August 24, 1995

Mr. Robert G. Byram
Senior Vice President-Nuclear
Pennsylvania Power and Light Company
2 North Ninth Street
Allentown, PA 18101

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2
(TAC NOS. M91664 and M91665)

Dear Mr. Byram:

The Commission has issued the enclosed Amendment No. 152 to Facility Operating License No. NPF-14 and Amendment No. 122 to Facility Operating License No. NPF-22 for the Susquehanna Steam Electric Station, Units 1 and 2. These amendments are in response to your letter dated February 1, 1995, as supplemented by letter dated June 20, 1995.

These amendments modify the applicable operational conditions for the secondary containment isolation radiation monitors located on the refueling floor and for the radiation monitor located in the railroad access shaft.

A copy of our Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Biweekly Federal Register Notice.

Sincerely,
original signed by
Chester Poslusny, Senior Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-387/50-388

Enclosures: 1. Amendment No. 152 to License No. NPF-14
2. Amendment No. 122 to License No. NPF-22
3. Safety Evaluation

cc w/encls: See next page

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DATE	:8/14/95	:8/18/95	:8/13/95	:8/24/95	:	:

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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Mr. Robert G. Byram
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Sincerely,

Chester Poslusny

Chester Poslusny, Senior Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-387/50-388

Enclosures:
1. Amendment No. 152 to License No. NPF-14
2. Amendment No. 122 to License No. NPF-22
3. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-387

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 152
License No. NPF-14

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:

   A. The application for the amendment filed by the Pennsylvania Power & Light Company, dated February 1, 1995, as supplemented by letter dated June 20, 1995, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 set forth in 10 CFR Chapter I;

   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 the Facility Operating License No. NPF-14 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 152 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. PP&L shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: August 24, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 152

FACILITY OPERATING LICENSE NO. NPF-14

DOCKET NO. 50-387

Replace the following pages of the Appendix A Technical Specification with enclosed pages. The revised pages are identified by Amendment number and contains vertical lines indicating the area of change.

REMOVE	INSERT
3/4 3-11	3/4 3-11
3/4 3-16	3/4 3-16
3/4 3-23	3/4 3-23
3/4 3-26	3/4 3-26

TABLE 3.3.2-1

ISOLATION ACTUATION INSTRUMENTATION

TRIP FUNCTION	ISOLATION SIGNAL(s) [(a)]	MINIMUM OPERABLE CHANNELS PER TRIP SYSTEM [(b)]	APPLICABLE OPERATIONAL CONDITION	ACTION
1. PRIMARY CONTAINMENT ISOLATION				
a. Reactor Vessel Water Level				
1) Low, Level 3	A	2	1,2,3	20
2) Low Low, Level 2	B	2	1,2,3	20
3) Low Low Low, Level 1	X	2	1,2,3	20
b. Drywell Pressure - High	Y,Z,X	2	1,2,3	20
c. Manual Initiation	NA	1	1,2,3	24
d. SGTS Exhaust Radiation - High	R	1	1,2,3,4***,5***	20
e. Main Steam Line Radiation - High	C	2	1,2,3	20
2. SECONDARY CONTAINMENT ISOLATION				
a. Reactor Vessel Water Level - Low Low, Level 2	**	2	1,2,3 and *	25
b. Drywell Pressure - High	**	2	1,2,3	25
c. Refuel Floor High Exhaust Duct Radiation - High	**	2	#	25
d. Railroad Access Shaft Exhaust Duct Radiation - High	**	1	##	25
e. Refuel Floor Wall Exhaust Duct Radiation - High	**	2	#	25
f. Manual Initiation	NA	1	1,2,3 and *	24

TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

ACTION STATEMENTS

ACTION 20	Be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
ACTION 21	Be in at least STARTUP with the associated isolation valves closed within 6 hours or be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.
ACTION 22	Be in at least STARTUP within 6 hours.
ACTION 23	Close the affected system isolation valves within 1 hour and declare the affected system inoperable.
ACTION 24	Restore the manual initiation function to OPERABLE status within 8 hours or close the affected system isolation valves within the next hour and declare the affected system inoperable or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
ACTION 25	Establish SECONDARY CONTAINMENT INTEGRITY with the standby gas treatment system operating within 1 hour.
ACTION 26	Lock the affected system isolation valves closed within 1 hour and declare the affected system inoperable.

