June 16, 2004

Mr. Christopher M. Crane
President and Chief Nuclear Officer
Exelon Nulcear
Exelon Generation Company, LLC
Kennett Square, PA 19348

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNIT 2 - ISSUANCE OF AMENDMENT RE: MAIN STEAM TUNNEL TEMPERATURE HIGH (TAC NO. MC2018)

Dear Mr. Crane:

The Commission has issued the enclosed Amendment No. 250 to Renewed Facility Operating License No. DPR-44 for the Peach Bottom Atomic Power Station, Unit 2. This renewed amendment consists of changes to the Technical Specifications (TSs) in response to your application dated February 12, 2004, as supplemented on March 29, 2004.

This amendment revises TS Table 3.3.6.1-1, “Primary Containment Isolation Instrumentation,” to increase the TS Allowable Value (AV) related to the setpoint for the Main Steam Tunnel Temperature - High system isolation function for those instruments located within the Reactor Building. A new Function, 1.f, has been added to represent the Reactor Building Main Steam Tunnel Temperature - High. Function 1.e has been renamed to clarify that it represents only the Turbine Building Main Steam Tunnel Temperature - High.

A copy of the safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's Biweekly *Federal Register* Notice.

Sincerely,

/RA/

George F. Wunder, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-277

Enclosures: 1. Amendment No. 250 to Renewed License DPR-44
2. Safety Evaluation

cc w/encls: See next page

June 16, 2004

Mr. Christopher M. Crane
President and Chief Nuclear Officer
Exelon Nulcear
Exelon Generation Company, LLC
Kennett Square, PA 19348

SUBJECT: PEACH BOTTOM ATOMIC POWER STATION, UNIT 2 - ISSUANCE OF AMENDMENT RE: MAIN STEAM TUNNEL TEMPERATURE HIGH (TAC NO. MC2018)

Dear Mr. Crane:

The Commission has issued the enclosed Amendment No. 250 to Renewed Facility Operating License No. DPR-44 for the Peach Bottom Atomic Power Station, Unit 2. This renewed amendment consists of changes to the Technical Specifications (TSs) in response to your application dated February 12, 2004, as supplemented on March 29, 2004.

This amendment revises TS Table 3.3.6.1-1, "Primary Containment Isolation Instrumentation," to increase the TS Allowable Value (AV) related to the setpoint for the Main Steam Tunnel Temperature - High system isolation function for those instruments located within the Reactor Building. A new Function, 1.f, has been added to represent the Reactor Building Main Steam Tunnel Temperature - High. Function 1.e has been renamed to clarify that it represents only the Turbine Building Main Steam Tunnel Temperature - High.

A copy of the safety evaluation is also enclosed. Notice of Issuance will be included in the Commission's Biweekly *Federal Register* Notice.

Sincerely,
/RA/

George F. Wunder, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-277

Enclosures: 1. Amendment No. 250 to Renewed License DPR-44
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:

PUBLIC	RDI-2 R/F	JClifford	GWunder	MO'Brien	EThrom
RDennig	OGC	ACRS	GHill(4)	CBixler, RGN-I	BMarcus

ADAMS Accession Number: ML041410607 *SE dated April 27, 2004 **SE dated May 17, 2004

OFFICE	PM/PD1-2	LA/PD1-2	SPSB/SC*	EEIB/SC**	OGC	SC/PD1-2
NAME	GWunder	SLittle for MO'Brien	RDennig	EMarinos	SLewis	TTate for JClifford
DATE	6/3/04	6/3/04			6/9/04	6/16/04

OFFICIAL RECORD COPY

Peach Bottom Atomic Power Station, Unit Nos. 2 and 3

cc:

Vice President, General Counsel and
Secretary
Exelon Generation Company, LLC
2301 Market Street, S23-1
Philadelphia, PA 19101

Site Vice President
Peach Bottom Atomic Power Station
Exelon Generation Company, LLC
1848 Lay Road
Delta, PA 17314

Plant Manager
Peach Bottom Atomic Power Station
Exelon Generation Company, LLC
1848 Lay Road
Delta, PA 17314

Regulatory Assurance Manager
Peach Bottom Atomic Power Station
Exelon Generation Company, LLC
1848 Lay Road
Delta, PA 17314

Resident Inspector
U.S. Nuclear Regulatory Commission
Peach Bottom Atomic Power Station
P.O. Box 399
Delta, PA 17314

