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For Southern Electric System  
NED-83-482

October 6, 1983

Director of Nuclear Reactor Regulation  
Attention: Mr. John F. Stolz, Chief  
Operating Reactors Branch No. 4  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

NRC DOCKETS 50-321, 50-366  
OPERATING LICENSES DPR-57, NPF-5  
EDWIN I. HATCH NUCLEAR PLANT UNITS 1, 2  
RADIOLOGICAL EFFLUENT TECHNICAL SPECIFICATIONS SUBMITTAL

Gentlemen:

In accordance with the provisions of 10 CFR 50.90 as required by 10 CFR 50.59(c) (1), Georgia Power Company (GPC) hereby proposes a complete revision to our submittal of December 21, 1978. This submittal is an amendment to the Edwin I. Hatch Nuclear Plant Units 1 and 2 Technical Specifications (Appendices A and B to the Operating Licenses) as described in the attachments to this letter. This application would amend the Technical Specifications by transferring the Radiological Effluents Technical Specifications (RETS) from Appendix B to Appendix A. In order to meet our submittal commitment to you, we are enclosing one hand-marked copy of the submittal. The balance of the required copies will be transmitted as soon as they are received from the printers. We anticipate this to be October 17, 1983.

Both units were licensed with RETS based on activity and concentration limitations on plant effluents. Subsequent revisions to regulatory philosophy, notably 10 CFR 50 Appendix I, now base the design objectives for effluent control on radiation dose criteria. All the changes submitted herein have previously been discussed with members of the NRC staff (Effluent Treatment Systems Section and Operating Reactors Branch #4). It is our understanding that this submittal does not require a formal 10 CFR 50.92 review, since it is an amendment to a prior submittal.

The Plant Review Board and the Safety Review Board have reviewed the proposed changes and have determined that they do not constitute an unreviewed safety question. These changes do not increase the probability or consequences of accidents or malfunctions of equipment previously analyzed, create new modes of operation or potential for new accidents, or significantly decrease the margin of safety as described in the basis for Technical Specifications.

We would be pleased to meet with you to discuss any questions which you might have at any time during your review of this submittal.

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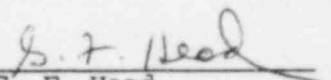
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Director of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
October 6, 1983  
Page Two

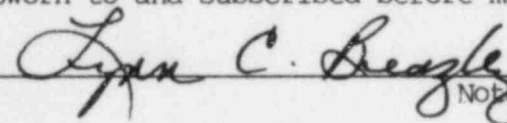
If you have further questions, please contact this office.

G. F. Head states that he is a Senior Vice President of Georgia Power Company and is authorized to execute this oath on behalf of Georgia Power Company, and that to the best of his knowledge and belief the facts set forth in this letter are true.

GEORGIA POWER COMPANY

By:   
G. F. Head

Sworn to and subscribed before me this 6th day of October, 1983.

  
Notary Public

MJB/mb

Notary Public, Georgia, State at Large  
My Commission Expires July 26, 1985

Enclosure

xc: H. C. Nix, Jr.  
Senior Resident Inspector  
J. P. O'Reilly, (NRC-Region II)



TABLE OF CONTENTS

Radiological Effluent Technical Specifications  
HNP-Unit 2

Radiological Effluent Technical Specifications  
HNP-Unit 1

Section 3/4 Bases  
HNP-Unit 1 and Unit 2

Environmental Technical Specifications  
HNP-Unit 1 and Unit 2

# ART SLIP SHEET

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RESPONSIBLE AUTHOR

EDITOR/COORDINATOR

SPECIAL INSTRUCTIONS

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HNP-Unit 2*

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FIGURE

TABLE

NUREG-0473

RADIOLOGICAL EFFLUENT  
TECHNICAL SPECIFICATIONS  
HNP-UNIT 2

## 1.0 DEFINITIONS

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### SOURCE CHECK

A SOURCE CHECK shall be the qualitative assessment of channel response when the channel sensor is exposed to a source of increased radioactivity.

### PROCESS CONTROL PROGRAM

The PROCESS CONTROL PROGRAM shall contain the current formula, sampling, analysis, tests, and determinations to be made to ensure that the processing and packaging of solid radioactive wastes based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to assure compliance with 10 CFR 20, 10 CFR 71, federal and state regulations, and other requirements governing the disposal of radioactive wastes.

### SOLIDIFICATION

SOLIDIFICATION shall be the conversion of wet radioactive wastes into a form that meets shipping and burial ground requirements.

### OFFSITE DOSE CALCULATION MANUAL (ODCM)

An ODCM shall be a manual containing the methodology and parameters to be used in the calculation of offsite doses due to radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring instrumentation alarm/trip setpoints, and in the conducting of environmental radiological monitoring.

### GASEOUS RADWASTE TREATMENT SYSTEM

The GASEOUS RADWASTE TREATMENT SYSTEM is the offgas holdup system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system offgases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to UNRESTRICTED AREAS.

## 1.0 DEFINITIONS (Continued)

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### VENTILATION EXHAUST TREATMENT SYSTEM

A VENTILATION EXHAUST TREATMENT SYSTEM is any system designed and installed to reduce gaseous radioiodine or radioactive material in particulate form in effluents by passing ventilation or vent exhaust gases through charcoal adsorbers and/or high-efficiency particulate air (HEPA) filters for the purpose of removing iodines or particulates from the gaseous exhaust stream prior to the release to UNRESTRICTED AREAS. Such a system is not considered to have any effect on noble gas effluents. Engineered safety feature (ESF) atmospheric cleanup systems are not considered to be VENTILATION EXHAUST TREATMENT SYSTEM components.