NOTES

* When handling irradiated fuel in the secondary containment and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.

** Actuates dampers shown in Table 3.6.5.2-1.

*** When VENTING or PURGING the drywell per Specification 3.11.2.8.

\# When handling irradiated fuel in the secondary containment and during CORE ALTERATIONS and operations with the potential for draining the reactor vessel. Single control rod movement, except for the purpose of SDM demonstration (TS 3.10.3), is excluded.

\## When handling irradiated fuel within the Railroad Access Shaft, and above the Railroad Access Shaft with the Railroad Access Shaft Equipment Hatch open.

(a) See Specification 3.6.3, Table 3.6.3-1 for valves which are actuated by these isolation signals.

(b) A channel may be placed in an inoperable status for up to 2 hours for required surveillance without placing the channel or trip system in the tripped condition provided at least one other OPERABLE channel in the same trip system is monitoring that parameter. In addition, for the HPCI system and RCIC system isolation, provided that the redundant isolation valve, inboard or outboard, as applicable, in each line is OPERABLE and all required actuation instrumentation for that valve is OPERABLE, one channel may be placed in an inoperable status for up to 8 hours for required surveillance without placing the channel or trip system in the tripped condition.

TABLE 4.3.2.1-1

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED
1. PRIMARY CONTAINMENT ISOLATION				
a. Reactor Vessel Water Level -				
1) Low, Level 3	S	M	R	1,2,3
2) Low Low, Level 2	S	M	R	1,2,3
3) Low Low Low, Level 1	S	M	R	1,2,3
b. Drywell Pressure - High	NA	M	R	1,2,3
c. Manual Initiation	NA	R	NA	1,2,3
d. SGTS Exhaust Radiation - High	S	M	R	1,2,3,4***,5***
e. Main Steam Line Radiation - High	S	M	R	1,2,3
2. SECONDARY CONTAINMENT ISOLATION				
a. Reactor Vessel Water Level - Low Low, Level 2	S	M	R	1,2,3 and *
b. Drywell Pressure - High	NA	M	Q	1,2,3
c. Refuel Floor High Exhaust Duct Radiation - High	S	M	R	#
d. Railroad Access Shaft Exhaust Duct Radiation - High	S	M	R	##
e. Refuel Floor Wall Exhaust Duct Radiation - High	S	M	R	#
f. Manual Initiation	NA	R	NA	1,2,3 and *

TABLE 4.3.2.1-1 (Continued)
ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED
HIGH PRESSURE COOLANT INJECTION SYSTEM ISOLATION (continued)				
d. HPCI Equipment Room Temperature - High	NA	M	Q	1,2,3
e. HPCI Equipment Room Δ Temperature - High	NA	M	Q	1,2,3
f. HPCI Emergency Area Cooler Temperature - High	NA	M	Q	1,2,3
g. HPCI Pipe Routing Area Temperature - High	NA	M	Q	1,2,3
h. HPCI Pipe Routing Area Δ Temperature - High	NA	M	Q	1,2,3
i. Manual Initiation	NA	R	NA	1,2,3
j. Drywell Pressure - High	NA	M	R	1,2,3
7. RHR SYSTEM SHUTDOWN COOLING/HEAD SPRAY MODE ISOLATION				
a. Reactor Vessel Water Level - Low, Level 3	S	M	R	1,2,3
b. Reactor Vessel (RHR Cut-in Permissive) Pressure - High	NA	M	Q	1,2,3
c. RHR Flow - High	S	M	R	1,2,3
d. Manual Initiation	NA	R	NA	1,2,3
e. Drywell Pressure - High	NA	M	R	1,2,3

* When handling irradiated fuel in the secondary containment and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.

** When any turbine stop valve is open.

*** When VENTING or PURGING the drywell per Specification 3.11.2.8.

\# When handling irradiated fuel in the secondary containment and during CORE ALTERATIONS and operations with the potential for draining the reactor vessel. Single control rod movement, except for the purpose of SDM demonstration (TS 3.10.3), is excluded.

