

Tanya M. Hamilton Vice President Harris Nuclear Plant 5413 Shearon Harris Road New Hill, NC 27562-9300

919.362.2502

10 CFR 50.90

November 4, 2016 Serial: HNP-16-086

ATTN: Document Control Desk U.S. Nuclear Regulatory Commission Washington, DC 20555-0001

Shearon Harris Nuclear Power Plant, Unit 1 Docket No. 50-400 Renewed License No. NPF-63

### Subject: Response to Request for Additional Information Regarding License Amendment Request to Relocate Technical Specifications Pertaining to the Explosive Gas and Storage Tank Radioactivity Monitoring Program

Ladies and Gentlemen:

By letter dated June 29, 2016 (Agencywide Documents Access and Management System Accession No. ML16182A387), Duke Energy Progress, LLC (Duke Energy), submitted a license amendment request (LAR) for Shearon Harris Nuclear Power Plant, Unit 1 (HNP). The proposed license amendment requested to relocate the Explosive Gas Mixture Technical Specification (TS) requirements and Liquid Holdup Tanks TS requirements to a licensee-controlled program in the Procedures and Programs TS section. It also proposed to modify the Gas Storage Tank Radioactivity Monitoring Program TS into an Explosive Gas and Storage Tank Radioactivity Monitoring Program to include controls for potentially explosive gas mixtures and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks.

The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the LAR and determined that additional information is needed to complete their review. Duke Energy received the request for additional information (RAI) from the NRC through electronic mail on October 6, 2016. Response to this request is required by November 7, 2016.

Attachment 1 provides Duke Energy's responses to the RAI questions. The proposed TS changes and revised pages provided in the Duke Energy letter dated June 29, 2016, were updated in Attachment 2 and Attachment 3, respectively, as described in Attachment 1.

This additional information does not change the No Significant Hazards Determination provided in the original submittal. No regulatory commitments are contained in this letter.

In accordance with 10 CFR 50.91(b), HNP is providing the state of North Carolina with a copy of this response.

U.S. Nuclear Regulatory Commission Serial HNP-16-086

Should you have any questions regarding this submittal, please contact Jeffery Robertson, Manager – Regulatory Affairs, at (919) 362-3137.

I declare under penalty of perjury that the foregoing is true and correct. Executed on November 4, 2016.

Sincerely,

pango M Merila

Tanya M. Hamilton

Attachments:

- 1. Response to Request for Additional Information
- 2. Proposed Technical Specification Changes
- 3. Revised Technical Specification Pages
- cc: Mr. C. Jones, NRC Sr. Resident Inspector, HNP Mr. W. L. Cox, III, Section Chief, N.C. DHSR Ms. M. Barillas, NRC Project Manager, HNP NRC Regional Administrator, Region II

Should you have any questions regarding this submittal, please contact Jeffery Robertson, Manager – Regulatory Affairs, at (919) 362-3137.

I declare under penalty of perjury that the foregoing is true and correct. Executed on November 4, 2016.

Sincerely,

Tanya M. Hamilton

Attachments:

- 1. Response to Request for Additional Information
- 2. Proposed Technical Specification Changes
- 3. Revised Technical Specification Pages
- cc: Mr. C. Jones, NRC Sr. Resident Inspector, HNP Mr. W. L. Cox, III, Section Chief, N.C. DHSR Ms. M. Barillas, NRC Project Manager, HNP NRC Regional Administrator, Region II

U.S. Nuclear Regulatory Commission Serial HNP-16-086 Attachment 1

## SERIAL HNP-16-086

# ATTACHMENT 1

# **RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION**

## SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

### **DOCKET NO. 50-400**

## **RENEWED LICENSE NUMBER NPF-63**

U.S. Nuclear Regulatory Commission Serial HNP-16-086 Attachment 1

By letter dated June 29, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16182A387), Duke Energy Progress, LLC (Duke Energy), submitted a license amendment request (LAR) for Shearon Harris Nuclear Power Plant, Unit 1 (HNP). The proposed license amendment requested to relocate the Explosive Gas Mixture Technical Specification (TS) requirements and Liquid Holdup Tanks TS requirements to a licensee-controlled program in the Procedures and Programs TS section. It also proposed to modify the Gas Storage Tank Radioactivity Monitoring Program TS into an Explosive Gas and Storage Tank Radioactivity Monitoring Program to include controls for potentially explosive gas mixtures and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks.