### MEMBER(S) OF THE PUBLIC

MEMBER(S) OF THE PUBLIC shall include all persons who are not occupationally associated with the plant. This category does not include employees of the utility, its contractors, or its vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational, occupational, or other purposes not associated with the plant.

### SITE BOUNDARY

The SITE BOUNDARY shall be that line beyond which the land is not owned, leased, or otherwise controlled by Georgia Power Company, as shown in figure 3.11-1.

### UNRESTRICTED AREA

An UNRESTRICTED AREA shall be any area at or beyond the SITE BOUNDARY to which access for purposes of protection of individuals from exposure to radiation and radioactive materials is not controlled by the licensee. This includes any area within the SITE BOUNDARY used for residential quarters or for long term industrial, commercial, institutional, and/or recreational purposes.

### DOSE EQUIVALENT IODINE

The DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcurie/gram) which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132,

## 1.0 DEFINITIONS (Continued)

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I-133, I-134, and I-135 actually present. The thyroid doseconversion factors used for this calculation shall be those listed in table III of TID-14844 or those in Nuclear Regulatory Commission (NRC) Regulatory Guide 1.109, Revision 1, October 1977.

### PURGE - PURGING

PURGE or PURGING is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration, or other operating condition in such a manner that replacement air or gas is required to purify the confinement.

### VENTING

VENTING is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration, or other operating condition in such a manner that replacement air or gas is not provided or required during VENTING. The term "vent" used in system names does not imply a VENTING process.

MILK ANIMAL - A cow or goat that is producing milk for human consumption.

### REPORTABLE OCCURRENCE

A REPORTABLE OCCURRENCE shall be any of those conditions specified in Specifications 6.9.1.12 and 6.9.1.13.



TABLE 1.2  
FREQUENCY NOTATIONS

<u>Notation</u>	<u>Definition</u>	<u>Frequency</u>
S	Once per shift	Once per 12 hours
D	Daily	Once per 24 hours
W	Weekly	Once per 7 days
M	Monthly	Once per 31 days
Q	Quarterly	Once per 92 days
SA	Semi-annually	Once per 184 days
R	REFUELING	Once per 18 months
S/U	STARTUP	Prior to each reactor startup
P	Prior	Completed prior to each release
NA	Not applicable	Not applicable

## INSTRUMENTATION

### RADIOACTIVE LIQUID EFFLUENT INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

---

3.3.6.9 The radioactive liquid effluent monitoring instrumentation channels shown in table 3.3.6.9-1 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.11.1.1 are not exceeded. The alarm/trip setpoints of these channels shall be determined in accordance with the ODCM.

#### APPLICABILITY

As shown in table 3.3.6.9-1.

#### ACTION

- a. With a radioactive liquid effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above specification, without delay suspend the release of radioactive liquid effluents monitored by the affected channel, declare the channel inoperable, or change to a conservative value.
- b. With the number of channels OPERABLE less than the minimum channels required by table 3.3.6.9-1, take the ACTION shown in table 3.3.6.9-1.
- c. The provisions of Specifications 3.0.3, 3.0.4, and 6.9.1.13(b) are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.3.6.9 Each radioactive liquid effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations during the MODES and at the frequencies shown in table 4.3.6.9-1.

TABLE 3.3.6.9-1 (SHEET 1 OF 2)

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

<u>Instrument</u>	<u>Minimum Channels OPERABLE</u>	<u>APPLICABILITY</u>	<u>ACTION</u>
1. Gross Radio- activity Monitors Providing Auto- matic Termina- tion of Release			
Liquid Radwaste Effluent Line	1	(a)	100
2. Gross Radio- activity Monitors not Providing Automatic Ter- mination of Release			
Service Water System Effluent Line	1	(b)	101
3. Flowrate Measure- ment Devices**			
Liquid Radwaste Effluent Line	1	(a)	102
Discharge Canal	1	(a, b)	102
4. Service Water to Closed Cooling Water System Dif- ferential Pressure	1	At all times	103

\*\*Pump curves may be utilized to estimate flow; in such cases, action statement 102 is not required.

(a) Whenever the radwaste discharge valves are not locked closed.

(b) Whenever the service water system pressure is below the closed cooling water system pressure or  $\Delta P$  indication is not available.

TABLE 3.3.6.9-1 (SHEET 2 OF 2)

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

Table Notations

ACTION 100 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases may be continued, provided that prior to initiating a release:

- a. At least two independent samples are analyzed in accordance with Specification 4.11.1.1.2.
- b. At least two technically qualified individuals independently verify the release rate calculations and discharge valving.

Otherwise, suspended release of radioactive effluents via this pathway. If the channel remains inoperable for over 30 days, an explanation of the circumstances shall be included in the next semi-annual effluent release report.

ACTION 101 - With the numbers of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided that once per shift grab samples are collected and analyzed for gross radioactivity (beta or gamma) at a Minimum Detectable Concentration of at least  $10^{-7}$   $\mu\text{Ci/ml}$ . If the channel remains inoperable for over 30 days, an explanation of the circumstances shall be included in the next semi-annual effluent release report.

ACTION 102 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided the flowrate is estimated at least once per 4 hours during actual releases. If the channel remains inoperable for over 30 days, an explanation of the circumstances shall be included in the next semi-annual effluent release report.