\#\# When handling irradiated fuel within the Railroad Access Shaft, and above the Railroad Access Shaft with the Railroad Access Shaft Equipment Hatch open.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

DOCKET NO. 50-388

SUSQUEHANNA STEAM ELECTRIC STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 122
License No. NPF-22

1. The Nuclear Regulatory Commission (the Commission or the NRC) having found that:

   A. The application for the amendment filed by the Pennsylvania Power & Light Company, dated February 1, 1995, as supplemented by letter dated June 20, 1995, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 set forth in 10 CFR Chapter I;

   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 the Facility Operating License No. NPF-22 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 122 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. PP&L shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: August 24, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 122

FACILITY OPERATING LICENSE NO. NPF-22

DOCKET NO. 50-388

Replace the following pages of the Appendix A Technical Specifications with enclosed pages. The revised pages are identified by Amendment number and contains vertical lines indicating the area of change.

REMOVE	INSERT
3/4 3-11	3/4 3-11
3/4 3-16	3/4 3-16
3/4 3-23	3/4 3-23
3/4 3-26	3/4 3-26

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b. Drywell Pressure - High	Y,Z	2	1,2,3	20
c. Manual Initiation	NA	1	1,2,3	24
d. SGTS Exhaust Radiation - High	R	1	1,2,3,4***,5***	20
e. Main Steam Line Radiation - High	C	2	1,2,3	20
2. SECONDARY CONTAINMENT ISOLATION				
a. Reactor Vessel Water Level - Low Low, Level 2	**	2	1,2,3 and *	25
b. Drywell Pressure - High	**	2	1,2,3	25
c. Refuel Floor High Exhaust Duct Radiation - High	**	2	#	25
d. Railroad Access Shaft Exhaust Duct Radiation - High	**	1	##	25
e. Refuel Floor Wall Exhaust Duct Radiation - High	**	2	#	25
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TABLE 3.3.2-1 (Continued)

ISOLATION ACTUATION INSTRUMENTATION

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ACTION 22	Be in at least STARTUP within 6 hours.
ACTION 23	Close the affected system isolation valves within 1 hour and declare the affected system inoperable.
ACTION 24	Restore the manual initiation function to OPERABLE status within 8 hours or close the affected system isolation valves within the next hour and declare the affected system inoperable or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
ACTION 25	Establish SECONDARY CONTAINMENT INTEGRITY with the standby gas treatment system operating within 1 hour.
ACTION 26	Lock the affected system isolation valves closed within 1 hour and declare the affected system inoperable.

NOTES

* When handling irradiated fuel in the secondary containment and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.

** Actuates dampers shown in Table 3.6.5.2-1.

*** When VENTING or PURGING the drywell per Specification 3.11.2.8.

\# When handling irradiated fuel in the secondary containment and during CORE ALTERATIONS and operations with the potential for draining the reactor vessel. Single control rod movement, except for the purpose of SDM demonstration (TS 3.10.3), is excluded.

\## When handling irradiated fuel within the Railroad Access Shaft, and above the Railroad Access Shaft with the Railroad Access Shaft Equipment Hatch open.

(a) See Specification 3.6.3, Table 3.6.3-1 for valves which are actuated by these isolation signals.

(b) A channel may be placed in an inoperable status for up to 2 hours for required surveillance without placing the channel or trip system in the tripped condition provided at least one other OPERABLE channel in the same trip system is monitoring that parameter. In addition, for the HPCI system and RCIC system isolation, provided that the redundant isolation valve, inboard or outboard, as applicable, in each line is OPERABLE and all required actuation instrumentation for that valve is OPERABLE, one channel may be placed in an inoperable status for up to 8 hours for required surveillance without placing the channel or trip system in the tripped condition.

