



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 1, 2010

Mr. Charles G. Pardee
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CLINTON POWER STATION, UNIT NO. 1 – CORRECTION LETTER FOR
LICENSE AMENDMENT 190 RE: REQUEST TO MODIFY FACILITY
OPERATING LICENSE IN SUPPORT OF THE USE OF ISOTOPE TEST
ASSEMBLIES (TAC NO. ME1643)

Dear Mr. Pardee:

By letter dated January 15, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML100050199), the Nuclear Regulatory Commission (NRC) staff issued Amendment No. 190 to Facility Operating License No. NPF-62 for the Clinton Power Station, Unit No. 1 (CPS). The amendment modified CPS License Condition 2.B.(6) and created new License Conditions 1.J, 2.B.(7) and 2.C.(25) as part of a pilot program to irradiate Cobalt (Co)-59 target to produce Co-60. In addition to the proposed license condition changes, the amendment would modify Technical Specification 4.2.1, "Fuel Assemblies," to describe the Isotope Test Assemblies being used. These changes were in response to your application dated June 26, 2009 (ADAMS Package No. ML091801065), as supplemented by letters dated November 4, 2009 (ADAMS Accession No. ML093100316), November 17, 2009 (ADAMS Accession No. ML093210561), November 20, 2009 (ADAMS Accession No. ML093280028), December 9, 2009 (ADAMS Package No. ML093440271), December 14, 2009 (ADAMS Accession No. ML093490375), December 16, 2009 (ADAMS Accession No. ML093510232), December 28, 2009 (ADAMS Accession No. ML093630821), and January 11, 2010 (ADAMS Package No. ML100050199).

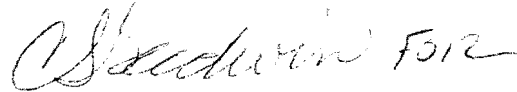
Administrative errors were identified in the amendments. Section 3.4.5.16, Fresh Fuel Shipping, should have referred to Section 4.0 of the safety evaluation (SE) instead of Section 4.2. This comment is also true for Section 3.4.6, Manufacturing Quality Assurance. The last paragraph in Section 3.5 references regulatory commitments. The regulatory commitment that was presented by the licensee was changed to a license condition and therefore this paragraph should be deleted. Please replace the affected pages with those contained in this letter.

C. Pardee

- 2 -

The incorrect information was editorial in nature. The corrections do not change the approval conveyed by the amendments, or the conclusions reached by the associated safety evaluation. We regret any inconvenience this may have caused you.

Sincerely,



Nicholas DiFrancesco, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-461

Enclosure:

1. Affected SE pages (Proprietary)
2. Affected SE pages (Non-Proprietary)

cc w/enclosure 2: Distribution via ListServ

For criticality safety, the only difference between GE14i and a standard GE14 bundle is the [] fuel rods are replaced by the cobalt target rods in the GE14i ITAs. This replacement introduces neutron absorbers in to the core. The displaced enrichment may be either removed from the assembly entirely, or it may be placed within other locations within the same bundle or bundles not utilizing isotope rods as allowed by fuel and core design constraints.

The maximum bounding uniform enrichments of no less than 4.8 wt% U-235 assumed in the original GE14 models ensure that the models are insensitive to the spatial distribution of fissile material. Therefore, the potential enrichment displacement proposed by the GE14i ITA is already conservatively factored into the original GE14 models. For these reasons, the NRC staff finds that the GE14 fuel storage rack reactivity safety limits, including infinite multiplication factor (k-infinity) design limits, are appropriate for use with GE14i ITAs.

3.4.5.16 Fresh Fuel Shipping

Shipping of GE14i ITA bundle must be done under the regulatory and technical shipping requirements specified in RAJ-II Certificate of Compliance (Reference 9.18) that was issued by the Nuclear Materials Safety and Safeguards office of the NRC. (See Section 4.0 of this SE)

3.4.5.17 Fuel Channel Distortion

Channel distortion that can cause channel interference is a function of the fluence gradient (fluence bow), early life control (shadow bow) and the pressure gradient across the channel (channel bulge). The NRC staff finds that the presence of non-fueled rods does significantly affect these parameters and therefore the channel performance on GE14i bundles will be the same as on GE14 bundles.

3.4.5.18 Fuel Conditioning Guidelines

The fuel conditioning guidelines are based on the peak nodal powers in the bundle and the thresholds are exposure dependent. The presence of a small number of cobalt isotope rods does not modify these guidelines.

3.4.6 Manufacturing Quality Assurance

All aspects of the GE14i ITA program are controlled under the GE Nuclear Energy Quality Assurance Program Description (Reference 9.19). (See Section 4.0)

3.4.7 Post Operational Evaluations

3.4.7.1 Spent Fuel Effects

Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion "As Low As Reasonably Achievable" for Light-Water-Cooled Nuclear Power Reactor Effluents."

4.0 CONDITIONS AND LIMITATIONS

Licensee must ensure compliance with the following conditions and limitations:

1. Periodic sampling of the Co-60 activity in the reactor coolant should be performed to monitor the integrity of the Co-59/Co-60 target rods. The licensee should incorporate this monitoring and surveillance program in to its procedures.
2. For the subsequent cycles, CPS shall ensure that ITAs are placed in non-limiting locations. The licensee should perform the necessary analyses that assure that these ITAs are not limiting with regard to both thermal margins and reactivity margins, for each cycle of operation.
3. For ITA margin considerations, later in bundle life, the power peaking shifts to the rods adjacent to the water gaps and a reduction in the allowable heat generation rate is used to provide the power suppression. [

]. The suppression of MLHGR to accommodate the additional heat flux margin at high exposures shall be calculated.
4. Licensing analyses for each subsequent cycle of operation with ITAs in the core shall be performed.
5. As indicated in Section 4.2.5 of NEDC-33505, the cold water events, fast pressurization and ASME overpressurization events with licensed flexibility options for CPS shall be analyzed as part of the cycle-specific reload licensing analyses.
6. Thermal-mechanical check for each subsequent cycle must be performed to ensure that the Thermal-Mechanical limits for GE14i bundles are not exceeded.
7. Fresh GE14i bundle shipment shall meet the regulatory and technical shipping requirements (10 CFR Part 71) as per RAJ-II Certificate of Compliance issued by the NRC in May 2008.

C. Pardee

- 2 -

The incorrect information was editorial in nature. The corrections do not change the approval conveyed by the amendments, or the conclusions reached by the associated safety evaluation. We regret any inconvenience this may have caused you.

Sincerely,

/RA by C. Goodwin for/

Nicholas DiFrancesco, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-461

Enclosures:

- 1. Affected SE pages (Proprietary)
- 2. Affected SE pages (Non-Proprietary)

cc w/enclosure 1: Distribution via ListServ

DISTRIBUTION:

NON-PUBLIC LPL3-2 R/F
 RidsOgcRp Resource
 RidsRgn3MailCenter Resource
 RidsNrrLATHarris Resource
 RidsAcrcsAcnw_MailCTR Resource

RidsNrrPMLaSalle Resource
 RidsNrrDirsltsb Resource
 RidsNrrDorLp3-2 Resource
 RidsNrrDorDpr Resource

ADAMS Accession Nos. Package: ML100260539
 Non-Public Letter and SE: ML100260150
 Public Letter and Public SE: ML100260727

OFFICE	LPL3-2/PM	LPL3-2/LA	LPL3-2/BC
NAME	CGoodwin for NDiFrancesco	THarris	SCampbell
DATE	2/1/10	1/28/10	2/1/10

OFFICIAL RECORD COPY