The NRC staff reviewed the LAR and determined that additional information is needed to complete their review. Duke Energy received the request for additional information (RAI) from the NRC through electronic mail on October 6, 2016. Response to this request is required by November 7, 2016. Duke Energy's response is provided below, followed by additional proposed changes that were not a result of the RAI, but rather identified following the submittal of the June 29, 2016, letter.

### <u>RAI #1</u>

LAR Attachment 2 provides wording for the revised TS 6.8.4.j, "Explosive Gas and Storage Tank Radioactivity Monitoring Program," which deviates from Section 5.5.12 of NUREG-1431, "Standard Technical Specifications – Westinghouse Plants," Revision 4. Specifically, the licensee's submittal does not include reference to the accepted NRC methodologies for determining the curie content limit of the liquid storage tanks. Describe the methodology that will be used to replace the accepted NRC methodology to ensure compliance with the revised TS 6.8.4.j and will be used to determine the curie content limits.

### **HNP Response:**

The accepted NRC methodology referenced in NUREG-1431, Volume 1, Section 5.5.12, is Section 15.7.3 of the Standard Review Plan (SRP). This section, entitled "Postulated Radioactive Release due to Tank Failures," provides for a limit of 10 curies in any mobile or portable tank used more than one calendar quarter (Item 4 under Section III, Review Procedures). Similarly, NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants," is provided as a reference for SRP Section 15.7.3 and states: "The curie limit for a temporary tank may be calculated by the above method, but should be limited to  $\leq$  10 curies, excluding tritium and dissolved or entrained gases."

While the proposed wording for the HNP TS 6.8.4.j from the June 29, 2016, letter did not reference an accepted NRC methodology for liquid storage tanks, the requested relocation of TS 3/4.11.1.4, "Liquid Holdup Tanks," to a licensee-controlled document maintains the 10 curie limit, in alignment with the SRP. In addition, the proposed TS 6.8.4.j maintains the provision for a surveillance program to ensure the quantity of radioactivity contained in the tanks in question would result in concentrations less than the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

HNP does not currently utilize temporary tanks that fall under this TS, nor have plans in the foreseeable future to utilize such tanks. However, rather than omit the NRC-approved

methodology as previously requested, Duke Energy proposes instead to not deviate from the NUREG-1431, Revision 4, wording and include reference to SRP, Section 15.7.3. The proposed adjustment to the previously submitted TS page markup is reflected in Attachment 2 of this submittal.

# <u>RAI #2</u>

LAR Section 3.0, "Technical Evaluation," states, in part, that, "(t)he current limit, as found in TS 3/4.11.1.4, of less than or equal to 10 curies, excluding tritium and dissolved or entrained noble gases, will remain in effect once the requirements are relocated to the licensee-controlled procedure, PLP-114." Using the methodology described in response to RAI #1, demonstrate that a limit of 10 curies ensures that the limits of 10 CFR Part 20, Appendix B, "Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage," Table 2, Column 2, will not be exceeded at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

### **HNP Response:**

As discussed in the HNP Response to RAI #1 above, the 10 curie limit is in alignment with Section 15.7.3 of the SRP, the NRC-approved methodology referenced in Section 5.5.12 of NUREG-1431. Per this methodology, the curie content is based on that quantity which would not exceed the concentration limits of 10 CFR Part 20, Appendix B, Table 2, Column 2 at the nearest potable water supply and the nearest surface water supply in an unrestricted area if the tank and components should fail, or will be limited to 10 curies in any mobile or portable tank used more than one calendar quarter.