TABLE 4.3.2.1-1

ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED
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2) Low Low, Level 2	S	M	R	1,2,3
3) Low Low Low, Level 1	S	M	R	1,2,3
b. Drywell Pressure - High	NA	M	R	1,2,3
c. Manual Initiation	NA	R	NA	1,2,3
d. SGTS Exhaust Radiation - High	S	M	R	1,2,3,4***,5***
e. Main Steam Line Radiation - High	S	M	R	1,2,3
2. SECONDARY CONTAINMENT ISOLATION				
a. Reactor Vessel Water Level - Low Low, Level 2	S	M	R	1,2,3 and *
b. Drywell Pressure - High	NA	M	Q	1,2,3
c. Refuel Floor High Exhaust Duct Radiation - High	S	M	R	#
d. Railroad Access Shaft Exhaust Duct Radiation - High	S	M	R	##
e. Refuel Floor Wall Exhaust Duct Radiation - High	S	M	R	#
f. Manual Initiation	NA	R	NA	1,2,3 and *

TABLE 4.3.2.1-1 (Continued)
ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS

TRIP FUNCTION	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	OPERATIONAL CONDITIONS FOR WHICH SURVEILLANCE REQUIRED
HIGH PRESSURE COOLANT INJECTION SYSTEM ISOLATION (continued)				
d. HPCI Equipment Room Temperature - High	NA	M	Q	1,2,3
e. HPCI Equipment Room Δ Temperature - High	NA	M	Q	1,2,3
f. HPCI Emergency Area Cooler Temperature - High	NA	M	Q	1,2,3
g. HPCI Pipe Routing Area Temperature - High	NA	M	Q	1,2,3
h. HPCI Pipe Routing Area Δ Temperature - High	NA	M	Q	1,2,3
i. Manual Initiation	NA	R	NA	1,2,3
j. Drywell Pressure - High	NA	M	R	1,2,3
7. RHR SYSTEM SHUTDOWN COOLING/HEAD SPRAY MODE ISOLATION				
a. Reactor Vessel Water Level - Low, Level 3	S	M	R	1,2,3
b. Reactor Vessel (RHR Cut-in Permissive) Pressure - High	NA	M	Q	1,2,3
c. RHR Flow - High	S	M	R	1,2,3
d. Manual Initiation	NA	R	NA	1,2,3
e. Drywell Pressure - High	NA	M	R	1,2,3

* When handling irradiated fuel in the secondary containment and during CORE ALTERATIONS and operations with a potential for draining the reactor vessel.

** When any turbine stop valve is open.

*** When VENTING or PURGING the drywell per Specification 3.11.2.8.

\# When handling irradiated fuel in the secondary containment and during CORE ALTERATIONS and operations with the potential for draining the reactor vessel. Single control rod movement, except for the purpose of SDM demonstration (TS 3.10.3), is excluded.

\#\# When handling irradiated fuel within the Railroad Access Shaft, and above the Railroad Access Shaft with the Railroad Access Shaft Equipment Hatch open.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 152 TO FACILITY OPERATING LICENSE NO. NPF-14

AMENDMENT NO. 122 TO FACILITY OPERATING LICENSE NO. NPF-22

PENNSYLVANIA POWER & LIGHT COMPANY

ALLEGHENY ELECTRIC COOPERATIVE, INC.

SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2

DOCKET NOS. 50-387 AND 388

1.0 INTRODUCTION

By letter dated February 1, 1995, and as supplemented by letter dated June 20, 1995, the Pennsylvania Power and Light Company (the licensee) submitted a request for changes to the Susquehanna Steam Electric Station, Units 1 and 2, Technical Specifications (TS). The requested changes would modify the applicable operational conditions for the secondary containment isolation radiation monitors located on the refueling floor and for the monitor located in the railroad access shaft. Specifically, for the refueling floor exhaust duct and wall exhaust duct radiation monitors, the proposed change would modify the applicable operational condition during specific control rod testing evolutions which are core alterations and would indicate that the operability requirement change does not apply during shutdown margin demonstrations. For the railroad access shaft duct radiation monitor, the change to the TS would modify the applicable operational condition to address plant evolutions involving irradiated fuel transfer within the railroad access shaft and above the access shaft with the equipment hatch open. The letter dated June 20, 1995, provided clarifying information that did not change the initial proposed no significant hazards consideration determination or go beyond the scope of the initial Federal Register notice.

