of the *Code of Federal Regulations* (10 CFR) 50.67, or 10 CFR 100 and General Design Criterion 19 (if applicable).

Enclosure

TEAM ASSIGNMENT

Mark Blumberg, Sr. Reliability and Risk Analyst, NRR/DRA/AADB

LOGISTICS

Dates of Audit: To be determined
Location: GE Office, Downtown Washington, DC

SPECIAL REQUESTS

Staff from PSEG, GEH, and GNF should be available to discuss any issues raised by the agency staff on the documents and analyses.

DELIVERABLES

A regulatory audit summary will be provided within 90 days of the completion of the audit.

REFERENCES

1. Letter from PSEG Nuclear LLC (John F. Perry) to US NRC, “License Amendment Request Supporting the Use of Co-60 Isotope Test Assemblies (Isotope Generation Pilot Project), PSEG Nuclear, December 2009.
2. GEH Report NEDC-33529P, Revision 0, “Safety Analysis Report to Support Introduction of GE14i Isotope Test Assemblies (ITAs) in Hope Creek Generating Station,” GE Hitachi Nuclear Energy, December 2009.