GPU NUCLEAR CORPORATION

OYSTER CREEK NUCLEAR GENERATING STATION

Operating License No. DPR-16
Docket No. 50-219
Technical Specification Change Request No. 214

This Technical Specification Change Request is submitted in support of the Licensee's request to change the Appendix A Technical Specifications to Operating License No. DPR-16 for Oyster Creek Nuclear Generating Station. As a part of this request, the proposed replacement pages for Appendix A are also submitted.

GPU Nuclear Corporation

By ______________________
for J. J. Barton
Vice President and Director
Oyster Creek

Sworn and Subscribed to before me this 6th day of April, 1994.

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

Oyster Creek Nuclear Generating Station (OCNGS)
Operating License No. DPR-16
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1.0. PROPOSED TECHNICAL SPECIFICATION CHANGE REQUEST (TSCR)

GPUN requests that the following pages of the OCNGS Technical Specifications (Tech. Specs.) be replaced as indicated below:

Replace Pages: 3.1-5, 3.1-8, 3.1-10, 3.1-14; and 4.1-6.

2.0. DESCRIPTION OF CHANGES

p. 3.1-5 Tech. Spec. 3.1, "Protective Instrumentation" Bases is revised to delete reference to the paragraph describing the Main Steam Line (MSL) radiation monitoring functions for indication of excessive fuel failure and initiation of a reactor scram and MSL isolation.

p. 3.1-8 Tech. Spec. Table 3.1.1., "Protective Instrumentation Requirements - A. Reactor Scram Functions," is revised to delete line Item No. 7 - "High Radiation in Main Steam Line Tunnel."

p. 3.1-10 Tech. Spec. Table 3.1.1., "Protective Instrumentation Requirements - B. Reactor Isolation Functions," is revised to delete line Item No. 6 - "High Radiation in Main Steam Line Tunnel."

p. 3.1-14 Tech. Spec. Table 3.1.1., "Protective Instrumentation Requirements - L. Condenser Vacuum Pump Isolation Function," is revised to delete line Item No. 1 - "High Radiation in Main Steam Line Tunnel."

p. 4.1-6 Tech. Spec. Table 4.1.1, "Minimum Check, Calibration and Test Frequency For Protective Instrumentation," is revised to delete Instrument Channel No. 13 - "High Radiation in Main Steam Line."

3.0. DISCUSSION OF THE REASONS FOR CHANGE, AND SAFETY IMPLICATIONS

The proposed change would eliminate the Oyster Creek Nuclear Generating Station (OCNGS) Technical Specification scram and isolation functions, initiated by a trip signal from the main steam line radiation monitors (MSLRMs), as listed below:

Reactor Scram
Reactor Isolation:
- Main Steam Line
- Main Steam Line Condensate Drain Valves
- Emergency Condenser Vent Valves
- Instrument Air Valve
- Reactor Recirculation Loop Sample Valve

Condenser Vacuum Pump Isolation

The removal of the scram function and MSL Isolation functions is based on the similarity of OCNGS critical parameters to the parameters evaluated on a generic basis in the General Electric document: NEDO-31400A, "Safety Evaluation for Eliminating The Boiling Water Reactor Main Steam Line Isolation Valve Closure Function and Scram Function of the Main Steam Line Radiation Monitor," final issue dated October, 1992. The NRC accepted the initial issue (July 9, 1987) General Electric Safety Evaluation "Licensing Topical Report" NEDO-31400 by letter, dated May 15, 1991 to the BWR Owners' Group from Mr. Ashok C. Thadani, Director Division of Systems Technology, Office of Nuclear Reactor Regulation.

The primary function of the MSLRM system is to provide early indication of gross fuel cladding failures. Four gamma-sensitive ion-chamber detectors located near the main steam lines (MSLs), just downstream of the outboard MSIVs, monitor MSL radiation levels. The radiation levels are displayed and recorded in the Control Room. If the radiation level increases and exceeds the high level setpoint, equal to ten times the normal full-power background radiation level, the MSLRMs initiate a reactor scram and reactor isolation in order to contain the fission products released from the fuel.