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Roland Fletcher
Department of Environment
Radiological Health Program
2400 Broening Highway
Baltimore, MD 21224

Correspondence Control Desk
Exelon Generation Company, LLC
200 Exelon Way, KSA 1-N-1
Kennett Square, PA 19348

Rich Janati, Chief
Division of Nuclear Safety
Bureau of Radiation Protection
Department of Environmental Protection
Rachel Carson State Office Building
P.O. Box 8469
Harrisburg, PA 17105-8469

Board of Supervisors
Peach Bottom Township
545 Broad Street Ext.
Delta, PA 17314-9203

Mr. Richard McLean
Power Plant and Environmental
Review Division
Department of Natural Resources
B-3, Tawes State Office Building
Annapolis, MD 21401

Dr. Judith Johnsrud
National Energy Committee
Sierra Club
433 Orlando Avenue
State College, PA 16803

Manager-Financial Control & Co-Owner
Affairs
Public Service Electric and Gas Company
P.O. Box 236
Hancocks Bridge, NJ 08038-0236

Manager Licensing-Limerick and Peach
Bottom
Exelon Generation Company, LLC
Nuclear Group Headquarters
Correspondence Control
P.O. Box 160
Kennett Square, PA 19348

Peach Bottom Atomic Power Station, Unit Nos. 2 and 3

cc:

Director - Licensing
Exelon Generation Company, LLC
Nuclear Group Headquarters
Correspondence Control
P.O. Box 160
Kennett Square, PA 19348

Vice President - Licensing and Regulatory Affairs
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

Vice President-Mid-Atlantic Operations
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

Senior Vice President, Nuclear Services
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

Vice President, Operations Support
Exelon Generation Company, LLC
200 Exelon Way, KSA 3-N
Kennett Square, PA 19348

Chief Operating Officer
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

EXELON GENERATION COMPANY, LLC

PSEG NUCLEAR LLC

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-277

PEACH BOTTOM ATOMIC POWER STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 250
Renewed License No. DPR-44

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Exelon Generation Company, LLC (Exelon Generation Company), and PSEG Nuclear LLC (the licensees), dated February 12, 2004 as supplemented by letter dated March 29, 2004, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I.

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Renewed Facility Operating License No. DPR-44 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 250, are hereby incorporated in the license. Exelon Generation Company shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA TTate for/

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: June 16, 2004

ATTACHMENT TO LICENSE AMENDMENT NO. 250

TO RENEWED FACILITY OPERATING LICENSE NO. DPR-44

DOCKET NO. 50-277

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove	Insert
3.3-52	3.3-52
B 3.3-142	B 3.3-142
B 3.3-143	B 3.3-143
B 3.3-149	B 3.3-149
	B 3.3-149a
B 3.3-161	B 3.3-161
B 3.3-166	B 3.3-166

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 250 TO RENEWED

FACILITY OPERATING LICENSE NO. DPR-44

EXELON GENERATION COMPANY, LLC

PSEG NUCLEAR LLC

ATLANTIC CITY ELECTRIC COMPANY

PEACH BOTTOM ATOMIC POWER STATION, UNIT 2

DOCKET NO. 50-277

1.0 INTRODUCTION

By application dated February 12, 2004, as supplemented by letter dated March 29, 2004, the Exelon Generation Company, LLC (the licensee) requested changes to the Technical Specifications (TSs) for the Peach Bottom Atomic Power Station, Unit 2 (Peach Bottom). The supplement dated March 29, 2004, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on March 2, 2004 (69 FR 9860).

The proposed changes would revise the Main Steam Tunnel Temperature High setpoint; specifically, the proposed changes would revise TS Table 3.3.6.1-1, "Primary Containment Isolation Instrumentation," to increase the TS Allowable Value (AV) related to the setpoint for the Main Steam Tunnel Temperature - High system isolation function for those instruments located within the Reactor Building. A new Function, 1.f, has been added to represent the Reactor Building Main Steam Tunnel Temperature - High. Function 1.e has been renamed to clarify that it represents only the Turbine Building Main Steam Tunnel Temperature - High.

