PSEG

Public Service Electric and Gas Company P.O. Box 236 Hancocks Bridge, New Jersey 08038-0236

Nuclear Business Unit

MAR 1 3 2000
LRN-00-070
LCR S00-02

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

REQUEST FOR AMENDMENT
RADIATION MONITORING INSTRUMENTATION
SALEM GENERATING STATION
UNIT NOS. 1 AND 2
DOCKET NOS. 50-272 AND 50-311

In accordance with the requirements of 10CFR50.90, Public Service Electric & Gas Company (PSE&G) hereby transmits a request for amendment to Facility Operating Licenses DPR-70 and DPR-75 for Salem Generating Station Unit Nos. 1 and 2 respectively. Pursuant to the requirements of 10CFR50.91(b)(1), a copy of this request for amendment has been sent to the State of New Jersey.

The proposed amendment to Technical Specification 3/4.3.3, Monitoring Instrumentation, Radiation Monitoring Instrumentation will change the required alarm/trip setpoint for the R12A Containment Gaseous Activity Monitor during Mode 6 (Refueling) operation. Salem Units 1 and 2 Technical Specification 3/4.3.3 requires that while in Mode 6, the R12A setpoint for alarm and Containment Purge and Pressure Relief system isolation be set at two times background. The Containment Purge and Pressure Relief system isolation function in Mode 6 serves to limit the spread of gaseous activity from the containment to the outside atmosphere in the event of a fuel handling accident inside containment. However, the two times background setpoint value is overly conservative with regard to mitigation of a fuel handling accident inside containment; and is low relative to expected spikes in containment noble gas activity caused by routine refueling activities. As a result, routine refueling activities, such as removal of the reactor vessel head, have resulted in unnecessary containment ventilation isolations. Such occurrences are reportable pursuant to 10CFR50.73 as an Engineered Safeguards Feature actuation.

The proposed amendment specifies an alarm/trip setpoint for the R12A during Mode 6 operation that ensures that the concentration limits of 10CFR20 for gaseous effluents released to unrestricted areas will not be exceeded. As the 10CFR20 limits are significantly more conservative that the 10 CFR100 limits, this setpoint will ensure that radiological consequences from a fuel handling accident occurring inside containment are well within 10CFR100 limits. At the same time, the proposed setpoint value will reduce the number of unnecessary Engineered Safeguards Feature actuations and reportable occurrences caused by normal refueling activities.

The proposed changes have been evaluated in accordance with 10CFR50.91(a)(1), using the criteria in 10CFR50.92(c), and were determined to involve no significant hazards considerations. A description of the requested amendment, the reason for the changes and the justification for the changes are provided as Attachment 1. The basis for no significant hazards consideration determination is provided in Attachment 2. The marked-up Technical Specification pages affected by the proposed change are provided in Attachment 3.

PSE&G has determined that this request meets the criteria delineated in 10 CFR 51.22(c)(9) for a categorical exclusion from the requirements for an Environmental Impact Statement (see Attachment 4).

Upon NRC approval of this proposed change, PSE&G requests that the amendment be made effective on the date of issuance, but allow an implementation period of sixty days to provide sufficient time for associated administrative activities.

Should you have any questions regarding this request, please contact Brooke Knieriem at (856) 339-1782.

Sincerely,

M. B. Bezilla
Vice President - Operations

/rbk
Affidavit
Attachments (4)

MAR 1 3 2000

c Mr. H. J. Miller, Administrator - Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. W. Gleaves, Licensing Project Manager - Salem
U. S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Mail Stop 08B1A
Rockville, MD 20852

Mr. S. Morris (X24)
USNRC Senior Resident Inspector

Mr. K. Tosch, Manager IV
Bureau of Nuclear Engineering
33 Arctic Parkway
CN 415
Trenton, NJ 08625

STATE OF NEW JERSEY)
) SS.
COUNTY OF SALEM)

M. B. Bezilla, being duly sworn according to law deposes and says:
I am Vice President - Operations for the Public Service Electric & Gas Company, and as such, I find the matters set forth in the above referenced letter, concerning the Salem Generating Station, Units Nos. 1 and 2, are true to the best of my knowledge, information and belief.