The current TS 3/4 3.2 requires that secondary containment isolation radiation monitors be operable any time when irradiated fuel is being handled in secondary containment, during core alterations, and during operations with a potential for draining the reactor vessel. This requirement, that the monitors be operable during these times, applies to process radiation monitor subsystems which provide secondary containment isolation signals. This operability requirement can result in false actuation of engineered safety features (ESF) during certain work evolutions when gamma shine is likely to cause the monitors to falsely isolate secondary containment and start the standby gas treatment system. This can occur when radioactive debris is dislodged within the reactor vessel during shutdown cooling operation or during transfer of control rod drive (CRD) units to the CRD rebuild room.

Measures presently used to avoid the false ESF actuations delay certain control rod testing activities during a refueling outage, cause unnecessary personnel radiation exposure and require the performance of surveillances to confirm the operability of the monitors. The licensee indicated in discussions with the staff that the net effect of the TS change will result in rendering the monitors inoperable by bypassing the trip functions, but the control room indicators and alarms for radiation in the secondary containment will remain in operation.

2.0 BACKGROUND

In its original submittal the licensee indicated that the Secondary Containment Isolation Radiation Monitors are comprised of three process radiation monitor subsystems:

- o Refueling Floor Exhaust Duct High Radiation Monitor (Units 1 & 2)
- o Refueling Floor Wall Exhaust Duct Radiation Monitor (Units 1 & 2)
- o Railroad Access Shaft Exhaust Duct Radiation Monitor (Unit 1 only)

These monitors generate signals which automatically initiate isolation of secondary containment, start the Standby Gas Treatment System, and start the Recirculation System (Zone III), in response to a high radiation condition. The function of these systems, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs). The DBAs for which the process radiation monitors contribute to mitigation are in the categories; Decreases in Reactor Coolant Inventory, and Radioactive Releases from a Subsystem or Component. Within these categories, the monitors are designed to address limiting faults that can result in secondary containment Zone III airborne radioactive concentrations. Zone III includes the Refueling Floor and can include the Railroad Access Shaft during certain alignments. Thus the design basis for the process radiation monitors is to monitor radiation in the unfiltered air from the Zone III exhaust system, and provide signals which isolate the Zone III portion of the secondary containment on a high radiation condition to limit offsite doses to within regulatory limits. The process radiation monitors are not provided for onsite personnel protection. Area Radiation Monitors (ARMs) and Airborne Radioactivity Monitoring is provided in Zone III to alert plant personnel of changing radioactivity conditions which could result in inadvertent exposures. ARMs also supplement the process radiation monitors in detecting abnormal migrations of radioactive material in or from the process streams.

Each monitor subsystem is comprised of two redundant detector assemblies feeding independent instrument channels. The instrument channels are powered separately from reactor protection system power busses A & B. Signals generated from the detectors supply trip circuits and control room monitoring circuits.

3.0 EVALUATION

3.1 TS Change for Refueling Floor Radiation Monitors

The existing TS indicates that the refueling floor radiation monitors must be operable, "When handling irradiated fuel in the secondary containment and during core alterations and operations with a potential for draining the reactor vessel." The proposed TS change would add the following sentence to the existing operational condition: "Single control rod movement, except for the purpose of SDM [shut-down margin] demonstration (TS 3.10.3), is excluded." The current operability requirement is intended to ensure that actions which could lead to a high radiation condition in the unfiltered air from the Zone III exhaust system are not performed without the refueling floor process radiation monitors being operable. The proposed change would not change the requirement to have the monitors operable during movement of irradiated fuel or during operations which include the potential for draining the reactor vessel.

The refueling floor exhaust duct high radiation and wall exhaust duct radiation monitors are process radiation monitors which monitor concentrations of radioactive material in the ambient air from the Zone III exhaust system. Since these monitors do not provide onsite personnel protection, the staff finds that worker doses will not be increased if the monitors are not in service.

