



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

June 11, 2009

Vice President, Operations
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3 - DISCUSSION
OF DRAFT FUEL CASK EVALUATION CRITERIA (TAC NOS. L24299, ME0408,
AND ME0409)

Dear Sir or Madam:

On March 6, 2009, Entergy Nuclear Operations, Inc. (Entergy), participated in a telephone call with Nuclear Regulatory Commission (NRC) staff to discuss proposed amendments for Indian Point Nuclear Generating Unit Nos. 2 and 3 (IP2 and IP3). A summary of this call can be found in the NRC's Agencywide Documents Access and Management System (ADAMS), Accession No. ML090770625. These amendments will request the licensing of a fuel transfer cask, which would be used to transfer spent fuel from the IP3 spent fuel pool to the IP2 spent fuel pool. The spent fuel would then be transferred into dry cask storage at the Indian Point site. The reason for the fuel transfer is that the crane in the IP3 fuel storage building (FSB) is not capable of handling the cask for dry cask storage, while the recently replaced crane in the IP2 FSB is able to handle the cask. In a letter dated April 6, 2009, ADAMS Accession No. ML091070045, Entergy submitted proprietary drawings of the fuel transfer cask and transfer process.

In the enclosure, the NRC staff is proposing draft criteria to be used in evaluating the cask design. Please ensure these criteria are addressed in your application for license amendments, or propose alternative criteria which would meet the regulatory requirements. Note that the NRC staff has determined that the attached criteria are sufficient for an acceptance review, but additional or revised criteria may be developed during the technical review of the application.

Please contact me at (301) 415-2901 if you have any questions on this issue.

Sincerely,

A handwritten signature in black ink that reads "John P. Boska".

John P. Boska, Senior Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-247 and 50-286

Enclosure:
As stated

cc w/encl: Distribution via Listserv

FUEL TRANSFER CASK EVALUATION CRITERIA (DRAFT)

ENTERGY NUCLEAR OPERATIONS, INC.

INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3

DOCKET NOS. 50-247 AND 50-286

The purpose of this document is to provide Entergy, the licensee for Indian Point, a draft list of the proposed principal evaluation criteria that will be used in the Nuclear Regulatory Commission (NRC) staff's review of their proposed license amendment request for the use of a new spent fuel transfer cask system to transfer spent fuel from the Indian Point Nuclear Generating Unit No. 3 (IP3) spent fuel pool (SFP) to the Indian Point Nuclear Generating Unit No. 2 (IP2) SFP. The transfer process and new cask system will be submitted for licensing under Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.90. 10 CFR Part 50 has no specific cask criteria, so the NRC staff has developed draft evaluation criteria based on 10 CFR Part 50, Appendix A, General Design Criteria (GDC) for Nuclear Power Plants; 10 CFR Part 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants; NUREG-0800, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (SRP); experience with 10 CFR Part 71 transportation cask licensing and 10 CFR Part 72 storage cask licensing, and other standards. The NRC staff will use applicable portions of Regulatory Guide 3.61, "Standard Format and Content for a Topical Safety Analysis Report for a Spent Fuel Dry Storage Cask," NUREG-1536, Draft Rev. 1, "Standard Review Plan for Dry Cask Storage Systems," and NUREG-1617, "Standard Review Plan for Transportation Packages for Spent Nuclear Fuel," for guidance on fuel transfers within the Owner Controlled Area when the criteria in 10 CFR Part 50 does not provide sufficient details.

A. Criteria Not Directly Associated With the New Cask System:

1. The IP3 fuel storage building (FSB) crane and crane support system must have acceptable structural capacity and meet single-failure criteria (GDC-1, SRP 9.1.5).
2. Relative to criticality concerns, the IP3 SFP will be reviewed for placement of a cask in the pool, and the IP2 SFP will be reviewed for storage of IP3 fuel and IP2 Technical Specification 3.7.13 compliance with the zone storage requirements (Ref. GDC-62, 10 CFR 50.68).
3. The transport roadway and safety-related components that could be affected must have acceptable structural capacity (consider underground utilities, etc.) (Ref. GDC-61).
4. Controls must be established on loading fuel assemblies such that only the analyzed fuel assemblies will be loaded in the cask (Ref. 10 CFR Part 50 Appendix B, GDC-62, 10 CFR 50.68).
5. The cask transport systems (air pads, rail platform, transporter) must have acceptable structural capacity (Ref. GDC-61).
6. Physical security arrangements must meet 10 CFR 73 criteria.