ACTION 103 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, assure that the service water system effluent system monitor is OPERABLE.

TABLE 4.3.6.9-1 (SHEET 1 OF 3)

RADIOACTIVE LIQUID EFFLUENT MONITORING  
INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Instrument</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
1. Gross Gamma Radioactivity Monitors Pro- viding Alarm and Automatic Isolation				
Liquid Rad- waste Efflu- ent Line	D*	P <sup>(1)</sup>	R	Q <sup>(1)</sup>
2. Gross Gamma Radioactivity Monitors Pro- viding Alarm but not Provid- ing Automatic Isolation				
Service Water System Efflu- ent Line	D *	M	R	NA
3. Flowrate Measure- ment Devices				
Liquid Rad- waste Efflu- ent Line	D <sup>(2)</sup> *	NA	R	Q
Discharge Canal	D <sup>(2)</sup> *	NA	R	Q

TABLE 4.3.6.9-1 (SHEET 2 OF 3)

RADIOACTIVE LIQUID EFFLUENT MONITORING  
INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Instrument</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
4. Service Water System to Closed Cooling Water System Differential Pressure	D	NA	R	NA



TABLE 4.3.6.9-1 (SHEET 3 OF 3)

RADIOACTIVE LIQUID EFFLUENT MONITORING  
INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Table Notations

\*During releases via this pathway.

- (1) The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exist:
  - a. Instrument indicates measured levels above the alarm/trip setpoint.
  - b. Instrument indicates an isolation on high alarm.
  - c. Instrument controls are not set in operate mode.
- (2) CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once daily on any day on which continuous, periodic, or batch releases are made.
- (3) The SOURCE CHECK prior to release shall consist of verifying that the instrument is reading onscale.

## INSTRUMENTATION

### RADIOACTIVE GASEOUS EFFLUENT INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

---

3.3.6.10 The radioactive gaseous and effluent monitoring instrumentation channels shown in table 3.3.6.10-1 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.11.2.1a are not exceeded. The alarm/trip setpoints of these channels shall be determined in accordance with the ODCM.

#### APPLICABILITY

As shown in table 3.3.6.10-1.

#### ACTION

- a. With a radioactive gaseous or effluent monitoring instrumentation channel alarm/trip setpoint less conservative than a value that will ensure that the limits of 3.11.2.1a are met, without delay restore the setpoint to a value that will ensure that the limits of Specification 3.11.2.1a are met or declare the channel inoperable.
- b. With the number of channels OPERABLE less than the minimum channels required by table 3.3.6.10-1, take the ACTION shown in table 3.3.6.10-1.
- c. The provisions of Specifications 3.0.3, 3.0.4, and 6.9.1.13(b) are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.3.6.10 Each radioactive gaseous or effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations during the MODES and at the frequencies shown in table 4.3.6.10-1.

TABLE 3.3.6.10-1 (SHEET 1 OF 4)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

<u>Instrument</u>	<u>Minimum Channels OPERABLE</u>	<u>Applicability</u>	<u>Parameter</u>	<u>ACTION</u>
1. Main Condenser Offgas Treatment System Explosive Gas Monitoring System				
Hydrogen Monitor	(1)	**	% Hydrogen	106
2. Reactor Building Vent Stack Monitoring System				
a. Noble Gas Activity Monitor	(1)	*	Radioactivity Rate Measurement	105
b. Iodine Sampler Cartridge	(1)	*	Verify Presence of Cartridge	107
c. Particulate Sampler Filter	(1)	*	Verify Presence of Filter	107
d. Effluent System Flowrate Measurement Device	(1)	*	System Flowrate Measurement	104
e. Sampler Flowrate Measurement Device	(1)	*	Sampler Flowrate Measurement	104
3. Main Stack Monitoring System				
a. Noble Gas Activity Monitor	(1)	*	Radioactivity Rate Measurement	105
b. Iodine Sampler Cartridge	(1)	*	Verify Presence of Cartridge	107

HNP-RETS-12

TABLE 3.3.6.10-1 (SHEET 2 OF 4)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

<u>Instrument</u>	<u>Minimum Channels OPERABLE</u>	<u>Applicability</u>	<u>Parameter</u>	<u>ACTION</u>
c. Particulate Sampler Filter	(1)	*	Verify Presence of Filter	107
d. Effluent System Flowrate Measuring Devices	(1)	*	System Flowrate Measurement	108
e. Sampler Flowrate Measuring Device	(1)	*	Sampler Flowrate Measurement	104

TABLE 3.3.6.10-1 (SHEET 3 OF 4)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

Table Notations

\*During releases via this pathway.

\*\*During main condenser offgas treatment system operation.

ACTION 104 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided the flowrate is estimated at least once per 4 hours.

If the number of channels OPERABLE remains less than required by the Minimum Channels OPERABLE for over 30 days, an explanation of the circumstances shall be included in the next semi-annual effluent release report.

ACTION 105 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided grab samples are taken daily and analyzed daily for gross activity.

If the number of channels OPERABLE remains less than required by the Minimum Channels OPERABLE requirement for over 30 days, an explanation of the circumstances shall be included in the next semi-annual effluent release report.

ACTION 106 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of the main condenser offgas treatment system may continue provided: (a) gas samples are collected once per 4 hours and analyzed within the ensuing 4 hours, or (b) using a temporary hydrogen analyzer installed in the offgas system line downstream of the recombiner, hydrogen concentration readings are taken and logged every 4 hours.