Signals, based on the high radiation setpoints to the logic controlling the associated reactor scram, reactor isolation (including MSIV isolation and other systems), and de-energization and isolation of the main condenser mechanical vacuum pump functions, are being removed. Eliminating the noted MSLRM trip and isolation functions will result in the following:

a. Improvement in plant safety by increasing the availability of the main condenser for decay heat removal;

b. Reduction in challenges to safety systems by eliminating a potential cause of inadvertent reactor scrams and isolations;

c. A potential reduction in challenges to plant operators by eliminating inadvertent or premature reactor scrams and isolations; and,

d. A potential reduction in radiation dose to personnel, and ALARA improvement, by reducing surveillance requirements.

In addition, elimination of the MSIV trip and reactor scram is recommended by the Boiling Water Reactors Owners' Group (BWROG) as supported by the General Electric (GE) Safety Evaluation, NEDO-31400A.

Removal of the MSLRM trips from the Technical Specifications eliminates a potential source of reactor scrams and MSL isolation. Reclassification of these monitors will also permit the relaxation of the attendant surveillance requirements.

No DBA takes credit for a reactor scram attributed to high radiation in the MSLs. The only DBA which takes credit for an MSIV isolation due to MSL high radiation is the control rod drop accident (CRDA), reference FDSAR Section XIII (p. 2-7). The analysis performed for the CRDA as described in the OCNGS Updated FSAR, Chapter 15, determined that a maximum of 837 fuel rods in the P8x8R configuration would be damaged and that the radiological effects were orders of magnitude below the levels identified in 10 CFR Part 100.

In NEDO-31400A, GE shows the occurrence of a CRDA, with the MSL high radiation isolation removed, results in off-site radiological exposures that are small fractions of 10 CFR Part 100 limits. Furthermore, the assumptions in NEDO-31400A are bounding for OCNGS because the dose rates resulting from the CRDA for OCNGS, with the elimination of the scram and MSIV isolation functions, are smaller fractions of the 10 CFR Part 100 limits.

Table 1 of this enclosure lists the assumptions presented in both NEDO-31400A and the OCNGS Updated FSAR. However, Table 1 shows that two parameters of the OCNGS CRDA analysis are not equal to the NEDO-31400A parameters. These are:

a. The Core Average Fuel Rod Power Multiplier (peaking factor):

   The difference here is that OCNGS has analyzed for peaking factors of up to 1.6 as opposed to 1.5 in NEDO-31400A. However, the power level is 20% less for Oyster Creek compared to the NEDO-31400A report, which includes the peaking factor. This means the fission product inventory in the failed pins at Oyster Creek is less than that assumed in the GE analysis. Therefore, the GE analysis is bounding.

b. The Condenser Leak Rate:

   This value is not directly available for OCNGS. The condenser leak rate is not considered in the OC Safety Analysis Report. However, a review of the other factors listed in Table 1 shows that Oyster Creek is within the envelope of the NEDO-31400A analysis. The OCNGS X/Q is approximately two orders of magnitude smaller than the X/Q assumed in NEDO-31400A (2.15E-5 *vs*. 2.5E-3, respectively). This gives Oyster Creek approximately two orders of magnitude of additional safety margin over the NEDO-31400A assumptions. This margin completely compensates for any credible condenser leak rate.

While not specifically addressed in GE's evaluation, the elimination of the reactor isolations and the condenser mechanical vacuum pump isolation, other than just the MSL Valve isolation, are also proposed.

The basis for eliminating the isolation function for these other systems isolated by the reactor isolation signal, in addition to the MSL valves, is based on the fact that the diameter of the lines in these other systems is much smaller than the diameter of the MSLs. Since the line diameter is much smaller, the steam flow through them is much smaller than the flow through the MSLs and the amount of radioactive contamination that can be released is much smaller then the release potential of the MSLs. Therefore, if the MSLs are not automatically isolated there is no practical advantage to automatically isolating these other smaller lines.