Subscribed and Sworn to before me
this 13 day of March, 2000

Notary Public of New Jersey

My Commission expires on 12/8/2003

INSTRUMENTATION – MONITORING INSTRUMENTATION – RADIATION MONITORING INSTRUMENTATION

I. DESCRIPTION OF THE PROPOSED CHANGES

The proposed amendment changes Salem Unit 1 and 2 Technical Specification 3/4.3.3, Instrumentation, Monitoring Instrumentation, Radiation Monitoring Instrumentation, Table 3.3-6, item 2.a.1, Containment, Gaseous Activity. During Mode 6 (refueling) operation, TS 3/4.3.3 requires that the Containment Gaseous Activity Monitor (R12A) Containment Purge and Pressure Relief system isolation alarm/trip setpoint be set at a value of two times background. The alarm/trip function provides indication of high gaseous activity from a fuel handling accident inside containment and isolates the Containment Purge and Pressure Relief system from the outside atmosphere to ensure that the limits of 10CFR100 are not exceeded. In lieu of the two times background requirement, the proposed change will specify an alarm/trip setpoint equivalent to a gaseous activity concentration that is 50% of 10CFR20 concentration limits for gaseous effluents released to unrestricted areas, which are more restrictive than the 10CFR100 limits. The proposed amendment also changes the Technical Specification 3/4.3.3 Bases section to provide the basis for this setpoint value.

II. REASON FOR THE CHANGE

This change is being proposed to still provide an alarm/trip setpoint for the R12A radiation monitor Containment Purge and Pressure Relief system isolation during Mode 6 that will be low enough to ensure that the limits of 10CFR100 are not exceeded in the event of a fuel handling accident inside containment. At the same time, the alarm/trip setpoint proposed by this change will be high enough to prevent unnecessary Containment Purge and Pressure Relief system isolations caused by expected containment gaseous activity variations during routine refueling activities. These isolations are reportable pursuant to 10CFR50.73 as Engineered Safeguards Feature actuations.

The proposed change will also eliminate the expenditure of personnel resources to change the R12A alarm/trip setpoint to account for changes in containment gaseous activity levels. Such setpoint changes are necessary as containment gaseous activity background levels change in order to comply with the two times background Technical Specification alarm/trip setpoint requirement.

III. JUSTIFICATION FOR CHANGES

During Mode 6, the R12A monitors the gaseous activity concentration of the containment atmosphere and in the event of a fuel handling accident inside containment provides Containment Purge and Pressure Relief system isolation from the outside atmosphere to limit the release of gaseous activity. The purpose of this isolation function is to ensure that the limits of 10CFR100 are not exceeded. Salem Unit 1 and Salem Unit 2 Technical Specification 3/4.3.3 requires that during Mode 6 (Refueling) the R12A alarm/trip setpoint be set to a value of two times background. Although not specifically defined in the Technical Specifications, the term "background", as it pertains to the R12A, is interpreted to mean the background gaseous activity level inside the containment at a given time.

During refueling operations, containment gaseous activity background levels are normally low but can vary due to activity released during routine outage activities that breach the reactor coolant boundary. Because containment gaseous activity concentrations can vary during refueling operations, alarms and Containment Purge and Pressure Relief system isolations occur that are caused by the release of gaseous activity during routine refueling outage activities. These routine activities include evolutions such as Reactor Coolant System venting or removal of the Reactor Vessel head. The isolations that result from routine refueling activities provide no safety benefit and are reportable pursuant to 10CFR50.73 as Engineered Safeguards Feature actuations. In addition, as containment background activity levels vary during an outage period, personnel resources must be expended to change the R12A alarm/trip setpoint to meet the two times background requirement.

The proposed amendment would specify a setpoint for the R12A in Mode 6 that will ensure that the concentration limits of 10CFR20 for gaseous effluents released to unrestricted areas will not be exceeded, instead of the current Technical Specification setpoint requirement of two times background. Although the Technical Specification 3/4.3.3 set point is based upon not exceeding the limits of 10CFR100, the proposed setpoint value is based upon the limits of 10CFR20, which are more restrictive than the 10CFR100 limits.

The proposed setpoint will represent the R12A count rate that would be seen if the containment gaseous activity concentration was at 50% of the 10CFR20 concentration limit for offsite release to unrestricted areas. Based upon actual containment gaseous activity background levels during refueling, the proposed setpoint would normally be higher than the current Technical Specification required two times background setpoint value. However, the proposed setpoint

would be acceptable because the Containment Purge and Pressure Relief system isolation would occur based upon not exceeding the 10CFR20 dose limits, which are more restrictive than the 10CFR100 limits. The proposed setpoint value would also establish an upper limit for the alarm/trip setpoint that does not currently exist with the two times background requirement.

In addition to the conservatism inherent in using 10CFR20 limits to determine the R12A setpoint, an evaluation of a fuel handling accident inside containment, with no Containment Fan Coil Units operating, has been performed that demonstrates that the radiological consequences of that accident would be well within the limits of 10CFR100 even though no containment isolation was assumed. The analysis also demonstrated that the control room doses following the fuel handling accident inside containment would be within General Design Criterion 19 limits, and less than those for the most limiting design basis accident.