During plant operation with a high ambient temperature, the corresponding high temperature in the reactor building main steam tunnel (MST) results in a reduced operating margin. Should the non-safety related reactor building ventilation system be out-of-service during these conditions, the resulting reactor building steam tunnel temperature could exceed the isolation setpoint. Reduced operating margin during these conditions resulted in a Group 1 main steam isolation in July 2003 when no actual steam leaks were present. A Group I isolation will result in a loss of the main condenser as a heat sink and loss of the feedwater system for reactor level control; therefore, safety systems are challenged when there is an inadvertent Group I isolation. The proposed change would improve the operating margin, improve the station's risk profile, and reduce challenges to the plant by avoiding unnecessary main steam line (MSL) isolations that are not a result of an MSL leak.

2.0 REGULATORY EVALUATION

General Design Criterion (GDC) 54 requires, in part, that piping systems penetrating primary reactor containment be provided with leak detection. Peach Bottom Unit 2 was licensed before the GDC were published; however, the Peach Bottom Updated Final Safety Analysis Report (UFSAR) Section 4.10.3.4 contains requirements for detection of abnormal leakage outside primary reactor containment. Timely detection and isolation of the leakage in the MSL is required to demonstrate that the projected radiological dose consequences do not exceed Title 10 of the *Code of Federal Regulations* (10 CFR) Part 100 limits.

The “Main Steam Tunnel Temperature - High Function” is provided to detect leaks in an MSL and provides diversity to the MSL high flow instrumentation. The function isolates primary containment Group 1 isolation valves which include the main steam isolation valves, the MSL drain valves, the MSL sample line valves and the recirculation loop sample line valves.

Four channels of “Reactor Building Main Steam Tunnel Temperature - High Function” and twelve channels of “Turbine Building Main Steam Tunnel Temperature - High Function” are available and are required to be operable to ensure that no single instrument failure can prevent the isolation function. This amendment request proposes a change to the AV associated with the four reactor building MST temperature channels located within the reactor building. As described in the TS Bases Section 3.3.6.1 and in UFSAR Section 7.3, the AV is chosen to detect a leak equivalent to between 1% and 10% rated steam flow. Main control room alarms with lower setpoints exist to alert operators to the presence of smaller leaks in the MST (UFSAR, Section 4.10). UFSAR, Section 7.3.4.7.3 states that the "The main steam line space high temperature trip is set far enough above the temperature expected during operations at rated power to avoid spurious isolation, yet low enough to provide early indication of a steam line break."

Paragraph (c)(1)(ii)(A) of 10 CFR 50.36, “Technical Specifications,” states, in part, that where a limiting safety system setting is specified for a variable on which a safety limit has been placed, the setting must be so chosen that an automatic protective action will correct the abnormal situation before a safety limit is exceeded. The analytical limit is the limit on the process variable at which the instrument loop protective action occurs as assumed in the plant's safety analysis. Protective action at the analytical limit ensures that the safety limit is not exceeded. The analytical limit, however, does not account for uncertainties associated with the instrument loop. The instrument loop uncertainty is accounted for during calculation of an instrument loop's trip setpoint.

GDC 21, “Protection System Reliability and Testability,” requires that the protection system be designed for high functional reliability and inservice testability such that no single failure results in the loss of the protection function. It also requires that the removal from service of any component or channel does not result in the loss of the required minimum redundancy unless the acceptable reliability of operation of the protection system can be otherwise demonstrated. As previously noted, Peach Bottom was licensed before the publication of the GDC; however, Appendix H to the Peach Bottom UFSAR indicates that the plant conforms to this GDC.

Regulatory Guide (RG) 1.105, “Setpoints for Safety-Related Instrumentation,” describes a method acceptable to the staff for complying with Nuclear Regulatory Commission’s (NRC's) requirements for ensuring that setpoints for safety-related instrumentation are initially within and remain within the TS limits. RG 1.105, Revision 3 endorses Part 1 of Instrument Society of America (ISA) Standard ISA-S67.04-1994, Setpoints for Nuclear Safety-Related Instrumentation.

3.0 TECHNICAL EVALUATION

In this safety evaluation, the NRC staff will determine whether or not there is reasonable assurance that the proposed revised AV for MST temperature high will meet the underlying regulatory criteria. The staff will also determine whether or not, with the AV of 230 degrees, the MSL space high temperature trip will provide early indication of a leak.

