

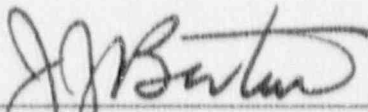
GPU NUCLEAR CORPORATION
OYSTER CREEK NUCLEAR GENERATING STATION

Provisional Operating
License No. DPR-16

Technical Specification
Change Request No. 194
Docket No. 50-219


Applicant submits, by this Technical Specification Change Request No. 194 to the Oyster Creek Nuclear Generating Station Technical Specifications, a change to pages 3.3-1, 3.3-5, 3.3-6, 3.3-7, 3.3-8, 3.3-8a, 3.3-9, 3.3-9a, 3.3-9b, 3.3-9c, 4.3-1 and 4.3-2.

By


J.J. Barton
Director, Oyster Creek

Sworn and Subscribe to before me this

11th day of January, 1991.


A Notary Public of NJ

JUDITH M. CROWE
Notary Public of New Jersey
My Commission Expires 1/25/95

OYSTER CREEK NUCLEAR GENERATING STATION
PROVISIONAL OPERATING LICENSE NO. DPR-16
DOCKET NO. 50-219
TECHNICAL SPECIFICATION CHANGE REQUEST NO. 194

Applicant hereby requests the Commission to change Appendix A to the above captioned license as below, and pursuant to 10 CFR 50.91, an analysis concerning the determination of no significant hazards consideration is presented below:

1.0 SECTIONS TO BE CHANGED

Section 3.3.A(iv) and Bases
Section 3.3.B and Bases
References
Curves (a), (b) and (c) in Figure 3.3.1
Section 4.3.A and Bases

2.0 EXTENT OF CHANGE

- i) Section 3.3.A(iv) and curves (a), (b) and (c) in Figure 3.3.1 are revised to provide new pressure-temperature (P-T) operating curves for operation up to 17 effective full power years (EFPY) and,
- ii) Section 3.3.B is revised to provide a new reactor vessel temperature limit for full tensioning of the reactor vessel closure head studs.
- iii) Current Oyster Creek Technical Specifications show P-T operating curves in three (3) different figures. Technical Specification Change Request No. 194 provides all three (3) P-T curves in one figure (Figure 3.3.1). To reflect this arrangement, editorial changes are made in Section 3.3.A and its Bases, and Section 4.3.A and its Bases.

3.0 CHANGES REQUESTED

The changes are shown on the attached Technical Specification pages 3.3-1, 3.3-5, 3.3-6, 3.3-7, 3.3-8, 3.3-8a, 3.3-9, 4.3-1 and 4.3-2.

4.0 DISCUSSION

The purpose of this Technical Specification Change Request is to revise the Technical Specifications to incorporate new pressure-temperature (P-T) limits and a new reactor vessel temperature limit for full tensioning of the reactor vessel closure head studs (boltup temperature). Following discussion supports these proposed Technical Specification changes:

Change No. 1 P-T Limits

Section 3.3.A(iv) of Oyster Creek Technical Specifications requires appropriate new pressure temperature limits be approved when the reactor system has reached 15 effective full power years (EFPY) of reactor

operation. Generic Letter 88-11 also states that licensees are required to update and fully implement new P-T curves within two plant outages after the effective date (May 1988) of Revision 2 to Regulatory Guide 1.99, "Radiation Embrittlement of Reactor Vessel Materials." Because of these requirements GPUN letters dated July 26, 1989 and August 9, 1990 stated that another set of P-T curves would be submitted by the end of the upcoming 13R.

Neutron irradiation results in the embrittlement of pressure vessel steels. The primary materials of concern are those surrounding the active core. To monitor the effects of irradiation on these materials, test specimens fabricated from the materials used to fabricate the reactor vessel are installed on the reactor vessel wall at the core mid-plane. Dosimetry wires are included which provide an estimate of the fluence to which the specimens were exposed. The specimens and wires are periodically removed, tested, analyzed and the results evaluated to determine the extent of embrittlement as a function of fluence.

The property of concern is the reference nil-ductility temperature (RT_{NDT}) which increases as a function of fluence and material chemistry. Once the RT_{NDT} , fluence and material chemistry are known, predictions of RT_{NDT} in the future can be made. P-T curves are developed based upon the adjusted RT_{NDT} at the end of the operating period.

After Cycle 9, GPUN removed Reactor Vessel Materials Surveillance Program (RVMS) Capsule No. 2. Its contents were tested and analyzed; the results were evaluated and predictions of RT_{NDT} for various periods of operation were prepared.

The new P-T limits were developed through 17 EFPY based upon the Reg. Guide 1.99, Rev. 2, methodology for predicting adjusted RT_{NDT} .

We have determined that this change request with respect to P-T limits involves no significant hazards considerations in what operation of the Oyster Creek Plant in accordance with the proposed amendment, will not:

1. Involve a significant increase in the probability of an accident because the new limits account for the increase in RT_{NDT} , including statistical uncertainty, due to neutron irradiation of the reactor vessel as well as establishing initial RT_{NDT} on the basis of current Code requirements, also including statistical uncertainty, in accordance with Reg. Guide 1.99, Rev. 2. The new P-T curves will assure that brittle fracture of the reactor vessel is prevented.
2. Create the probability of a new or different kind of accident from any accident previously evaluated. These new limits are the result of the calculation methodology in Reg. Guide 1.99, Rev. 2, as required by Generic Letter 88-11. Primary system configuration and function remain unchanged.
3. Involve a significant reduction in margin of safety because the bases for the margin of safety remain the same as current limits, i.e., ASME, Sect. XI, App. G for available fracture toughness and applied stress intensity, Reg. Guide 1.99, Rev. 2 for calculating adjusted RT_{NDT} , and 10 CFR 50, App. G, for criticality conditions.

Change No. 2 Boltup Temperature

The current boltup temperature of 100°F is based on the assumption that materials were qualified to meet 30 ft.-lb. Charpy energy at 40°F, based on the vessel purchase specification. The original Code requirement was that the boltup be done at qualification temperature (T_{30L}) plus 60°F. Current Code requirements state, in Paragraph G-2222(c) of USNRC NUREG-0800, Standard Review Plan Section 5.3.2, "Pressure-Temperature Limits" that for the application of full bolt preload and reactor pressure up to 20% of hydrostatic test pressure, the RPV metal temperature must be at RT_{NDT} or greater. The approach used for Oyster Creek is to determine the highest value of ($T_{30L} + 60$) by statistical data and the highest value of RT_{NDT} both using a statistical analysis of the available Charpy data and base the boltup temperature on the more conservative value. This evaluation shows a boltup temperature of 85°F. Alternatively, RT_{NDT} is computed to equal 36°F so that a margin of 49°F exists.

We have determined that this change request with respect to boltup temperature involves no significant hazards considerations in that Operation of the Oyster Creek Plant in accordance with the proposed amendment, will not:

1. Involve a significant increase in the probability of an accident because there is a significant margin over the current Code requirement. The new value provides conservatism and more definitive technical basis.
2. Create the probability of a new or different kind of accident from any accident previously evaluated. The calculation methodology for determining the new limit is more conservative than the present Code requirement. The system's configuration and function remain unchanged.
3. Involve a significant reduction in a margin of safety because the bases and methodology for developing the new limit are the same as those for the current limits. The proposed limit has a significant margin over the current Code requirement.

5.0 IMPLEMENTATION

It is requested that the amendment authorizing this change become effective prior to restart of Oyster Creek for the Cycle 13 operation.