In its submittal, the licensee discussed the effects of single control rod movement with the refueling floor radiation monitors inoperable. The following is the discussion provided in the February letter:

> The postulated event associated with control rod related CORE ALTERATIONS which could result in increased Zone III airborne radioactivity concentrations is criticality resulting from a single control rod withdrawal. This postulated event creates the potential for release of airborne radioactivity in two ways:
>
> 1. Release of fission products from a previously failed assembly, and
>
> 2. Fuel failure and subsequent release of fission products as a result of criticality.
>
> There are multiple barriers to protect against the postulated event of criticality from a single rod withdrawal. Technical Specifications, plant operating procedures, and plant design control the withdrawal of control rods to minimize the potential for an inadvertent criticality event during shutdown. In addition, a fuel loading verification is performed, per procedure, on the as loaded core configuration to ensure that the fuel is loaded correctly. Each reload core is designed such that there is at least a 99.9% probability with a 95% confidence that

the core will not be critical as a result of a single control rod withdrawal. Therefore, given that the core loading has been verified, criticality as a result of a single control rod withdrawal would require a multiple failure scenario.

In the unlikely event that control rod manipulations resulted in reactor criticality, adequate protective measures are provided by core monitoring instrumentation required to be operable in OPCON 5. Under this scenario, assuming the inadvertent control rod withdrawal resulted in a significant reactivity addition, the Reactor Protection System (RPS) would respond by inserting all control rods via the Scram function. The RPS monitors for recriticality during OPCON 5 with Source Range Monitors (SRMs) (per Technical Specification Section 3.9.2), and intermediate range monitors (IRMs).

The SRM subsystem is composed of four detectors that are inserted into the core during shutdown conditions. Although the subsystem is a non-safety subsystem, it is important to overall plant safety. The SRMs are required by Technical Specifications to be OPERABLE in OPCON 5. During refueling operations, plant operators use the SRMs to ensure that neutron flux remains within an acceptable range. Also, plant operators can monitor the SRMs for increases in neutron flux which may indicate that the reactor is approaching criticality. SRMs indicate reactor criticality and generate a control rod block signal on high neutron flux levels. Prior to and during the time any control rod is withdrawn (except via Technical Specification 3.9.10.1 & 3.9.10.2) and Shutdown Margin demonstrations are in progress, Technical Specification Section 3.9.2 requires the shorting links be removed so that the SRMs will operate in the non-coincident scram mode to cause a reactor scram as necessary. The IRM subsystem is composed of eight incore detectors that are inserted into the core. The IRMs are designed to monitor neutron flux levels at a local core location and provide protection against local criticality events caused by control rod withdrawal errors. The IRMs provide trip signals to the RPS when preset downscale or upscale levels are reached.

Assuming that a criticality did occur as a result of a single control rod withdrawal, any increase in Zone III airborne radioactivity from a previously failed assembly located in the vicinity of the withdrawn control rod or a fuel rod failure associated with the control rod withdrawal would not result in an offsite dose exceeding regulatory limits. If criticality occurs following core loading and verification (i.e. >20 days after shutdown), the offsite dose as a result of the release of fission products from a single failed fuel rod would be much less than 1% of the applicable site boundary limits. In addition, as many as four complete fuel assemblies (i.e. ≈300 fuel rods) could fail with the subsequent offsite dose remaining below the applicable regulatory limits. Failure of more than four complete fuel assemblies due to the withdrawal of a single control rod in OPCON 5 is not considered credible. In fact, due to the initial conditions of this event (i.e. cold, zero power, subcritical) and the reactivity

characteristics of the fuel (i.e. negative fuel temperature reactivity coefficient) it is very unlikely that a criticality of this nature would result in failure of any fuel rods.

