

**NUCLEAR REGULATORY COMMISSION**

**[Docket Nos. 50-458; NRC-2013-0190]**

**Entergy Operations, Inc., River Bend Station, Unit 1;**

**Exemption**

1.0 BACKGROUND

Entergy Operations Inc. (Entergy, the licensee) is the holder of Facility Operating License No. NPF-47, which authorizes operation of the River Bend Station, Unit 1 (RBS). The license provides, among other things, that the facility is subject to all rules, regulations, and orders of the U.S. Nuclear Regulatory Commission (NRC) now or hereafter in effect.

The facility consists of a boiling-water reactor located in West Feliciana Parish, Louisiana.

2.0 REQUEST/ACTION

Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR), appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," requires that components which penetrate containment be periodically leak tested at the "P<sub>a</sub>," defined as the "calculated peak containment internal pressure related to the design basis accident specified either in the technical specification or associated bases." In October 2011, Entergy was contacted by the NRC concerning the station's use of the appendix J definition of P<sub>a</sub>. The NRC noted a conflict between Entergy's interpretation of that definition of P<sub>a</sub> and the literal reading of the definition of P<sub>a</sub> in the regulations. Entergy stated it was defining P<sub>a</sub> based on the long-term calculated pressure peak for the containment as a whole and not on the short-term localized pressure spike in wetwell.

By letter dated August 23, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12241A250), Entergy submitted a request for an exemption from the definition of the  $P_a$  as stated in 10 CFR part 50, appendix J, and substitute an alternate definition. The value of  $P_a$  is determined by calculating the pressure response in containment over time after a main steam line break. The original containment analysis for RBS had determined  $P_a$  to be 7.6 pounds per square inch gauge (psig). In July 1999, RBS submitted a license amendment request to increase the licensed thermal power of the station by 5 percent from 2,894 megawatts thermal (MWth) to 3,039 MWth. As part of the extended power uprate review, new calculations were performed and determined that a localized pressure spike in the wetwell occurs within a few seconds of the accident and with a pressure peak at 9.3 psig. However, the localized pressure in the wetwell quickly drops by several psig as the pressure equalizes throughout containment. This calculation also determined that the long-term peak containment pressure is 3.6 psig. To avoid a large number of procedure changes, which would be required if the value was changed, RBS elected to maintain  $P_a$  at the original (pre-extended power uprate) value of 7.6 psig, which is conservative to the calculated long-term peak value of 3.6 psig. The exemption would allow Entergy to continue to use the previously calculated value of 7.6 psig for  $P_a$  for RBS instead of the localized pressure spike in the wetwell calculated value of 9.3 psig.

The NRC staff has concluded that the use of the alternate definition for  $P_a$  meets the intent of 10 CFR part 50, appendix J because it provides testing of the primary containment parameters at a pressure that would exist throughout containment over the long term following a design basis accident.

### 3.0 DISCUSSION

Pursuant to 10 CFR 50.12, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR part 50 when 1) the exemptions are authorized by law, will not present an undue risk to public health or safety, and are consistent with the common defense and security; and 2) when special circumstances are present. The staff accepts the licensee's determination that an exemption would be required to continue to use the alternate definition of  $P_a$  from that defined in 10 CFR part 50, appendix J.

The NRC staff examined the licensee's rationale to support the exemption request and concluded that the use the value of 7.6 psig for  $P_a$  would meet the underlying purpose of 10 CFR part 50, appendix J. Supporting the use of this alternate value is:

- 1) the time for the pressure spike to occur and fall to equilibrium is 6 seconds, which is not sufficient time to release source terms from the core,
- 2) the pressure spike is also localized to the wetwell area which makes up roughly 10 percent of containment,
- 3) the number of containment penetrations in this area is limited. Therefore, the current  $P_a$  value of 7.6 psig meets the intent of 10 CFR part 50, appendix J by bounding the peak bulk containment pressure (3.6 psig) and assuring that leakage through the primary containment does not exceed allowable leakage rate values,
- 4) the calculated peak bulk containment pressure is 3.6 psig so the Technical Specification (TS) value of 7.6 is conservative for the use of determining containment leakage, and

- 5) this request is consistent with the determination that the NRC staff has reached for other licensees under similar conditions based on the same considerations.

The application for exemption may be examined, and/or copied for a fee, at the NRC's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland 20852. Publicly available records will be accessible electronically from the ADAMS Public Library component on the NRC's Web site, <http://www.nrc.gov> (the Electronic Reading Room).

Therefore, the NRC staff concludes that requesting exemption under the special circumstances of 10 CFR 50.12(a)(2)(ii) is appropriate and that the alternate definition of  $P_a$  may be used for the appendix J testing.

#### Authorized by Law

This exemption would allow Entergy to use a  $P_a$  value of 7.6 psig for appendix J testing at the RBS as discussed above. As stated above, 10 CFR 50.12 allows the NRC to grant exemptions from the requirements of 10 CFR part 50, appendix J. The NRC staff has determined that granting of the licensee's proposed exemption is in accordance with the Atomic Energy Act of 1954, as amended, or the Commission's regulations. Therefore, the exemption is authorized by law.

#### No Undue Risk to Public Health and Safety

The underlying purposes of 10 CFR part 50, appendix J are stated in section (I) "Introduction." The purpose is to conduct tests to assure that a) leakage through the primary

reactor containment does not exceed allowable leakage rate values and b) to conduct periodic surveillance of reactor containment penetrations to support proper maintenance. No new accident precursors are created because the testing is conducted at a  $P_a$  value calculated to be representative of peak conditions throughout containment during a design basis accident. No new accident precursors are created by use of a  $P_a$  of 7.6 psig instead of 9.3 psig, thus, the probability of postulated accidents is not increased. Therefore, there is no undue risk to public health and safety.

#### Consistent with Common Defense and Security

The exemption would permit exclusion of the short duration spike in wetwell pressure as  $P_a$  for Appendix J testing purposes. This change to the interpretation of  $P_a$  as defined in Appendix J has no relation to security issues. Therefore, the common defense and security is not impacted by this exemption.

#### 4.0 CONCLUSION

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12(a), the exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Also, special circumstances are present. Therefore, the Commission hereby grants Entergy Operations, Inc., an exemption from the definition for  $P_a$  in 10 CFR part 50, appendix J for River Bend Station, Unit 1 and alternatively to continue to use a  $P_a$  value of 7.6 psig.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not have a significant effect on the quality of the human environment (78 FR 50454; August 19, 2013).

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 20<sup>th</sup> day of August 2013.

For the Nuclear Regulatory Commission.

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