IV. DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

The requested amendments will change the Containment Gaseous Activity Monitor (R12A) alarm/trip setpoint requirement for the Containment Purge and Pressure Relief system isolation, specified in Salem Unit 1 and Unit 2 Technical Specification 3/4.3.3, for Mode 6 operation. The current setpoint value requirement of two times background will be changed to a value that is equivalent to a gaseous activity concentration that is 50% of 10CFR20 concentration limits for gaseous effluents released to unrestricted areas. Pursuant to 10CFR50.92, PSE&G reviewed the proposed amendment to determine whether our request involves a significant hazards consideration. PSE&G has determined that operation of Salem Generating Station, Unit Nos. 1 and 2, in accordance with the proposed changes:

1. **Will not involve a significant increase in the probability or consequences of an accident previously evaluated.**

During Mode 6 operation, the Containment Gaseous Activity Monitor R12A serves to monitor the gaseous activity concentration in the containment atmosphere and to provide alarm and isolation of the Containment Purge and Pressure Relief system in response to high gaseous activity that would result from a Fuel Handling Accident inside containment. As such, the Containment Gaseous Activity Monitor is not considered as an initiator of any accident previously evaluated. Therefore, the proposed change would not affect the probability of an accident previously evaluated.

The proposed setpoint would provide an alarm/trip setpoint that is higher than is normally seen using the two times background requirement. However, the proposed setpoint value would isolate the Containment Purge and Pressure Relief system prior to reaching the 10CFR20 concentration limits for gaseous effluents released to unrestricted areas. The 10CFR20 concentration limits are used to demonstrate compliance with the dose limits for individual members of the public that are more restrictive than the 10 CFR 100 limits.

In addition, an evaluation of a fuel handling accident inside containment has been performed that demonstrates that the limits of 10CFR100 would not be exceeded even though no containment isolation was assumed. The analysis assumed that all airborne activity reaching the containment atmosphere would exhaust to the environment within two hours (no containment isolation) and concluded that the exclusion area boundary doses were well within the limits of 10CFR100. The analysis also demonstrated that the control room doses following the fuel handling accident inside containment would be within General Design Criterion 19 limits.

Therefore, the proposed change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Will not create the possibility of a new or different kind of accident from any previously evaluated.

The proposed amendments will not create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed change to the Containment Gaseous Activity Monitor alarm/trip setpoint will not create any new accident causal mechanisms. Plant operation will not be affected by the proposed amendments and no new failure modes will be created.

3. Will not involve a significant reduction in a margin of safety.

The proposed amendments will establish a setpoint for the Containment Gaseous Activity Monitor that is based upon 50% of the 10CFR20 concentration limits for gaseous effluents released to unrestricted areas. The 10CFR20 concentration limits are used to demonstrate compliance with the dose limits for individual members of the public and are more restrictive than the 10 CFR 100 limits upon which the Technical Specification is based. Although the proposed setpoint would normally be higher than the setpoint derived from the current setpoint requirement of two times background, it would still provide prompt isolation of the containment in the event of a fuel handling accident inside containment. Additionally, the proposed amendment will specify an upper setpoint limit that is not present in the existing setpoint requirement.

In addition, an evaluation was performed of a Fuel Handling Accident Inside Containment that concluded that in the event of a fuel handling accident inside containment, assuming no Containment Purge and Pressure Relief system isolation, the radiological consequences would be well within the limits of 10CFR100 and within the limits of General Design Criterion 19.

Based upon the above, the proposed changes will not involve a significant reduction in a margin of safety.

V. CONCLUSIONS

Based on the above, Public Service Electric & Gas has determined that the proposed changes do not involve a significant hazards consideration.

TECHNICAL SPECIFICATION PAGES WITH PROPOSED CHANGES

The following Technical Specifications for Facility Operating License No. DPR-70 are affected by this change request:

Technical Specification	Page
3/4.3.3	3/4 3-36
BASES 3/4.3.4	B 3/4 3-1a

The following Technical Specifications for Facility Operating License No. DPR-75 are affected by this change request:

Technical Specification	Page
3/4.3.3	3/4 3-39
BASES 3/4.3.3	B 3/4 3-1a

ATTACHMENT 3

Document Control Desk
LRN-00-070

MARKED UP PAGES

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
1. AREA MONITORS					
a. Fuel Storage Area	1	*	≤15 mR/hr	10^{-1}-10^{4} mR/hr	19
b. Containment Area	2	1,2,3&4	≤10^{3} R/hr	1-10^{7} R/hr	23
2. PROCESS MONITORS					
a. Containment					
1) Gaseous Activity					
a) Purge & Pressure - Vacuum Relief Isolation	1#	6 and 1,2,3,4&5	Insert 1 ≤2x background per Specification 3.3.3.9	10^{1}-10^{6} cpm	22 & 23
b) RCS Leakage Detection	1	1,2,3&4	N/A	10^{1}-10^{6} cpm	20
2) Air Particulate Activity					
a) Purge & Pressure - Vacuum Relief Isolation	1	6	≤2x background	10^{1}-10^{6} cpm	22
b) RCS Leakage Detection	1	1,2,3&4	N/A	10^{1}-10^{6} cpm	20

* With fuel in the storage pool or building.