B. Criteria Associated With the New Cask System (Transfer Canister and Hi-Trac Overpack):

1. Dose rates external to the cask system must be acceptable for worker dose and public dose (ALARA) (Ref. GDC-61).
2. Cask materials must be compatible considering the environmental factors (borated water, high radiation fields, temperature, pressure, etc.) (Ref. GDC-4)
3. Cask system must have satisfactory structural integrity (Ref. GDC-61).
4. Appropriate limitations on fuel characteristics (e.g., cooling period, enrichment, burnup, etc.) must be specified (Ref. 10 CFR Part 50 Appendix B, GDC-61, GDC-62).
5. Criticality analyses must show subcriticality is maintained at all times per regulatory guidance (Ref. GDC-62, 10 CFR 50.68).
6. Thermal characteristics must demonstrate capacity for decay heat removal (Ref. GDC-61).
7. Cask internal pressurization (e.g., due to water heatup) must not challenge cask integrity (Ref. GDC-60, GDC-61).
8. Identify the quality control program which will apply to cask construction and maintenance. Identify required maintenance for the cask system, and any initial testing or periodic testing (Ref. GDC-1, 10 CFR Part 50 Appendix B).
9. Identify any instrumentation (such as temperature or pressure) needed to verify cask performance (Ref. GDC-63).
10. A dry run exercise with written procedures shall be conducted prior to the first use of the system for handling irradiated fuel (Ref. 10 CFR Part 50 Appendix B).

C. Postulated Accidents to be Analyzed:

1. Inadvertent loading of an incorrect fuel assembly in the cask (this could be a new fuel assembly for the criticality analysis, a recently irradiated fuel assembly for the thermal analysis, etc.). If loading controls are not robust, then multiple misloadings should be considered (Ref. GDC-61, GDC-62, 10 CFR 50.68).
2. One fuel assembly dropped on the transfer canister during loading (evaluate for criticality concerns and radioactive releases) (Ref. GDC-61, RG 1.183, SRP 15.7.4).
3. Vertical cask drop (about 1 foot) while being lifted by the cask transporter (Ref. GDC-61).
4. Fire or explosion on the cask transporter (considering the transporter fuel tank and other fuel sources nearby) (Ref. GDC-3).
5. Seismic, tornado, and flood events, including missiles from tornados (Ref. GDC-2).
6. Break-down of the cask transporter, leaving the cask outdoors for an extended period of time (Ref. GDC-61).
7. Collapse of the roadway during transport, resulting in cask rollover (Ref. GDC-61).
8. Large radioactive release from the cask, using the assumptions in RG 1.183 (Ref. GDC-61, SRP 15.7.5).

June 11, 2009

Vice President, Operations
Entergy Nuclear Operations, Inc.
Indian Point Energy Center
450 Broadway, GSB
P.O. Box 249
Buchanan, NY 10511-0249

SUBJECT: INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3 - DISCUSSION
OF DRAFT FUEL CASK EVALUATION CRITERIA (TAC NOS. L24299, ME0408,
AND ME0409)

Dear Sir or Madam:

On March 6, 2009, Entergy Nuclear Operations, Inc. (Entergy), participated in a telephone call with Nuclear Regulatory Commission (NRC) staff to discuss proposed amendments for Indian Point Nuclear Generating Unit Nos. 2 and 3 (IP2 and IP3). A summary of this call can be found in the NRC's Agencywide Documents Access and Management System (ADAMS), Accession No. ML090770625. These amendments will request the licensing of a fuel transfer cask, which would be used to transfer spent fuel from the IP3 spent fuel pool to the IP2 spent fuel pool. The spent fuel would then be transferred into dry cask storage at the Indian Point site. The reason for the fuel transfer is that the crane in the IP3 fuel storage building (FSB) is not capable of handling the cask for dry cask storage, while the recently replaced crane in the IP2 FSB is able to handle the cask. In a letter dated April 6, 2009, ADAMS Accession No. ML091070045, Entergy submitted proprietary drawings of the fuel transfer cask and transfer process.

In the enclosure, the NRC staff is proposing draft criteria to be used in evaluating the cask design. Please ensure these criteria are addressed in your application for license amendments, or propose alternative criteria which would meet the regulatory requirements. Note that the NRC staff has determined that the attached criteria are sufficient for an acceptance review, but additional or revised criteria may be developed during the technical review of the application.

Please contact me at (301) 415-2901 if you have any questions on this issue.

Sincerely,

/RA/

John P. Boska, Senior Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-247 and 50-286

Enclosure:

As stated

cc w/encl: Distribution via Listserv

DISTRIBUTION

See next page

ADAMS ACCESSION NO.: ML091520167

*Via email

OFFICE	LPL1-1/PM	LPL1-1/LA	SFST/PM	SFST/BC	DORL/DD
NAME	JBoska	SLittle	JGoshen	EBenner*	RNelson
DATE	6/3/09	6/3/09	6/1/09	6/10/09	6/11/09

OFFICIAL RECORD COPY

DISTRIBUTION:

PUBLIC

RidsNrrDorlPl1-1

RidsNrrPMJBoska

RidsOGCRp

LPL1-1 Reading File

RidsNrrLASLittle

RidsAcrcAcnw_MailCTR

JGoshen

EBenner

RidsNrrDorIDpr

RidsRgn1MailCenter