The licensee used the GOTHIC 7.0 computer code to determine the spatial and time dependent temperatures within the MST. The staff verified the code inputs that the licensee used. Air flow paths from adjacent plant areas, as well as ventilation flow for the room, were represented to the extent they could affect the temperature response of the room. For this application, the ventilation exhaust duct and the ventilation supply duct were modeled. Plant geometric information was used to construct the computer models. Initial conditions were selected that represented lower and upper bounding conditions for the winter and summer climates, respectively.

The Peach Bottom Unit 2 temperature sensing detectors are located so that they are sensitive to air temperatures only and not to radiated heat from hot piping or equipment. The MST high temperature isolation signals are obtained from resistance temperature detectors (RTDs) located in the ventilation exhaust duct. The licensee modeled the physical geometry of these detectors to account for the thermal lag in their response to changes in the ambient conditions. The temperature trip setpoints are a function of the sensor location and the plant-specific ventilation system design.

3.1 Model Description

The licensee modeled the MST as a single subdivided volume. The MST ventilation exhaust and supply duct were also modeled as subdivided volumes. The length, width, height and volume of each subdivided node was based on the location of piping systems and the general layout of the plant region being modeled. The MST volume was supplied with ventilation air from volumes and flow boundary conditions representing the normal ventilation and standby gas treatment system (SGTS) ventilation flows. The approach used to model the ventilation flow was to assign a constant volumetric flow rate, using a flow boundary condition, for the ventilation supply and exhaust. During a steam leak in the MST, it is possible that steam could enter the supply duct diverting some flow from away from the exhaust duct. To accommodate this possibility, it was necessary to include the supply duct volume and associated boundary conditions.

The ventilation duct volumes were also connected to neighboring areas within the reactor building. The passive contribution of the neighboring areas on the ventilation flow was modeled using junctions and pressure boundary conditions. The flow path junctions to these neighboring plant areas were included to account for their influence on both the normal and SGTS ventilation, as well as escaping steam in the event of a steam leak. This was important to ensure the model did not over predict the steam entering the exhaust duct region where the detectors are located, and potentially biasing the model into an earlier detection of the leak.

The licensee used the overall dimensions of the MST to calculate the total volume. The volume occupied by piping and the room ventilation equipment was subtracted from the total volume of the room to determine the amount of free volume available to respond to the elevated temperature effect of a steam leak.

The licensee calculated the surface area of the piping, walls, ceiling and floor to determine the amount of heat transfer surfaces available in a volume. The piping surface area used to represent heat structures was distributed among the different subdivided sections of the volume to approximate the actual physical location of the piping.

The licensee modeled the pressure relief function of the two blowout panels, one in the MST room and the other in the exhaust duct, for the analyses of MSL leaks. These flow paths included critical flow modeling, as provided in GOTHIC. The inclusion of the blowout panels ensured that their influence on the response of the detectors was modeled. Since these panels are located upstream of the detectors they have the potential to divert steam flow from the detectors, and the inclusion of them in the model was appropriate. Since the blowout panel does not normally allow flow, it was necessary to employ the GOTHIC valve component to mimic this feature. The quick-opening valve model was used and set to open on a pressure difference of 1 psid.

Heating loads from piping were included in the model. The heating loads were located in the MST subdivided volume regions to approximate the actual location of the heat sources. These heat loads were modeled as tube geometry conductors with an internal wall boundary condition temperature that equaled the process fluid temperature within the piping.

The licensee modeled the break flow into the MST for the steam leak assessments using a flow boundary condition. Two break sizes were assumed: (1) 1% of total rated steam flow and (2) 10% of total rated steam flow. The rates were based on the rated full power main steam flow rate documented in the UFSAR. A critical flow calculation was not performed for determining break flow using the GOTHIC computer code. The flow boundary condition required enthalpy and pressure in addition to the flow. These two parameters were set in the model to correspond with nominal process conditions. The flow area for each break size was calculated to correspond with the appropriate critical flow of the system.

3.2 Model Evaluation

The model uses the GOTHIC subdivided volume feature. When this feature is employed, a volume like the MST or the ventilation ducts is subdivided into smaller regions (nodes) based on the need to locate a specific region in the volume or to account for structures or changes in dimensions. Unlike the lumped parameter approach there is no need to model flow paths between these regions, as they are included with this feature. Both the region characteristics and flow path characteristics between the subdivided nodes can be modified to account for structure and flow area changes. The staff reviewed the subdivided modeling of the MST and ventilation ducts and determined that the licensee applied the guidelines and recommendations provided in the GOTHIC User's Guide in an appropriate manner. Therefore, the staff finds the use of the subdivided model acceptable for this application.