ACTION 107 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided samples are continuously collected with auxiliary sampling equipment for periods on the order of 7 days and analyzed within 48 hours after the end of the sampling period.

TABLE 3.3.6.10-1 (SHEET 4 OF 4)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

Table Notations

If the number of channels OPERABLE remains less than required by the Minimum Channels OPERABLE requirement for over 30 days, an explanation of the circumstances shall be included in the next semi-annual effluent release report.



TABLE 4.3.6.10-1 (SHEET 1 OF 3)

RADIOACTIVE GASEOUS EFFLUENT MONITORING  
INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Instrument</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
1. Main Condenser Offgas Treatment System Explosive Gas Monitoring				
Hydrogen Monitor	D**	NA	Q(2)	M
2. Reactor Building Vent Stack Monitoring System				
a. Noble Gas Activ- ity Monitor	D*	M	R	NA
b. Iodine Sampler Cartridge	W*(3)	NA	NA	NA
c. Particulate Sampler Filter	W*(3)	NA	NA	NA
d. Effluent System Flowrate Measuring Device	D*	NA	R	Q
e. Sampler Flowrate Measuring Device	D*	NA	R	Q

TABLE 4.3.6.10-1 (SHEET 2 OF 3)

RADIOACTIVE GASEOUS EFFLUENT MONITORING  
INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Instrument</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
3 4. Main Stack Monitoring System				
a. Noble Gas Activity Monitor	D*	M	R	NA
b. Iodine Sampler Cartridge	W*(3)	NA	NA	NA
c. Particulate Sampler	W*(3)	NA	NA	NA
d. Flowrate Monitor	D*	NA	R	Q
e. Sampler Flowrate Monitor	D*	NA	R	Q

TABLE 4.3.6.10-1 (SHEET 3 OF 3)

RADIOACTIVE GASEOUS EFFLUENT MONITORING  
INSTRUMENTATION SURVEILLANCE REQUIREMENT

Table Notations

\*During releases via this pathway.

\*\*During main condenser offgas treatment system operation.

- (1) The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exist:
  - a. Instrument indicates measured levels above the alarm/trip setpoint.
  - b. Circuit failure occurs.
  - c. Instrument indicates a downscale failure.
- (2) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:
  - a. One volume-percent hydrogen, balance nitrogen
  - b. Four volume-percent hydrogen, balance nitrogen.
- (3) The CHANNEL CHECK shall consist of verifying the presence of a filter element and sampler flow at the weekly filter changeout.

### 3/4.11 RADIOACTIVE EFFLUENTS

#### 3/4.11.1 LIQUID EFFLUENTS

##### CONCENTRATION

##### LIMITING CONDITION FOR OPERATION

---

3.11.1.1 The concentration of radioactive material released at any time from the site to UNRESTRICTED AREAS (figure 3.11-1) shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table II (column 2) for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to  $2 \times 10^{-4}$   $\mu\text{Ci/ml}$  total activity.

##### APPLICABILITY

At all times.

##### ACTION

- a. With the concentration of radioactive material released from the site to UNRESTRICTED AREAS exceeding the above limits, without delay restore concentration within the above limits and provide notification to the Commission by including a discussion of the causes and corrective actions taken per Specification 6.9.1.8.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

##### SURVEILLANCE REQUIREMENTS

---

4.11.1.1.1 Radioactive liquid effluents shall be sampled and analyzed according to the sampling and analysis program of table 4.11.1-1.

4.11.1.1.2 The result of radioactive analysis shall be used in accordance with the methods of the ODCM to assure that the concentrations at the point of release are maintained within the limits of Specification 3.11.1.1.

TABLE 4.11.1-1 (SHEET 1 OF 2)

RADIOACTIVE LIQUID EFFLUENT SAMPLING AND ANALYSIS PROGRAM

<u>Liquid Release Type</u>	<u>Sampling Frequency<sup>(d)</sup></u>	<u>Minimum Analysis Frequency</u>	<u>Minimum Type of Activity Analysis</u>	<u>Minimum Detectable Concentration<sup>(a)</sup> (<math>\mu\text{Ci/ml}</math>)</u>
A. Batch Waste Release Tanks	P Each Batch	P Each Batch	Principal Gamma Emitters <sup>(e)</sup>	$5 \times 10^{-7(b)}$
			I-131	$1 \times 10^{-6}$
	P One Batch/M	M	Dissolved and Entrained Gases	$1 \times 10^{-5}$
	P Each Batch	M Composite <sup>(c)</sup>	H-3	$1 \times 10^{-5}$
			Gross Alpha	$1 \times 10^{-7}$
	P Each Batch	Q Composite <sup>(c)</sup>	Sr-89 Sr-90	$5 \times 10^{-8}$
			Fe-55	$2 \times 10^{-6}$

TABLE 4.11.1-1 (SHEET 2 OF 2)

RADIOACTIVE LIQUID EFFLUENT SAMPLING AND ANALYSIS PROGRAM

Table Notations

- a. The Minimum Detectable Concentration is defined in table notation (a) of table 4.16.1-2 of Unit 1, Specification 4.16.1.1.
- b. For certain radionuclides with low-gamma yield or low energies or for certain radionuclide mixtures, it may not be possible to measure radionuclides in concentrations near the Minimum Detectable Concentration. Under these circumstances, the Minimum Detectable Concentration may be increased inversely proportional to the magnitude of the gamma yield (i.e.,  $5 \times 10^{-7}/I$ , where:  $I$  = photon abundance expressed as a decimal fraction), but in no case shall the Minimum Detectable Concentration, as calculated in this manner for a specific radionuclide, be greater than 10% of the Maximum Permissible Concentration value specified in 10 CFR 20, Appendix B, Table II (column 2).
- c. A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen that is representative of the liquids released.
- d. A batch release is the discharge of liquid wastes of a discrete volume. Prior to sampling for analyses, each batch shall be isolated and then thoroughly mixed by a method described in the ODCM to assure representative sampling.
- e. The principal gamma emitters for which the Minimum Detectable Concentration specification will apply are exclusively the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144. This list does not mean that only these nuclides are to be detected and reported. Other measurable and identifiable peaks together with the above nuclides, shall also be identified and reported.