### **Additional Proposed Changes:**

A correction was made to the standard program requirement for the amount of radioactivity contained in liquid radwaste storage tanks (Section 5.5.12, item c, of NUREG-1431). The phrase "...to ensure that the quantity of radioactivity... is less than the amount that would result in concentrations less than the limits of 10 CFR 20..." is revised to read as follows: "...to ensure that the quantity of radioactivity... is less than the amount that would result in concentrations that exceed the limits of 10 CFR 20...." This change was determined necessary after further evaluation of the word "less" as applied to the stated regulatory limits (10 CFR 20). The previously proposed wording implies that being less than the limit is acceptable. However, when the intent of the remaining part of the sentence regarding the quantity of radioactivity contained in the tank(s) is considered, the use of the word "less" is confusing. A clearer statement of the requirement is that the amount of radioactivity in the tank is controlled to less than the amount that would result in concentrations that exceed the limits of 10 CFR 20. A similar change in the description of this requirement has been approved by the NRC for the Beaver Valley Power Station, Unit Nos. 1 and 2, in a Safety Evaluation dated May 21, 2002 (ADAMS Accession No. ML020530410).

Additionally, based upon recent experience with typographical errors in submitted markups and revised TS pages, an extent of condition was performed on all HNP submittals currently with the NRC. A few editorial errors were noted for this LAR that carried over into the revised TS pages and are as follows:

1) on page 1-3, the dash in " $\overline{E}$  – AVERAGE DISINTEGRATION ENERGY" was missing; 2) on page 6-19b, the dashes between lodine-131 and lodine-133 were missing.

These errors have been addressed in Attachments 2 and 3 via the inclusion of the missing dashes. As to avoid any other inadvertent editorial issues propagating forward, all proposed TS changes for this LAR have been resubmitted as Attachment 2 of this submittal using the NRC-approved TS pages as found in ADAMS (Accession No. ML052860283). Attachment 3 provides the revised TS pages based on the changes presented in Attachment 2. Both attachments should supersede those previously provided in the June 29, 2016, letter.

## SERIAL HNP-16-086

# ATTACHMENT 2

# **PROPOSED TECHNICAL SPECIFICATION CHANGES**

# SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

## **DOCKET NO. 50-400**

## **RENEWED LICENSE NUMBER NPF-63**

INDEX

# 1.0 DEFINITIONS

 $\overline{\bigcirc}$ 

~

), | : .

SECTION	PAGE
1.1 ACTION	1-1
1.2 ACTUATION LOGIC TEST	1-1
1.3 ANALOG CHANNEL OPERATIONAL TEST	1-1
1.4 AXIAL FLUX DIFFERENCE	1-1
1.5 CHANNEL CALIBRATION	1-1
1.6 CHANNEL CHECK	1-1
1.7 CONTAINMENT INTEGRITY	1-2
1.8 CONTROLLED LEAKAGE	1-2
1.9 CORE ALTERATION	1-2
1.9a CORE OPERATING LIMITS REPORT	1-2
1.10 DIGITAL CHANNEL OPERATIONAL TEST	1-2
1.11 DOSE EQUIVALENT I-131	1-2a
1.12 E - AVERAGE DISINTEGRATION ENERGY	1-3
1.13 ENGINEERED SAFETY FEATURES RESPONSE TIME	1-3
1.14 EXCLUSION AREA BOUNDARY	1-3
1.15 FREQUENCY NOTATION	1-3
1.16 GASEOUS RADWASTE TREATMENT SYSTEM	1-3
1.17 IDENTIFIED LEAKAGE	1-3
1.18 MASTER RELAY TEST	1-4
1.19 MEMBER(S) OF THE PUBLIC	1-4
1.20 OFFSITE DOSE CALCULATION MANUAL	1-4
1.21 OPERABLE - OPERABILITY	1-4
1.22 OPERATIONAL MODE - MODE	1-4
1.23 PHYSICS TESTS	1-4
1.24 PRESSURE BOUNDARY LEAKAGE	1-4
1.25 PROCESS CONTROL PROGRAM	1-5
1.26 PURGE - PURGING	1-5
1.27 QUADRANT POWER TILT RATIO	1-5
1.28 RATED THERMAL POWER	
1.29 REACTOR TRIP SYSTEM RESPONSE TIME	1-5
1.30 REPORTABLE EVENT	
1 31 SHUTDOWN MARGIN	
ADD: "(DELETED)"	
SHEARON HARRIS - UNIT 1 i Am	endment No. 15

OCT 1 8 1989

# INDEX

LIMITING CONDITIONS	FOR	OPERATION	AND	SURVEILLANCE	REQUIREMENTS	
---------------------	-----	-----------	-----	--------------	--------------	--

.