The licensee assigned the design heat transfer option provided in the GOTHIC code to the walls, floor, ceiling, and piping heat structures (heat sinks) within the MST volume. The condensation/convection option was selected to be "MAX," and radiation heat transfer was set to "ON." The natural convection option was set to "vertical wall" for the walls, floor and ceiling and was set to "horizontal cylinder" for piping. The forced convection option was set to the default value ("pipe flow"). The staff reviewed these parameters and determined that the selection of these options conservatively predicts the heat transfer from the room to these heat structures. The staff, therefore, finds the selection of the heat transfer options used to model the heat structures acceptable since they conservatively delay the response time of the detectors to an MSL leak condition.

The licensee did not maximize heat transfer from the piping (heat sources) for the MSL leak analyses. For these analyses, the licensee based the heat transfer from the piping systems on the GOTHIC code's heat transfer correlations. The piping located in the room was assumed to be fully insulated with no enhancement to the heat transfer rate. This resulted in a relatively small heat load in the room prior to and during the MSL leak. This was done to ensure that the heat load from any piping located in the room would not bias the detection system toward early detection. The staff reviewed the licensee's approach to heat transfer and determined that this approach added conservatism to the analysis, as actual plant experience showed a much larger heat load was being provided to the room from the piping systems. This is acceptable since it conservatively delays the response time of the detectors to an MSL leak condition.

The licensee used plant response data to establish the heat transfer relationship between the heat sources and the air in the MST for the loss of heating, ventilation, and air conditioning (HVAC) events. The staff reviewed the licensee's analysis and determined that this approach resulted in a maximized heat transfer rate to the air. The staff finds this approach acceptable since it conservatively decreases the delay of the response time of the detectors to a loss of HVAC event.

The licensee also benchmarked the GOTHIC model against two actual plant events where loss of HVAC occurred. In both cases, it was demonstrated that the model, generally, bounded the plant response showing a predicted temperature above the actual data which supported the application of the model to the loss of HVAC evaluation.

The licensee performed a steady-state calculation, lasting 1,000 seconds, for each analysis prior to initiating the upset condition, either the MSL leak or the loss of HVAC. This showed the overall stability of the model and confirmed the overall modeling approach and confirmed the initial and boundary conditions. The temperatures and flow rates remained relatively constant and near their initial set values during the steady-state portion of the calculations.

The staff reviewed the benchmarking of the model against data taken during actual plant events. The staff also reviewed the results of the steady state calculation that the licensee performed. Based on this review, the staff concluded that the GOTHIC 7.0 code as employed by the licensee adequately models the MST for the event in question.

3.3 Conclusions Regarding Allowable Value

As discussed in Section 3.2, the staff finds the application of GOTHIC 7.0 and the model developed to evaluate the Peach Bottom Unit 2 response to MSL leaks acceptable. The analyses conservatively calculate the temperature response time of the detectors in the ventilation exhaust duct in support of determining the TS 3.6.6.1-1 AV for Group 1 isolation.

For the cases analyzed, MSL leaks of 1% and 10% rated steam flow, the detector response indicates that there is reasonable assurance the proposed AV of 230 °F will be reached in less than 1 minute.

The staff finds the application of GOTHIC 7.0 and the model developed to evaluate the Peach Bottom Unit 2 response to loss of HVAC events acceptable. The analyses conservatively calculate the temperature response time of the detectors in the ventilation exhaust duct in support of the objective stated in UFSAR, Section 7.3.4.7.3 to provide margin to the isolation trip setpoint during normal plant operations when no MSL leak is present. For the cases analyzed, the detector response indicates that there is reasonable assurance the plant operators will have more than 7 hours to address a loss of HVAC event, without an MSL leak, with the temperature remaining below 220 °F.

3.4 Setpoint Evaluation

The licensee proposed to increase the AV for main steam tunnel temperature - high in TS Table 3.3.6.1-1 from ≤ 200 °F to ≤ 230 °F for instruments located inside the reactor building. The main steam tunnel - high function is provided to detect leaks in an MSL and provide diversity to MSL high flow instrumentation. Four channels of the reactor building main steam tunnel temperature - high function and 12 channels of the turbine building main steam tunnel temperature - high function are available and required to be operable to ensure that no single failure can preclude the isolation function.