## RADIOACTIVE EFFLUENTS

### DOSE

#### LIMITING CONDITION FOR OPERATION

---

3.11.1.2 The dose or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released, from each reactor unit, from the site (figure 3.11-1) shall be limited to:

- a. During any calendar quarter to less than or equal to 1.5 mrem to the total body and to less than or equal to 5 mrem to any organ
- b. During any calendar year to less than or equal to 3 mrem to the total body and to less than or equal to 10 mrem to any organ.

### APPLICABILITY

At all times.

### ACTION

- a. With the calculated dose from the release of radioactive materials in liquid effluents exceeding any of the above limits, in lieu of any other report required by Specification 6.9.1, prepare and submit to the Commission ~~within 30 days~~, pursuant to Specification 6.9.1.8, a <sup>part of the</sup> semi-annual radioactive effluent release report which identifies the cause(s) for exceeding the limit(s) and defines the corrective actions to be taken to reduce the releases of radioactive materials in liquid effluents during the remainder of the current calendar quarter and during the subsequent three calendar quarters, so that the cumulative dose or dose commitment to a MEMBER OF THE PUBLIC from these releases is within 3 mrem to the total body and 10 mrem to any organ. (This ~~special~~ report shall also include: (a) the results of radiological analyses of the drinking water source and (b) the radiological impact on finished drinking water supplies with regard to the requirements of 40 CFR 141, Safe Drinking Water Act.)
- b. The requirements of Specifications 3.0.3 and 3.0.4 do not apply.

## RADIOACTIVE EFFLUENTS

### DOSE

#### SURVEILLANCE REQUIREMENTS

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4.11.1.2 Dose Calculations - Cumulative dose contributions from liquid effluents shall be determined monthly in accordance with the ODCM.