	SECTION			PAGE
	<u>3/4.11 R</u>	ADIOACTIVE EFFLUENTS		
	3/4.11.1	LIQUID EFFLUENTS		
ADD:	1	(DELETED)	3/4	11-1
"(DEL	.ETED)"	Liquid Holdup Tanks	3/4	11-7
	3/4.11.2	GASEOUS EFFLUENTS		
		(DELETED)	3/4	11-8
		Explosive Gas Mixture	3/4	11-15
		(DELETED)	3/4	11-16 🖌
:	3/4.11.3	(DELETED)	3/4	11-17
:	3/4.11.4	(DELETED)	3/4	11-19
2	3/4.12 R/	ADIOLOGICAL ENVIRONMENTAL MONITORING		
	3/4.12.1	(DELETED)	3/4	12-1
	3/4.12.2	(DELETED)	3/4	12.1
	3/4.12.3	(DELETED)	3/4	12-1

 $\overline{\phantom{a}}$ 

xii

.

I	N	D	EX	
æ.		v	- F V	

SECTION	PAG	E
3/4.10	SPECIAL TEST_EXCEPTIONS	
3/4.10.1	SHUTDOWN MARGIN	1
3/4.10.2	GROUP HEIGHT. INSERTION. AND POWER DISTRIBUTION LIMITS B 3/4 10-	1
3/4.10.3	PHYSICS TESTS	1
3/4.10.4	REACTOR COOLANT LOOPS	1
3/4.10.5	POSITION INDICATION SYSTEM - SHUTDOWN	1
	RADIOACTIVE EFFLUENTS	
3/4.11.1	>LIQUID EFFLUENTS	
3/4.11.2	->GASEOUS EFFLUENTS	
3/4.11.3	(DELETED)	2
3/4.11.4	(DELETED)	2
3/4.12	RADIOLOGICAL ENVIRONMENTAL MONITORING	
3/4.12.1	(DELETED)	1
3/4.12.2	(DELETED)	1
3/4.12.3	(DELETED)	1

SHEARON HARRIS - UNIT 1

### DEFINITIONS

### E - AVERAGE DISINTEGRATION ENERGY

1.12 E shall be the average, weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling, of the sum of the average beta and gamma energies per disintegration (MeV/d) for isotopes, with half-lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

#### ENGINEERED SAFETY FEATURES RESPONSE TIME

1.13 The ENGINEERED SAFETY FEATURES (ESF) RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF Actuation Setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.

#### EXCLUSION AREA BOUNDARY

1.14 The EXCLUSION AREA BOUNDARY shall be that line beyond which the land is not controlled by the licensee to limit access.

#### FREQUENCY NOTATION

1.15 The FREQUENCY NOTATION specified for the performance of Surveillance Requirements shall correspond to the intervals defined in Table 1.1.

GASEOUS RADWASTE TREATMENT SYSTEM

1.16 A GASEOUS RADWASTE TREATMENT SYSTEM is any system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system off-gases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

IDENTIFIED LEAKAGE

#### 1.17 IDENTIFIED LEAKAGE shall be:

- a. Leakage (except CONTROLLED LEAKAGE) into closed systems, such as pump seal or valve packing leaks that are captured and conducted to a sump or collecting tank, or
- b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of Leakage Detection Systems or not to be PRESSURE BOUNDARY LEAKAGE, or
- c. Reactor Coolant System leakage through a steam generator to the Secondary Coolant System (primary-to-secondary leakage).

### ADD: "(DELETED)"

RADIOACTIVE EFFLUENTS

LIQUID HOLDUP TANKS-

ADD: "- DELETED."

### LIMITING CONDITION FOR OPERATION

3.11.1.4 The quantity of radioactive material contained in each of the following unprotected outdoor tanks shall be limited to less than or equal to 10 Curies, excluding tritium and dissolved or entrained noble gases:

a. Outside temporary tank, excluding demineralizer vessels and liners used to solidify or to dewater radioactive wastes.

<u>APPLICABILITY</u>: At all times.

ACTION:

- a. With the quantity of radioactive material in any of the above listed tanks exceeding the above limit, immediately suspend all additions of radioactive material to the tank, within 48 hours reduce the tank contents to within the limit, and describe the events leading to this condition in the next Annual Radioactive Effluent Release Report, pursuant to Specification 6.9.1.4.
- b. The provisions of Specification 3.0.3 are not applicable.