During operation with high ambient temperatures, the temperatures of the reactor building MST result in reduced operating margin. Should the non-safety related reactor building ventilation system be out-of-service during these conditions, the resulting reactor building steam tunnel temperature could exceed the isolation setpoint.

To avoid unnecessary isolation transients, the licensee has proposed raising the reactor building main steam tunnel temperature - high setpoint. To support this proposed setpoint change, the licensee performed a new analysis of reactor building temperature response to an MSL break. The results of this analysis allow the analytical limit for high temperature in the MSL tunnel in the reactor building to be raised from 220 °F to 240 °F. The licensee used the setpoint methodology described in NEDC-31336P-A, "General Electric Instrument Setpoint Methodology," dated September 1996, to determine that based on an analytical limit of 240 °F the AV could be raised to 230.00148 °F. NEDC-31336P-A is based on ISA S67.04 Method 2 and has been previously approved by the staff.

Based on the current analytical limit of 220 °F, the licensee could have used an AV slightly above 210 °F. However, to add extra margin, an AV of 200 °F is currently being used. The licensee has proposed an AV of 230 °F. The margin between the current analytical limit and the AV that could be used is the same as the margin between the new analytical limit and the proposed AV. Therefore, the proposed AV is in compliance with 10 CFR 50.36 and RG 1.105. On this basis the staff finds the new AV acceptable.

The licensee has proposed to add a new TS Table 3.3.6.1-1 Function 1.f, "Reactor Building Main Steam Tunnel Temperature - High" to raise the AV for the main steam tunnel temperature - high system isolation function for instruments located inside the reactor building.

The current TS Table 3.3.6.1-1 Function 1.e, “Main Steam Tunnel Temperature - High” is performed by four sets of temperature elements. Each set consists of four sensors. One set is located in the MST ventilation duct in the reactor building and the other three sets are located in the MSLs in the turbine building. A new Function 1.f has been proposed to represent the one set of temperature elements located in the reactor building. Therefore, there are a total of four channels of reactor building main steam tunnel temperature - high instrumentation.

The proposed new Function 1.f would have two required channels per trip system and an AV of $\leq$ 230. °F. The proposed AV was found acceptable as stated above. The four channels of reactor building main steam tunnel temperature - high instrumentation are arranged in a one-out-of-two taken twice configuration. The proposed arrangement requires two sensors per trip system which ensures that no single instrument failure can preclude the reactor building main steam tunnel temperature - high instrumentation from performing its function. Therefore, the proposed new Function 1.f meets the single failure criterion of GDC 21 of 10 CFR Part 50, Appendix A. On this basis, the staff finds the creation of Function 1.f acceptable.

The licensee has proposed changing the name of existing TS Table 3.3.6.1-1, Function 1.e from “Main Steam Tunnel Temperature - High” to “Turbine Building Main Steam Tunnel Temperature - High,” to clarify that the function represents only the three sets of MST temperature elements located in the turbine building. Each set consists of four sensors. Therefore, there are a total of 12 channels of turbine building main steam tunnel temperature - high instrumentation.

With the creation of Function 1.f, as described in Section 3.2 above, the renaming of Function 1.e becomes an administrative change. Each set of four instruments of turbine building main steam tunnel temperature - high instrumentation is arranged in a one-out-of-two taken twice configuration. The proposed arrangement requires six sensors per trip system which ensures that no single instrument failure can preclude the turbine building main steam tunnel temperature - high instrumentation from performing its function. Therefore, the renamed Function 1.e meets the single failure criterion of Criterion 21 of 10 CFR Part 50, Appendix A. On this basis, the staff finds the renaming of Function 1.e acceptable.

4.0 SUMMARY

On the basis of the above review, the staff finds that an AV of 230 degrees for Main Steam Tunnel Temperature - High for those components located in the reactor building will meet the underlying design objective; that is, small leaks in the area of 1% to 10% will be detected within about 1 minute. The staff also finds that the licensee followed the appropriate guidance regarding setpoints and that the instrumentation is designed so that a single failure will not prevent an actual Main Steam Tunnel Temperature - High actuation; therefore there is reasonable assurance of that 10 CFR Part 100 limits will continue to be met.

5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendment. The State official had no comments.

6.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (69 FR 9860). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: E. Throm
B. Marcus

Date: June 16, 2004