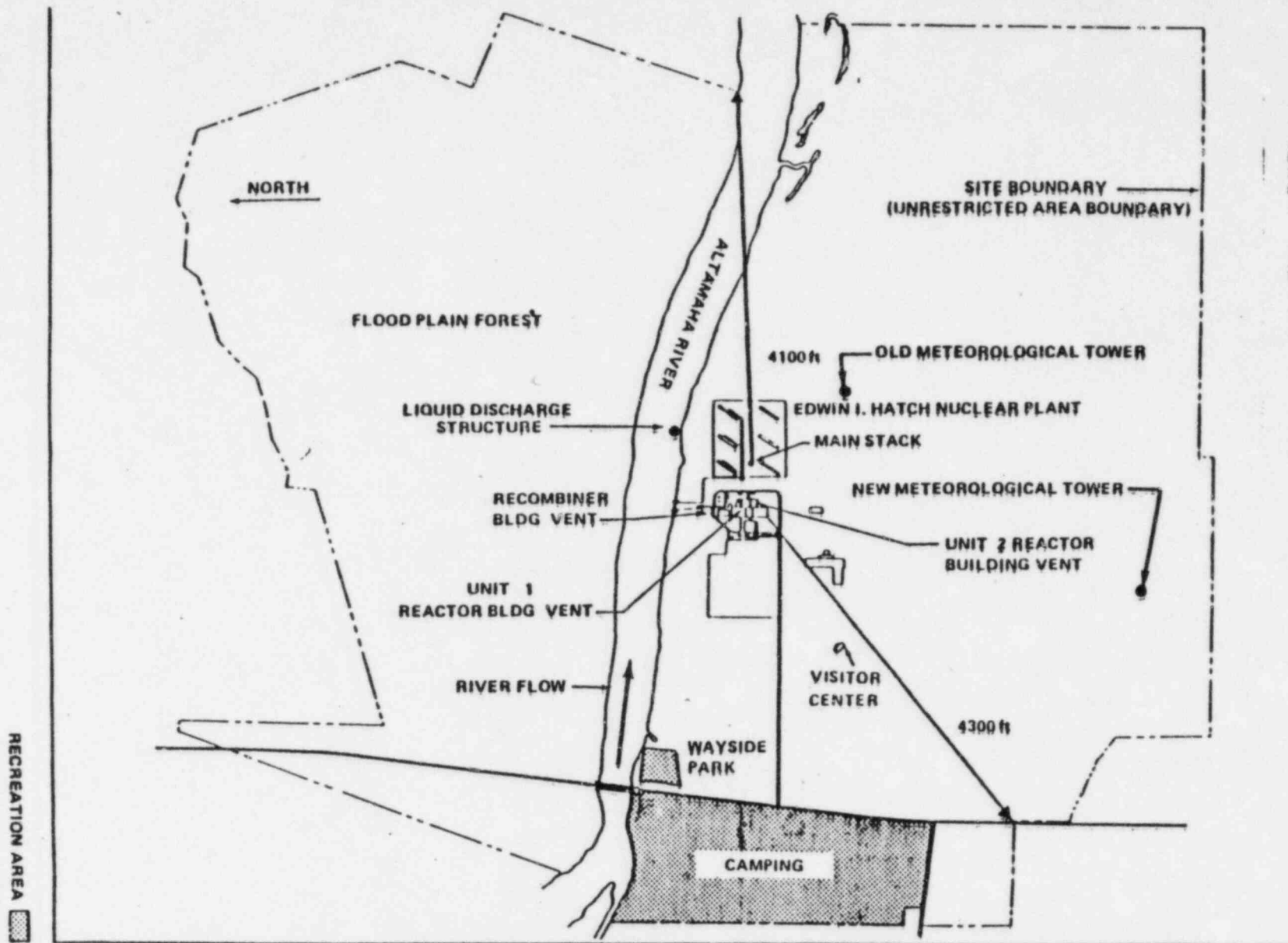


FIGURE 3.11-1 UNRESTRICTED AREA BOUNDARY

## RADIOACTIVE EFFLUENTS

### LIQUID WASTE TREATMENT

#### LIMITING CONDITION FOR OPERATION

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3.11.1.3 The liquid radwaste treatment system as described in the ODCM shall be used to reduce the radioactive materials in liquid wastes prior to their discharge when the projected doses due to the liquid effluent per unit from the site (figure 3.11-1) when projected for the calendar quarter would exceed 0.18 mrem to the total body or 0.62 mrem to any organ.

#### APPLICABILITY

At all times.

#### ACTION

- a. With radioactive liquid waste being discharged without treatment and in excess of the above limits, prepare and submit to the Commission, pursuant to Specification 6.9.1.8, a ~~special~~ report that includes the following information:
  1. Identification of the inoperable equipment or subsystems and the reason for inoperability
  2. Action(s) taken to restore the inoperable equipment to OPERABLE status
  3. Summary description of action(s) taken to prevent a recurrence.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.11.1.3.1 Doses due to liquid releases shall be projected monthly, in accordance with the ODCM.

## RADIOACTIVE EFFLUENTS

### LIQUID HOLDUP TANKS

#### LIMITING CONDITION FOR OPERATION

---

3.11.1.4<sup>(a)</sup> The contents within any outside temporary tank shall be limited to  $\leq 10$  curies, excluding tritium and dissolved or entrained noble gases.

#### APPLICABILITY

At all times. This specification does not apply to disposable liners used for shipment of radioactive waste.

#### ACTION

- a. With the quantity of radioactive material in any outside temporary tank exceeding the above limit, immediately suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents within the limit and provide notification to the Commission pursuant to Specification 6.9.1.8.
- b. The provisions of Specification 6.9.1.13(b) are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.11.1.4 The quantity of radioactive material contained in any outside temporary tank shall be determined to be within the above limit by analyzing a sample of each batch of radioactive material prior to its addition to the tank.

---

a. An outside temporary tank is not surrounded by liners, dikes, or walls that are capable of holding the tank contents and not having tank overflows and drains connected to the liquid radwaste treatment system.

## RADIOACTIVE EFFLUENTS

### 3/4.11.2 GASEOUS EFFLUENTS

#### DOSE RATE

#### LIMITING CONDITION FOR OPERATION

---

3.11.2.1 The dose rate at any time in the UNRESTRICTED AREAS (figure 3.11-1) due to radioactive materials released in gaseous effluents from the site shall be limited to the following values:

- a. The dose rate limit for noble gases shall be  $\leq 500$  mrem/year to the total body and  $\leq 3000$  mrem/year to the skin
- b. The dose rate limit for I-131, I-133, tritium, and for all radioactive materials in particulate form and radionuclides other than noble gases with half-lives greater than 8 days shall be  $\leq 1500$  mrem/year to any organ.

#### APPLICABILITY

At all times.

#### ACTION

With the dose rate(s) exceeding the above limits, without delay decrease the release rate to comply with the limit(s) given in Specification 3.11.2.1.

#### SURVEILLANCE REQUIREMENTS

---

4.11.2.1.1 The dose rate due to noble gases in gaseous effluents shall be determined to be within the above limits in accordance with the methods and procedures described in the ODCM.

4.11.2.1.2 The dose rate due to radioactive materials other than noble gases in gaseous effluents shall be determined to be within the above limits in accordance with the methods and procedures described in the ODCM by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in table 4.11.2-1.

TABLE 4.11.2-1 (SHEET 1 OF 3)

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

<u>Gaseous Release Type</u>	<u>Sampling Frequency</u>	<u>Analysis Frequency</u>	<u>Type of Activity Analysis</u>	<u>Minimum Detectable Concentration<sup>(a)</sup> (<math>\mu\text{Ci/ml}</math>)</u>
A. Environmental Release Points 1. Main Stack 2. Reactor Building Vent	M <sup>(c)</sup> Grab Sample	M <sup>(c)</sup>	Principal Gamma Emitters <sup>(f)</sup>	$1 \times 10^{-4}$ <sup>(b)</sup>
			H-3	$1 \times 10^{-6}$
B. All Release Types (as listed in A <del>and B</del> above)	Continuous <sup>(e)</sup>	W <sup>(d)</sup> Charcoal Sample	I-131	$1 \times 10^{-12}$
			I-133	$1 \times 10^{-10}$
	Continuous <sup>(e)</sup>	W <sup>(d)</sup> Particulate Sample	Principal Gamma Emitters <sup>(f)</sup> (I-131, Others)	$1 \times 10^{-11}$
	Continuous <sup>(e)</sup>	M Composite Particulate Sample	Gross Alpha	$1 \times 10^{-11}$
	Continuous <sup>(e)</sup>	Q Composite Particulate Sample	Sr-89, Sr-90	$1 \times 10^{-11}$



