GPU NUCLEAR CORPORATION
OYSTER CREEK NUCLEAR GENERATING STATION

Provisional Operating
License No. DPR-16

Technical Specification
Change Request No. 170
Docket No. 50-219

Applicant submits, by this Technical Specification Change Request No. 170 to the Oyster Creek Nuclear Generating Station Technical Specifications, proposed changes to pages 3.6-1a, 3.61b, 3.6-2, 3.6-7b, 3.15-2, 3.15-4, 3.15-5, 4.15-2 and 4.15-3.

By _____
J. J. Barton
Director, Oyster Creek

Sworn and Subscribed to before me this 29th day of April, 1991.

Judith M. Crowe
JUDITH M. CROWE
Notary Public of New Jersey
Commission Expires 11-25-95

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter) Docket No. 50-219
GPU Nuclear Corporation)

CERTIFICATE OF SERVICE

This is to certify that a copy of Technical Specification Change Request No. 170 for Oyster Creek Nuclear Generating Station Technical Specifications, filed with the U.S. Nuclear Regulatory Commission on April 29 , 1991, has this day of April 29 , 1991, been served on the Mayor of Lacey Township, Ocean County, New Jersey by deposit in the United States mail, addressed as follows:

The Honorable Debra Madensky
Mayor of Lacey Township
818 West Lacey Road
Forked River, NJ 08731

By _____
J. J. Barton
Director, Oyster Creek

OYSTER CREEK NUCLEAR GENERATING STATION
PROVISIONAL OPERATING LICENSE NO. DPR-16
DOCKET NO. 50-219
TECHNICAL SPECIFICATION CHANGE REQUEST NO. 170

Applicant hereby requests the Commission to change Appendix A to the above captioned license as below, and pursuant to 10 CFR 50.92, an analysis concerning the determination of no significant hazards considerations is also presented:

1. Sections to be Changed

Section 3.6, Section 3.15, and Section 4.15

2. Extent of Change

Add Technical Specification 3.6.B.4 and associated basis. Delete Technical Specification 1(a) of Table 3.15.1 and Action 110 of Table 3.15.1 and modify the associated Basis. Delete Technical Specification 1(a) of Table 4.15.1 and Table 4.15.1 Notations (d) and (g).

3. Changes Requested

The requested changes are shown on attached Technical Specifications pages 3.6-1a, 3.6-1b, 3.6-2, 3.6-7b, 3.15-2, 3.15-4, 3.15-5, 4.15-2 and 4.15-3.

4. Discussion

Technical Specifications Section 3.15.A.1, (Table 3.15.1, Item 1(a)) currently requires a radiation monitor to be operable during batch releases via the liquid radwaste effluent line. When the radiation monitor is inoperable, liquid radwaste batch discharges are allowed provided double sampling and independent verification of release rate and valve alignment are performed as specified by Action 110 of Table 3.15.1. This Technical Specification Change Request proposes to eliminate the requirement to monitor the liquid radwaste effluent line with a radiation monitor and recognize batch releases with double sampling and verification as the primary means of controlling releases via this pathway.

The existing monitor and associated hardware are incapable of meeting the operability requirements of Technical Specification 3.15.A and have been out of service since 1981. OCNGS has released liquid effluent from the radwaste processing facilities in compliance with the alternate provision. Our intent to eliminate the radiation monitor requirement was previously conveyed in GPUN letter (Fiedler, GPUN to Zwolinski, NRC) dated August 13, 1986. Repairs or replacements to the existing hardware could only be accomplished at significant expense. Our assessment concluded that this expense is unjustified based on past liquid release performance from this pathway and through a cost/benefit evaluation both of which are discussed below.

The proposed change involves the OCNGS liquid radwaste processing systems and effluent monitoring instrumentation. The change establishes existing administrative controls, which are already approved by the NRC, as the primary method of monitoring discharges from the liquid effluent release pathway. Discharge from this pathway initiates from the High Purity System sample tanks, the Chemical Waste Distillate sample tanks or the Laundry Drain tank and is performed on a batchwise basis. These tanks are liquid hold points and are isolated, recirculated and sampled prior to every release.

Prior to discharge, independent release rate and valve verifications are performed. The batch is sampled again prior to completion of discharge. These actions ensure that radioactivity concentrations in liquid effluents below the 10 CFR 20 Appendix B, Table II, Column 2, limits are achieved.

Discharges from secondary sources to the effluent discharge line are prevented administratively. These sources are never lined up to the effluent discharge line. If they were inadvertently lined up, the discharge flow control valve and isolation valve would be closed preventing a release.

An inadvertent release due to equipment failure would involve simultaneous failure of two air operated isolation valves and a flow control valve. All valves are designed to fail closed on loss of air or on loss of power. Therefore, such failure probability is low.

All liquid eligible for release has been treated, as necessary, to satisfy Specification 3.6.B in that radioactivity concentration in treated water, exclusive of tritium and noble gases, must be less than 0.001 uCi/ml. Curie content is limited as a result of an effective treatment process and/or dilution of the liquid inputs to the tanks from non-radioactive sources.

Oyster Creek management has undertaken an aggressive water management policy which focuses on early identification of unusual inleakage and expedient corrective action. The goal is to achieve zero liquid releases. For instance, from January 1, 1985 through March 31, 1988 liquid process effluents have been limited to 1.3 percent of total water processed. For the years 1988 through 1990 only about 5.3 percent of the water processed was discharged. There were no batch releases during 1990.