### SURVEILLANCE REQUIREMENTS

4.11.1.4 The quantity of radioactive material contained in each of the above listed tanks shall be determined to be within the above limit by analyzing a representative sample of the tank's contents within 7 days following any addition of radioactive material to the tank.

Tanks included in this specification are those outdoor tanks that are not surrounded by liners, dikes, or walls capable of holding the tank contents and that do not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System.

SHEARON HARRIS - UNIT 1

X

RADIOACTIVE EFFLUENTS

EXPLOSIVE GAS MIXTURE

ADD: "- DELETED."

LIMITING CONDITION FOR OPERATION

3.11.2.5 The concentration of oxygen in the GASEOUS RADWASTE TREATMENT SYSTEM downstream of the hydrogen recombiners shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration exceeds 4% by volume.

<u>APPLICABILITY</u>: At all times.

### ACTION:

- a. With the concentration of oxygen in the GASEOUS RADWASTE TREATMENT SYSTEM downstream of the hydrogen recombiners greater than 2% by volume but less than or equal to 4% by volume, reduce the oxygen concentration to the above limits within 48 hours.
- b. With the concentration of oxygen in the GASEOUS RADWASTE TREATMENT SYSTEM downstream of the hydrogen recombiners greater than 4% by volume and the hydrogen concentration greater than 4% by volume. immediately suspend all additions of waste gases to the system and reduce the concentration of oxygen to less than or equal to 4% by volume. then take ACTION a., above.
- c. The provisions of Specification 3.0.3 are not applicable.

# SURVEILLANCE REQUIREMENTS

4.11.2.5 The concentrations of hydrogen and oxygen in the GASEOUS RADWASTE TREATMENT SYSTEM shall be determined to be within the above limits by monitoring, at least once per 12 hours, the waste gases in the GASEOUS RADWASTE TREATMENT SYSTEM.

X

#### ADMINISTRATIVE CONTROLS

#### PROCEDURES AND PROGRAMS (Continued)

- n. <u>Radioactive Effluent Controls Program (Cont.)</u>
  - 5) Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50.
  - 9) Limitations on the annual and quarterly doses to a MEMBER OF THE PUBLIC from Iodine-131. Iodine-133. tritium. and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50. and
  - 10) Limitations on the annual dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.
- i. <u>Radiological Environmental Monitoring Program</u>

A program shall be provided to monitor the radiation and radionuclides in the environs of the plant. The program shall provide (1) representative measurements of radioactivity in the highest potential exposure pathways. and (2) verification of the accuracy of the effluent monitoring program and modeling of environmental exposure pathways. The program shall (1) be contained in the ODCM. (2) conform to the guidance of Appendix I to 10 CFR Part 50. and (3) include the following:

- Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM.
- 2) A Land Use Census to ensure that changes in the use of areas at and beyond the SITE BOUNDARY are identified and that modifications to the monitoring program are made if required by the results of this census, and
- 3) Participation in a Interlaboratory Comparison Program to ensure that independent checks on the precision and accuracy of the measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring.
- <u>Sas Storage Tank Radioactivity Monitoring Program</u>

A program shall be provided for the control of the quantity of radioactivity contained in gas storage tanks. The gaseous radioactivity quantities shall be determined following the methodology in Branch Technical Position (BTP) ETSB 11-5. "Postulated Radioactive Release due to Waste Gas System Leak or Failure."

The program shall include surveillance provisions to ensure that the quantity of radioactivity contained in each gas storage tank is less than the amount that would result in a whole body exposure of  $\geq 0.5$  rem to any individual in an unrestricted area. in the event of an uncontrolled release of the tanks' contents.

SHEARON HARRIS - UNIT 1

< INSERT >

Amendment No. 64 JUN 1 2 1996\_

### < INSERT >

### Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the Gaseous Waste Processing System (GWPS), the quantity of radioactivity contained in gas storage tanks, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks. The gaseous radioactivity quantities shall be determined following the methodology in Branch Technical Position (BTP) ETSB 11-5, "Postulated Radioactive Release due to Waste Gas System Leak or Failure." The liquid radwaste quantities shall be determined in accordance with Standard Review Plan, Section 15.7.3, "Postulated Radioactive Release due to Tank Failures."