Although the refueling floor process radiation monitors would not be OPERABLE, Zone III airborne radioactivity concentrations can be independently detected with Area Radiation Monitors (ARMs) which are located on the refueling floor. These monitors provide control room indication, and would alert operators to changing radiological conditions on the refueling floor. In addition to providing personnel notification, the ARMs are credited in the FSAR as a supplement to the process radiation monitors in detecting abnormal migrations of radioactive material in or from the process streams. Operators can manually initiate secondary containment isolation based on ARM input. The Emergency Operating Procedures require the operators to take appropriate actions on higher than normal radiation readings. Moreover, any airborne radioactivity leakage from Zone III would be monitored via instrumentation in the Reactor Building vent stack required to be OPERABLE at all times. The Reactor Building Vent Stack Exhaust Sampler provides an exhaust sample to a panel for monitoring and filtering of particulates, iodine, and noble gases, prior to the samples return to the exhaust vent. Local panel indication is provided for either sample counts per minute or micro-curies per cubic centimeter, and local alarms are provided. Remote recording and alarms are provided in the main control room, and in the Technical Support Center. As a result, operator actions would be prompted by the local and/or remote indication. Operators can manually initiate secondary containment isolation based on exhaust sample readings. In addition, the sampling function allows the amount of any potential leakage to be readily verified to be within regulatory limits.

The licensee concluded that single control rod withdrawal is an analyzed evolution with adequate design basis safeguards preventing inadvertant criticality and given a criticality event, the design would ensure that potential offsite effects would not be significant. In addition, even if a local criticality occurred, analysis indicated that regulatory limits would not be exceeded. Additional monitoring capability in the reactor building vent stack exhaust sampler, operable at all times, and area radiation monitors on the refueling floor provide a diverse method of indication and alarm should radiation in the secondary containment be present. In the event of a radioactive release, local panel indication, local alarms, and remote recoding and alarms which are provided in the control room would prompt the operators to manually initiate secondary containment isolation based on exhaust sample readings. Further, the plant emergency operating procedures direct operator actions in response to higher than normal radiation readings. Thus, the staff finds that potential releases of radioactive materials would continue to be monitored and controlled with the process radiation monitors inoperable.

In addition, the TS changes do not effect the analysis of the design basis fuel handling accident since the refueling floor process radiation monitors and their secondary containment isolation actuation function will continue to be operable whenever fuel is being handled. The staff agrees with the licensee's conclusions and finds that the proposed modification to the TS to permit single control rod movement with the refueling floor radiation monitors inoperable as defined above neither increases the potential for individual or collective occupational doses nor the risk of offsite dose and finds the change to be an acceptable change with minimum impact on safety.

3.2 TS Change for Railroad Access Shaft Radiation Monitor

The Zone III portion of the secondary containment includes (but is not limited to) the common refueling floor for both of the units. With the railroad access shaft equipment hatch cover open, the railroad access shaft and the railroad bay become part of Zone III. The refueling floor exhaust duct radiation monitors are located near the reactor vessels of the two units, in the refueling floor exhaust ductwork, which receives exhaust air from the reactor cavity. The refueling floor wall exhaust duct radiation monitors are located near the spent fuel pools of the two units, in the refueling floor wall exhaust ductwork, which receives exhaust air from the pool areas. The railroad access shaft duct radiation monitors are located in the railroad access shaft exhaust duct work, which receives exhaust air from the railroad access shaft. The refueling floor process radiation monitors and the railroad access shaft exhaust duct radiation monitors constitute the isolation monitoring system for the Zone III portion of the secondary containment. In response to a high radiation condition in any of these three Zone III exhaust branch ducts, the respective monitors in the applicable branch duct generate signals which automatically initiate Zone III isolation, start the standby gas treatment system (SGTS) and start the recirculation system in the Zone III portion of the secondary containment. The above safety function of these monitors facilitates mixing of the atmosphere in Zone III and filtration of the exhaust from Zone III by the SGTS filters. The filtration limits the fission product release to the environs during and following postulated design basis accidents. This, in turn, reduces offsite radiation doses to acceptable levels.

In the existing TS Tables 3.3.2-1 and 4.3.2.1-1 of both units, the railroad access shaft exhaust duct radiation monitors are currently required to be operable during core alterations, operations with a potential for draining the reactor vessel (OPDRV) or handling irradiated fuel in the secondary containment. The licensee proposes to delete the operability requirement during core alterations and OPDRV for the above monitors and limit the operability of the monitors to the times when handling irradiated fuel within the railroad shaft and above the railroad shaft with the railroad access shaft equipment hatch cover open. In telephone conversations with the staff on June 21 and 22, 1995, the licensee clarified that the railroad access shaft equipment hatch cover has to be open both during movement of the irradiated fuel within the railroad access shaft and above the railroad access shaft.