TABLE 4.11.2-1 (SHEET 2 OF 3)

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

Table Notations

- a. Minimum Detectable Concentration is defined in table notation (a) of table 4.16.1-2 of Unit 1, Specification 4.16.1.1.
- b. For certain radionuclides with low-gamma yield or low energies, or for certain radionuclide mixtures, it may not be possible to measure radionuclides in concentrations near the Minimum Detectable Concentration. Under these circumstances, the Minimum Detectable Concentration may be increased inversely proportional to the magnitude of the gamma yield (i.e.,  $1 \times 10^{-4}/I$ , where:  $I$  = the photon abundance expressed as a decimal fraction), but in no case shall the Minimum Detectable Concentration, as calculated in this manner for a specific radionuclide, be greater than 10 percent of the Maximum Permissible Concentration value specified in 10 CFR 20, Appendix B, Table II (column 1).
- c. Analysis shall also be performed following shutdown, startup, or a THERMAL POWER change exceeding 15 percent of the RATED THERMAL POWER within a 1-hour period.
- d. Sampling shall be performed weekly, and analyses shall be completed within 48 hours after changing (or after removal from sampler). Sampling shall also be performed once per 24 hours for 7 days following each shutdown, startup, or THERMAL POWER change exceeding 15-percent RATED THERMAL POWER in 1 hour and analyses completed within 48 hours of changing. When samples collected for 24 hours are analyzed, the corresponding Minimum Detectable Concentrations may be increased by a factor of 10.
- e. The ratio of the sample flowrate to the sampled stream flowrate shall be known for the time period covered by each dose or dose rate calculation made in accordance with Specifications 3.11.2.1, 3.11.2.2, and 3.11.2.3.
- f. The principal gamma emitters for which the Minimum Detectable Concentration specification will apply are exclusively the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, and Xe-138 for gaseous emissions; and Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144 for particulate emissions. This list does not mean that



TABLE 4.11.2-1 (SHEET 3 OF 3)

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

Table Notations

only these nuclides are to be detected and reported. Other measurable and identifiable peaks, together with the above nuclides, shall also be identified and reported. Nuclides below the Minimum Detectable Concentration for the analyses should not be reported as being present at the Minimum Detectable Concentration level for that nuclide. When unusual circumstances result in Minimum Detectable concentrations higher than required, the reasons shall be documented in the semi-annual effluent report.

## RADIOACTIVE EFFLUENTS

### DOSE, NOBLE GASES

#### LIMITING CONDITION FOR OPERATION (~~100~~)

---

3.11.2.2 The air dose in UNRESTRICTED AREAS (figure 3.11-1) due to noble gases released in gaseous effluents shall be limited to the following:

- a. During any calendar quarter, to  $\leq 5$  mrad for gamma radiation and  $\leq 10$  mrad for beta radiation
- b. During any calendar year, to  $\leq 10$  mrad for gamma radiation and  $\leq 20$  mrad for beta radiation.

### APPLICABILITY

At all times.

### ACTION

- a. With the calculated air dose from radioactive noble gases in gaseous effluents exceeding any of the above limits, prepare and submit to the Commission, pursuant to Specification 6.9.1.8, a report identifying the cause(s) for exceeding the limit(s) and defining the corrective actions taken to reduce the releases and proposed corrective actions to be taken to assure that subsequent releases will be in compliance with Specification 3.11.2.2.
- b. The requirements of Specifications 3.0.3 and 3.0.4 do not apply.

#### SURVEILLANCE REQUIREMENTS

---

4.11.2.2.1 Dose Calculations - Cumulative dose contributions for the total time period shall be determined in accordance with the ODCM monthly.

## RADIOACTIVE EFFLUENTS

### DOSE, RADIOIODINES, RADIOACTIVE MATERIAL IN PARTICULATE FORM, AND RADIONUCLIDES OTHER THAN NOBLE GASES

#### LIMITING CONDITION FOR OPERATION

---

3.11.2.3 The dose to any organ of a MEMBER OF THE PUBLIC from I-131, I-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released to UNRESTRICTED AREAS (figure 3.11-1) from each reactor unit shall be limited to the following:

- a. During any calendar quarter to  $\leq 7.5$  mrem to any organ
- b. During any calendar year to  $\leq 15$  mrem to any organ.

#### APPLICABILITY

At all times.

#### ACTION

- a. With the calculated dose from the release of I-131, I-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents exceeding any of the above limits, prepare and submit to the Commission, pursuant to Specification 6.9.1.8, a report identifying the cause(s) for exceeding the limit and defining the corrective actions taken to reduce releases and proposed corrective actions to be taken to assure that subsequent releases will be in compliance with Specification 3.11.2.3.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.11.2.3.1 Dose Calculations - Cumulative dose contributions for the current calendar quarter and the current calendar year shall be determined in accordance with the ODCM monthly.

RADIOACTIVE EFFLUENTS

as described in the ODCM

GASEOUS RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION

---

3.11.2.4 The GASEOUS RADWASTE TREATMENT SYSTEM shall be in operation.

APPLICABILITY

Whenever the main condenser air ejector system is in operation.