\# The plant vent noble gas monitor may also function in this capacity when the purge/pressure-vacuum relief isolation valves are open.

field sensors and signal processing equipment for these channels are assumed to operate within the allowances of these uncertainty magnitudes.

The surveillance requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with WCAP-10271, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," and Supplements to that report. Surveillance intervals and out of service times were determined based on maintaining an appropriate level of reliability of the Reactor Protection System and Engineered Safety Features instrumentation.

The measurement of response time at the specified frequencies provides assurance that the protective and ESF action function associated with each channel is completed within the time limit assumed in the accident analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable.

Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that 1) the radiation levels are continually measured in the areas served by the individual channels and 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded.

Insert 2

TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	MEASUREMENT RANGE	ACTION
1. AREA MONITORS					
a. Fuel Storage Area	1	*	≤15 mR/hr	10^{-1}-10^{4} mR/hr	23
b. Containment Area	2	1,2,3&4	≤10^{3} R/hr	1-10^{7} R/hr	26
2. PROCESS MONITORS					
a. Containment					
1) Gaseous Activity					
a) Purge & Pressure - Vacuum Relief Isolation	1#	6 and 1,2,3,4&5	Insert 1 ≤2x background per Specification 3.3.3.9	10^{1}-10^{6} cpm	26
b) RCS Leakage Detection	1	1,2,3&4	N/A	10^{1}-10^{6} cpm	24
2) Air Particulate Activity					
a) Purge & Pressure - Vacuum Relief Isolation	1	6	≤2x background	10^{1}-10^{6} cpm	25
b) RCS Leakage Detection		1,2,3&4	N/A	10^{1}-10^{6} cpm	24

* With fuel in the storage pool or building.

\# The plant vent noble gas monitor may also function in this capacity when the purge/pressure-vacuum relief isolation valves are open.

these uncertainties are factored into the determination of each Trip Setpoint All field sensors and signal processing equipment for these channels are assumed to operate within the allowances of these uncertainty magnitudes.

The surveillance requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with WCAP-10271, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," and Supplements to that report. Surveillance intervals and out of service times were determined based on maintaining an appropriate level of reliability of the Reactor Protection System and Engineered Safety Features instrumentation.

The measurement of response time at the specified frequencies provides assurance that the protective and ESF action function associated with each channel is completed within the time limit assumed in the accident analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable.

Response time may be demonstrated by any series of sequential, overlapping or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either 1) in place, onsite or offsite test measurements or 2) utilizing replacement sensors with certified response times.

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that 1) the radiation levels are continually measured in the areas served by the individual channels and 2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded.

Insert 2 →

INSERTS

Insert 1

Set at less than or equal to 50% of the 10CFR20 concentration limits for gaseous effluents released to unrestricted areas.

Insert 2

The isolation alarm/trip setpoint for the Containment Purge and Pressure Relief system during MODE 6 is established to ensure that in the event of a fuel handling accident inside containment, prompt isolation will occur to ensure calculated offsite doses remain below 10CFR100 limits. Prompt isolation will also ensure that Control Room doses following a fuel handing accident will remain below GDC-19 limits. The alarm/trip setpoint value of Table 3.3-6 for the R12A while in Mode 6 will be established based upon isolating the Containment Purge and Pressure Relief System when containment gaseous activity levels reach 50% of the more conservative 10CFR20 concentration limits for release to unrestricted areas. These concentration limits are specified in 10CFR20, Appendix B, Table II, Column 1. A setpoint based on 50% of the 10CFR20 concentration limits will be low enough to ensure that prompt Containment Purge and Pressure Relief system isolation occurs during a fuel handling accident and high enough to prevent unnecessary Containment Purge and Pressure Relief system isolations caused by routine outage activities.

SALEM GENERATING STATION UNITS 1 AND 2
FACILITY OPERATING LICENSES DPR-70 AND DPR-75
DOCKET NOS. 50-272 AND 50-311
REVISIONS TO THE TECHNICAL SPECIFICATIONS

ENVIRONMENTAL IMPACT ASSESSMENT

PSE&G has reviewed the proposed License Amendment Request (LCR) against the criteria of 10 CFR 51.22 for environmental considerations. The proposed changes do not involve a significant hazards consideration, nor increase the types and amounts of effluents that may be released offsite, not significantly increase individual or cumulative occupational radiation exposures. Based upon the foregoing, PSE&G concludes that the proposed change meets the criteria delineated in 10 CFR 51.22(c)(9) and 10 CFR 51.22(c)(10) for a categorical exclusion from the requirements for an Environmental Impact Statement.