The submittals included a mark-up of the subject TS Tables and associated notes for the tables for both the units to reflect the proposed changes identified above. In the submittals, the licensee justified the proposed changes to the subject TS tables stating that it meets the design intent of the railroad access shaft exhaust duct monitors, which is monitoring radiation in the unfiltered air in the railroad access shaft exhaust branch duct of Zone III and performing the safety function identified above, in response to a high radiation condition in the exhaust duct.

The staff notes that the deletion of the operability requirements for the railroad access shaft exhaust duct monitors during core alterations, OPDRV and movement of irradiated fuel in the common refueling floor does not compromise the safety function of the Zone III isolation monitoring system, i.e., automatic Zone III isolation, SGTS initiation and recirculation system initiation, in response to a high radiation condition detected by the system. This is because, when a high radiation condition occurs either in the refueling floor exhaust branch duct or in the refueling floor wall exhaust branch duct during the above operations, the associated refueling floor process radiation monitors will perform the safety function of the Zone III isolation monitoring system. Furthermore, the staff understands that the railroad access shaft equipment hatch cover will not normally be open during the above operations. Therefore, the railroad access shaft exhaust duct radiation monitors would not have to be operable during the above operations.

The submittals state that requiring operability of the railroad access shaft exhaust duct radiation monitors during handling irradiated fuel either in the access shaft or above the access shaft with the hatch open will ensure that the subject monitors will quickly respond to any high radiation condition occurring during such handling and consequently perform the intended safety function of the Zone III isolation monitoring system in a timely manner. Additionally, the submittals point out that in conjunction with the railroad access shaft exhaust duct radiation monitors, the monitors on the common refueling floor allow full coverage for all postulated irradiated fuel movements that could occur in Zone III.

The submittals state that the proposed TS change will reduce the need for surveillance testing associated with the operability of the railroad access shaft exhaust duct monitors. This is because, with the TS change in place, the subject monitors will be required to be operable only during fuel handling in the railroad access shaft or above the shaft. The submittals point out that the subject monitors are susceptible to gamma shine from adjacent control rod drive (CRD) rebuild room during CRD transfer. As a consequence, during CRD transfers, damper manipulations and installation of a lead shield have been used to inhibit generation of false Zone III isolation signal by the railroad access shaft monitors, in response to the gamma shine on the monitors. With the proposed deletion of operability requirements for the subject monitors during core alterations and OPDRV in place, the trip function for the subject monitors associated with core alterations and OPDRV will be

bypassed. Therefore, the subject monitors will not generate any false Zone III isolation signal, though they may be subject to gamma shine due to CRD transfer during core alterations or OPDRV. The licensee does not normally expect to move irradiated fuel in the railroad access shaft or above the shaft during the CRD transfer. The licensee further stated in the telephone conversations that because of location and design of the subject monitors, any gamma radiation that results solely due to movement of irradiated fuel in the access shaft or above it, will have minimal impact on the monitors in terms of generating a false Zone III isolation signal. The licensee stated that with the proposed TS change in place, the need for damper manipulations and installation of lead shielding will be significantly reduced. This, in turn, will reduce personnel radiation exposure and manpower associated with preventing the subject monitors from initiating false Zone III isolation signals.

The railroad shaft monitors are process radiation monitors which monitor concentrations of radioactive material in the ambient air from the Zone III exhaust system. Since these monitors do not provide onsite personnel protection, the staff finds that worker doses will not be increased if the monitors are not in service.

The staff finds that the proposed modification to the TS to limit the operability requirement for the railroad access shaft to those times when irradiated fuel is being handled within the shaft or above the shaft with its hatch opened neither increases the potential for individual or collective occupational doses nor the risk of offsite dose and finds the change to be an acceptable change with minimum impact on safety.

4.0 STATE CONSULTATION

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

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve 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 amendments involve no significant hazards consideration, and there has been no public comment on such finding (60 FR 16192). Accordingly, the amendments meet 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 amendments.

6.0 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

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