A cost/benefit evaluation was performed in 1988 in an attempt to justify the cost to install a new radwaste discharge effluent line monitor. For the evaluation, a hypothetical situation was used where all processed liquid during 1987 inadvertently leaked to the discharge canal and went undetected as a result of the absence of a discharge monitor. Exposure data for 1987 was used since it was the most recent information available and therefore most representative of liquid release practices at the time. It was typical of reactor coolant activity and it had the highest specific total body dose (total body dose divided by volume released) for any annual period reported. A brief look at effluent releases during 1988 and 1989 showed no significant changes except for one discharge in December 1989 which was not representative of normal practice. This release was well within all applicable limits.

The annual off-site dose to an individual standing at the Route 9 bridge at the discharge canal resulting from the postulated event was estimated to be:

$$\frac{2 \times 9.9 \text{ E-4}}{0.016} = 0.12 \text{ MREM}$$

where 9.9 E-4 = calculated total body dose in millirem to a receptor during the second half of 1987. This value was developed using models and methodology outlined in USNRC Regulatory Guide 1.109 and proposed Regulatory Guide 1.110.

0.016 = fraction of processed water released to the discharge canal during the second half of 1987

2 = annualization factor

0.12 MREM represents 4% of the allowable annual total body dose to an individual per 10 CFR 50 Appendix I.

An engineering evaluation performed in 1983 determined replacement was the preferable option to restore operability. The evaluation estimated the cost to provide a monitor at $162,000 (1983 dollars). This dollar figure is not adjusted to present day dollars to add more conservatism to this evaluation.

10 CFR 50 Appendix I, Section II.D, establishes $1000 per total body man-rem as the cost effective ALARA guideline for adding equipment. Appendix I is vintage 1978. Therefore, $1000 in 1978 is equivalent to $5,234 in 1988 dollars using an extremely conservative annual inflation rate of 18 percent. Utilizing present value dollars is more conservative than using 1978 dollars.

$$P = 1{,}000(1 + i)^{n} = 5{,}234$$

where i = annual inflation rate = .18 and
n = number of years = 10

To achieve Appendix I cost effectiveness, approximately thirteen thousand individuals would have to be continuously present at the defined receptor location (Route 9 Bridge) accumulating dose via the limiting pathway (injestion of shellfish) over the remaining life of the plant (20 years).

$$\frac{162{,}000 \text{ Dollars}}{5{,}234 \frac{\text{Dollars}}{\text{People-Rem}} \times 0.00012 \frac{\text{Rem}}{\text{Yr}} \times 20 \text{ Years}} = 12{,}896 \text{ People}$$

The occupational exposure to install a new monitor was estimated to be approximately 300 mrem. If OCNGS were to continue to operate for another 20 years, there would have to be a savings of at least 15 mrem per year (300 mrem divided by 20 years) to offset the exposure due to installation. Since the worst case annual offsite dose was previously estimated to be 0.12 mrem per year, which is significantly less than the 15 mrem/year, the exposure due to installation is not justified.

Personnel exposure attributed to the proposed double sampling and verification process would more than likely be less than personnel exposure received due to maintenance, calibration, source and channel checks on a new monitor if one were installed.

Conclusion

The proposed change to section 3.15.A.1, follows up on GPUN's previously conveyed intentions to the NRC. Approval of this change request will allow OCNGS to continue using its currently acceptable method. The Technical Specifications currently require discharges be performed by double sampling and independent release rate and valve verification. This method of monitoring provides greater assurance that 10 CFR 20 release limits are maintained during controlled release by eliminating dependency on existing unreliable instrumentation.

The installation of a new monitor is not justified based on the very conservative cost-benefit analysis performed utilizing criteria set forth in Appendix I to 10 CFR 50. By virtue of radwaste processing capabilities, sample tank batch activity is sufficiently low to guarantee compliance with 10 CFR 20 Appendix B, Table II, radionuclide concentration limits. The protection provided by its presence is disproportionate to the cost of restoring operability.

Determination

We have determined that the proposed Technical Specification change involves no significant hazards considerations as discussed below.

1. The change will not involve significant increase in the probability or consequence of any accident previously evaluated.

There are no postulated accidents that have been previously evaluated for normal batch releases via this pathway. Additionally, since the effluent radiation monitor has been out of service since 1981, OCNGS has relied on previously approved administrative controls and practices to perform batch releases. The water treatment process lowers activity concentration to very low values. Dedicated tanks are used as the sampling, recirculation and hold point prior to discharge. Independent valve verification and sampling prior to and upon completion of batch discharges ensure controlled and monitored releases. Inadvertent release due to equipment failures would involve simultaneous failure of three isolation valves. The proposed Technical Specification change does not alter any initial condition assumed for any previously evaluated condition.

2. The proposed change does not create the possibility of a new or different accident from any accident previously evaluated.

   The proposed change does not result in a deviation from existing approved practices. No new release paths are being established. The characteristics including curie content of treated water will not change. The same administrative controls will continue to be exercised.

3. A significant reduction in margin of safety is not involved.

   The current Technical Specification Basis for Section 3.15.A recognizes that the use of a radiation monitor is consistent with the requirements of General Design Criteria 60 and 64 of Appendix A to 10 CFR 50. This change will eliminate the use of the radiation monitor in the radwaste discharge line and will rely solely on the currently approved method of double sampling and independent release rate and valve verification. This method of monitoring provides greater assurance that 10 CFR 20 release limits are maintained during controlled releases by eliminating the dependence on existing unreliable instrumentation.

   The water treatment process lowers radioactivity concentrations to very low values. The processing method and radioactivity levels of any discharged water will remain the same. Therefore, the impact of an inadvertent release would be negligible. Utilizing this double sampling and verification method does not significantly reduce the margin of safety.