These systems and their valves are as follows:

Main Steam Line Condensate Drain Valves:
V-1-106, V-1-107, V-1-110, V-1-111;

Emergency Condenser Vent Valves:
V-14-1, V-14-5, V-14-19, V-14-20;

Instrument Air Valve: V-6-395; and,

Reactor Recirculation Loop Sample Valves: V-24-29, V-24-30.

The condenser mechanical vacuum pump is used during startup at low reactor power to draw a vacuum on the main condenser before there is sufficient steam to operate the steam jet air ejectors. Startup rod withdrawal sequences performed at OCNGS during Cycle 14 and later cycles comply with the requirements of the General Electric banked position withdrawal sequence (BPWS). Adherence to the BPWS ensures that the worth of any in-sequence control rod is limited such that during a rod drop accident, the calculated peak fuel enthalpy is not greater than the 280 cal/gm design limit. (See UFSAR Section 15.4.9, "Control Rod Drop Analysis"). Comparison of the Oyster Creek Rod Drop Analysis (CRDA) with NEDO-31400A shows the radiological consequences of a rod drop at Oyster Creek are bounded by the GE analysis. The Oyster Creek X/Q values provide a significant conservatism in this comparison.

In addition, as reactor power is increased nuclear steam becomes available for the steam jet air ejectors. Once the air ejectors are available to maintain condenser vacuum, the mechanical vacuum pump is secured. The air ejectors discharge to the 30 minute delay line. When the plant is above about 40% power there is sufficient offgas flow to permit gas from the delay line to be processed through the augmented offgas treatment system. The augmented offgas system is initiated manually.

The discharge from the air ejectors is monitored by air ejector off-gas radiation monitors for radiation; and, if the radiation level reaches a level equivalent to a discharge rate, that could result in an instantaneous off-site concentration up to no more than 10 times the concentrations listed in 10 CFR 20, Appendix B (Table 2 - Column 1), it annunciates in the control room and initiates a 15 minute timer, which if not cleared, automatically isolates the air ejectors from the condenser. This isolation results in a loss of condenser vacuum and ultimately a reactor scram. Since the radiation level activated timer isolates the air ejector discharge in 15 minutes and the gas decay line has a minimum holdup capacity of 30 minutes the isolation signal traps the gas with an elevated contamination within the decay line and prevents it from being released to the environment.

Furthermore, if the augmented offgas system is in operation the charcoal beds will hold-up Kryptons for a minimum of 26 hours, and Xenons for a minimum of 20 days; and, the charcoal will remove essentially all the halogens. Credit is taken in NEDO-31400A for the isolation of the condenser air ejectors by an "air ejector high radiation signal" and action of an augmented offgas system. The OCNGS augmented offgas system hold-up times for Krypton and Xenon are greater then the values used in NEDO-31400A. Offgas system parameters, atmospheric dispersion factors and noble gas hold-up times are shown in Table 1 of this enclosure.

4.0 NO SIGNIFICANT HAZARDS CONSIDERATIONS

GPUN has determined that this Technical Specification Change Request involves no significant hazards consideration as defined by NRC in 10 CFR 50.92.

4.1 Operation of the facility in accordance with the proposed amendment would not involve a significant increase in the probability of occurrence or the consequences of an accident previously evaluated.

The objective of the MSLRMs is to provide early indication of gross fuel failure. The monitors provide an alarm function, and signals that lead to a scram function and MSIV isolation functions. The basis for the MSIV isolation on a MSL high radiation signal is to reduce the quantity of fission products transported from the reactor vessel to the condenser in the event of gross fuel failure. No DBA takes credit for a reactor scram resulting from a MSL high radiation signal.

This proposed change removes all trip functions of the MSLRMs. The only modification attendant to this change is the removal of contacts derived from the MSLRM logic to the reactor scram, reactor isolation and offgas system isolation initiation logic. This change does not affect the operation of any equipment having the potential to cause a CRDA. Therefore, the probability of a CRDA is not increased or in any way affected by the proposed change.