The program shall include:

- The limits for concentrations of hydrogen and oxygen in the GWPS and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion).
- A surveillance program to ensure that the quantity of radioactivity contained in each gas storage tank is less than the amount that would result in a whole body exposure of ≥ 0.5 rem to any individual in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.
- 3) A surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the Liquid Waste Processing System is less than the amount that would result in concentrations that exceed the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

The provisions of SR 4.0.2 and SR 4.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

SERIAL HNP-16-086

# **ATTACHMENT 3**

# **REVISED TECHNICAL SPECIFICATION PAGES**

# SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

**DOCKET NO. 50-400** 

**RENEWED LICENSE NUMBER NPF-63** 

# 1.0 DEFINITIONS

SECTION		PAGE
1.1	ACTION	1-1
1.2	ACTUATION LOGIC TEST	1-1
1.3	ANALOG CHANNEL OPERATIONAL TEST	1-1
1.4	AXIAL FLUX DIFFERENCE	1-1
1.5	CHANNEL CALIBRATION	1-1
1.6	CHANNEL CHECK	1-1
1.7	CONTAINMENT INTEGRITY	1-2
1.8	CONTROLLED LEAKAGE	1-2
1.9	CORE ALTERATION	1-2
1.9a	CORE OPERATING LIMITS REPORT	1-2
1.10	DIGITAL CHANNEL OPERATIONAL TEST	1-2
1.11	DOSE EQUIVALENT I-131	1-2a
1.12	Ē - AVERAGE DISINTEGRATION ENERGY	1-3
1.13	ENGINEERED SAFETY FEATURES RESPONSE TIME	1-3
1.14	EXCLUSION AREA BOUNDARY	1-3
1.15	FREQUENCY NOTATION	1-3
1.16	(DELETED)	1-3
1.17	IDENTIFIED LEAKAGE	1-3
1.18	MASTER RELAY TEST	1-4
1.19	MEMBER(S) OF THE PUBLIC	1-4
1.20	OFFSITE DOSE CALCULATION MANUAL	1-4
1.21	OPERABLE - OPERABILITY	1-4
1.22	OPERATIONAL MODE - MODE	1-4
1.23	PHYSICS TESTS	1-4
1.24	PRESSURE BOUNDARY LEAKAGE	1-4
1.25	PROCESS CONTROL PROGRAM	1-5
1.26	PURGE - PURGING	1-5
1.27	QUADRANT POWER TILT RATIO	1-5
1.28	RATED THERMAL POWER	1-5
1.29	REACTOR TRIP SYSTEM RESPONSE TIME	1-5
1.30	REPORTABLE EVENT	1-5
1.31	SHUTDOWN MARGIN	1-5

# **INDEX**

# LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

SECTION		PAGE
3/4.11	RADIOACTIVE EFFLUENTS	
3/4.11.1	LIQUID EFFLUENTS	
	(DELETED)	3/4 11-1
	(DELETED)	3/4 11-7
3/4.11.2	GASEOUS EFFLUENTS	
	(DELETED)	3/4 11-8
	(DELETED)	3/4 11-15
	(DELETED)	3/4 11-16
3/4.11.3	(DELETED)	3/4 11-17
3/4.11.4	(DELETED)	3/4 11-19
<u>3/4.12 RADIO</u>	LOGICAL ENVIRONMENTAL MONITORING	
3/4.12.1	(DELETED)	3/4 12-1
3/4.12.2	(DELETED)	3/4 12-1
3/4.12.3	(DELETED)	3/4 12-1

I

I

# BASES

SECTION		PAGE
3/4.10 SPEC	IAL TEST EXCEPTIONS	
3/4.10.1	SHUTDOWN MARGIN	B 3/4 10-1
3/4.10.2	GROUP HEIGHT, INSERTION, AND POWER DISTRIBUTION LIMITS	B 3/4 10-1
3/4.10.3	PHYSICS TESTS	B 3/4 10-1
3/4.10.4	REACTOR COOLANT LOOPS	B 3/4 10-1
3/4.10.5	POSITION INDICATION SYSTEM - SHUTDOWN	B 3/4 10-1
<u>3/4.11 RADIO</u>	DACTIVE EFFLUENTS	
3/4.11.1	(DELETED)	B 3/4 11-1
3/4.11.2	(DELETED)	B 3/4 11-1
3/4.11.3	(DELETED)	B 3/4 11-2
3/4.11.4	(DELETED)	B 3/4 11-2
3/4.12 RADIO	DLOGICAL ENVIRONMENTAL MONITORING	
3/4.12.1	(DELETED)	B 3/4 12-1
3/4.12.2	(DELETED)	B 3/4 12-1
3/4.12.3	(DELETED)	B 3/4 12-1

### DEFINITIONS

## <u>E</u> – AVERAGE DISINTEGRATION ENERGY

1.12 Ē shall be the average, weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling, of the sum of the average beta and gamma energies per disintegration (MeV/d) for isotopes, with half-lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

### ENGINEERED SAFETY FEATURES RESPONSE TIME

1.13 The ENGINEERED SAFETY FEATURES (ESF) RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF Actuation Setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.

### EXCLUSION AREA BOUNDARY

1.14 The EXCLUSION AREA BOUNDARY shall be that line beyond which the land is not controlled by the licensee to limit access.

### FREQUENCY NOTATION

1.15 The FREQUENCY NOTATION specified for the performance of Surveillance Requirements shall correspond to the intervals defined in Table 1.1.

### 1.16 (DELETED)

### IDENTIFIED LEAKAGE

- 1.17 IDENTIFIED LEAKAGE shall be:
  - Leakage (except CONTROLLED LEAKAGE) into closed systems, such as pump seal or valve packing leaks that are captured and conducted to a sump or collecting tank, or
  - b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of Leakage Detection Systems or not to be PRESSURE BOUNDARY LEAKAGE, or
  - c. Reactor Coolant System leakage through a steam generator to the Secondary Coolant System (primary-to-secondary leakage).

# RADIOACTIVE EFFLUENTS LIQUID HOLDUP TANKS - DELETED

RADIOACTIVE EFFLUENTS EXPLOSIVE GAS MIXTURE - DELETED

### PROCEDURES AND PROGRAMS (Continued)

- h. Radioactive Effluent Controls Program (Cont.)
  - Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50,
  - 9) Limitations on the annual and quarterly doses to a MEMBER OF THE PUBLIC from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50, and
  - 10) Limitations on the annual dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.
- i. Radiological Environmental Monitoring Program

A program shall be provided to monitor the radiation and radionuclides in the environs of the plant. The program shall provide (1) representative measurements of radioactivity in the highest potential exposure pathways, and (2) verification of the accuracy of the effluent monitoring program and modeling of environmental exposure pathways. The program shall (1) be contained in the ODCM, (2) conform to the guidance of Appendix I to 10 CFR Part 50, and (3) include the following:

- Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM,
- A Land Use Census to ensure that changes in the use of areas at and beyond the SITE BOUNDARY are identified and that modifications to the monitoring program are made if required by the results of this census, and
- 3) Participation in a Interlaboratory Comparison Program to ensure that independent checks on the precision and accuracy of the measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring.
- j. Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the Gaseous Waste Processing System (GWPS), the quantity of radioactivity contained in gas storage tanks, and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks. The gaseous radioactivity quantities shall be determined following the methodology in Branch Technical Position (BTP) ETSB 11-5, "Postulated Radioactive Release due to Waste Gas System Leak or Failure." The liquid radwaste quantities shall be determined in accordance with Standard Review Plan, Section 15.7.3, "Postulated Radioactive Release due to Tank Failures."

The program shall include:

 The limits for concentrations of hydrogen and oxygen in the GWPS and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion). j.

### PROCEDURES AND PROGRAMS (Continued)

- Explosive Gas and Storage Tank Radioactivity Monitoring Program (Cont.)
  - 2) A surveillance program to ensure that the quantity of radioactivity contained in each gas storage tank is less than the amount that would result in a whole body exposure of ≥ 0.5 rem to any individual in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.
  - 3) A surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the Liquid Waste Processing System is less than the amount that would result in concentrations that exceed the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

The provisions of SR 4.0.2 and SR 4.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.