However, the CRDA analysis does take credit for MSIV isolation. As discussed above, assuming no MSIV isolation in the event of a CRDA, the offsite radiation doses will remain a small fraction of the 10 CFR Part 100 Reactor Site Criteria.

4.2 Operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated.

The function of a MSLRM trip is to detect abnormal fission product release and isolate the steam lines, thereby stopping the transport of fission products from the reactor to the main condenser. No credit is taken for the reactor scram function due to the action of these monitors on high radiation in the MSLs in any design basis accident. Removing the MSLRMs MSL isolation trip and its subsequent reactor scram will not affect the operation of other equipment or systems necessary for the prevention or mitigation of accidents.

4.3 Operation of the facility in accordance with the proposed amendment would not involve a significant reduction in a margin of safety.

Eliminating the MSLRM trip functions as analyzed in NEDO-31400A will result in a potential increase in the margin of safety because of:

a. Improvement in the availability of the main condenser for decay heat removal; and,

b. Elimination of inadvertent reactor scrams and challenges to safety systems.

Therefore, operation of the facility in accordance with the proposed changes will not result in a reduction of safety margin.

The Commission has provided guidelines on the application of the three standards by listing specific examples in 45 FR 14870. The proposed amendment is considered to be in the same category as example (vi) of amendments "that are considered not likely to involve significant hazards consideration" in that, the results of the proposed change are clearly within all acceptable criteria with respect to systems or components specified in the Standard Review Plan as well as the 10 CFR Part 100 Reactor Site Criteria. Thus, operation of the facility in accordance with the proposed amendment involves no significant hazards considerations.

5.0 IMPLEMENTATION

It is requested that the amendment authorizing this change become effective for Operating Cycle 15, i.e., at the restart from refueling outage 15R presently scheduled to start on or about September 10, 1994. However, GPUN desires to implement this change during the ramp-up period immediately prior to the upcoming refueling outage 15R scheduled to start on or about September 10, 1994.

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TABLE 1

NEDO v. UFSAR VALUES FOR OCNGS CRDA

PARAMETER	NEDO-31400A	OCNGS
Power level	0.12 Mwt/rod	0.0965 Mwt/rod(1)
No. of failed fuel rods	850	837(2)
Core average fuel rod power multiplier (peaking factor)	1.5	1.6(3)
Condenser leak rate	1%/day	-
X/Q* for release at ground level, s/m^3	2.5E-3	2.15E-5(4) 1.16E-5(5)
X/Q* for main stack release point	3.0E-4	3.07E-8(6) 2.39E-8(7)
Holdup time in off-gas treatment system:		
Kryptons	Family of curves	26 hours(8)
Xenons	Family of curves	20 days(8)

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(1) Maximum Pin Power Calculated: 0.0965 Mwt/rod

$$= \frac{\underline{(1930 \text{ Mwt Core Power})(1.05 \text{ Overpower})(1.6 \text{ Peaking Factor})}}{(560 \text{ Fuel Bundles})(60 \text{ Rods/Bundle})}$$

(2) OCNGS Updated FSAR 15.4.9.4.2.

(3) OCNGS Updated FSAR Figure 15.4.9.

***Note**: **For OCNGS, X/Q for maximum inhalation doses are contained in the "Offsite Dose Calculation Manual (ODCM)," Rev. 6, 2000-ADM-4532.04.**

(4) For ground level release @522 meters, wind: SE, plant boundary. (ODCM p. 37)

(5) For ground level release @966 meters, wind: SE, maximum individual. (ODCM p. 45)

(6) For stack release @522 meters, wind: SE, plant boundary. (ODCM p. 37)

(7) For stack release @966 meters, wind SE, maximum individual. (ODCM p. 37)

(8) OCNGS Updated FSAR Section 11.3.2.2.4.