ACTION

- a. With the GASEOUS RADWASTE TREATMENT SYSTEM inoperable for more than 31 days, prepare and submit to the Commission ~~within 30 days~~, pursuant to Specification 6.9.1.8, a report which includes the following information:
  1. Identification of the inoperable equipment or subsystems and the reason for inoperability
  2. Action(s) taken to restore the inoperable equipment to OPERABLE status
  3. Summary description of action(s) taken to prevent a recurrence.
- b. The requirements of Specifications 3.0.3 and 3.0.4 do not apply.

SURVEILLANCE REQUIREMENTS

---

4.11.2.4.1 Doses due to gaseous releases to UNRESTRICTED AREAS shall be projected monthly, in accordance with the ODCM.

## RADIOACTIVE EFFLUENTS

### DOSE

#### LIMITING CONDITION FOR OPERATION

---

3.11.2.5 The dose or dose commitment to a MEMBER OF THE PUBLIC from all uranium fuel cycle sources is limited to  $\leq 25$  mrem to the total body or any organ (except the thyroid, which is limited to  $\leq 75$  mrem) over a calendar year.

### APPLICABILITY

At all times.

### ACTION

- a. With the calculated doses from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of Specifications 3.11.1.2(a), 3.11.2.2(b), 3.11.2.3(a), or 3.11.2.3(b), in lieu of any other report required by Specification 6.9.1, prepare and submit within 30 days a special report to the Director, Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D. C. 20555, which defines the corrective action to be taken to reduce subsequent releases to prevent recurrence of exceeding the limits of Specification 3.11.2.5. This special report shall include an analysis which estimates the radiation exposure (dose) to a MEMBER OF THE PUBLIC from uranium fuel cycle sources (including all effluents pathways and direct radiation) for a 12 consecutive month period that includes the release(s) covered by this report. If the estimated dose(s) exceeds the limits of Specification 3.11.2.5, and if the release condition resulting in violation of 10 CFR 100 has not already been corrected, the special report shall include a request for a variance in accordance with the provisions of 10 CFR 100 and including the specified information of paragraph 190.11. Submittal of the report is considered a timely request, and a variance is granted until staff action on the request is complete. The variance only relates to the limits of 40 CFR 190 and does not apply in any way to the requirements for dose limitation of 10 CFR Part 20, as addressed in other sections of this technical specification.
- b. The requirements of Specifications 3.0.3 and 3.0.4 do not apply.

## RADIOACTIVE EFFLUENTS

### DOSE

#### SURVEILLANCE REQUIREMENTS

---

4.11.2.5.1 Dose Calculations - Cumulative dose contributions from liquid and gaseous effluents shall be determined in accordance with Specifications 3.11.1.2, 3.11.2.3, and the ODCM.

## RADIOACTIVE EFFLUENTS

## EXPLOSIVE GAS MIXTURE

### LIMITING CONDITION FOR OPERATION

---

3.11.2.6 The concentration of hydrogen downstream of the recombiners in the main condenser offgas treatment system shall be limited to  $\leq 4$  percent by volume.

### APPLICABILITY

At all times.

### ACTION

- a. With the concentration of hydrogen downstream of the recombiners in the main condenser offgas treatment system exceeding the limit, restore the concentration ~~to~~ within the limit within 48 hours.
- b. The provisions of Specifications 3.0.3, 3.0.4, and 6.9.1.13(b) are not applicable.

### SURVEILLANCE REQUIREMENTS

---

4.11.2.6 The concentration of hydrogen downstream of the recombiners in the main condenser offgas treatment system shall be determined to be within the above limits by monitoring the waste gases in the main condenser offgas treatment system with the (hydrogen) monitors required OPERABLE by table 3.3.6.10-1, Specification 3.3.6.10.



## RADIOACTIVE EFFLUENTS

### MAIN CONDENSER

#### LIMITING CONDITION FOR OPERATION

---

3.11.2.7 The gross gamma radioactivity rate of noble gases measured at the main condenser evacuation system pretreatment monitor station shall be limited to  $\leq 240,000 \mu\text{Ci/second}$ .

#### APPLICABILITY

At all times.

#### ACTION

With the gross gamma radioactivity rate of noble gases at the pretreatment monitor exceeding  $240,000 \mu\text{Ci/second}$ , restore the gross radioactivity rate to within its limit within 72 hours or be in at least OPERATIONAL CONDITION 2 within the next 12 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.11.2.7 The gross radioactivity (beta and/or gamma) rate of noble gases from the main condenser air ejector shall be determined to be within the above limit at the following frequencies by performing an isotopic analysis of a representative sample of gases taken at the pretreatment monitoring station: ~~dilution and/or discharge) of the main condenser air ejector:~~

- a. Monthly when plant is operating
- b. Within 4 hours following an evacuation system pretreatment increase of greater than 50 percent, as indicated by the condenser monitor, after factoring out increases due to changes in THERMAL POWER level, in the nominal steady-state fission gas release from the primary coolant.



## RADIOACTIVE EFFLUENTS

### 3/4.11.3 SOLID RADIOACTIVE WASTE

#### LIMITING CONDITION FOR OPERATION

---

3.11.3.1 The solid radwaste system shall be used to provide for the SOLIDIFICATION of wet solid wastes and for the SOLIDIFICATION and packaging of other radioactive wastes, as required, to ensure the meeting of the requirements of 10 CFR Part 20 and of 10 CFR Part 71 prior to shipment of radioactive wastes from the site.

#### APPLICABILITY

At all times.

#### ACTION

- a. With the requirements of 10 CFR Part 20 and 10 CFR Part 71 not satisfied, suspend shipments of defective containers of solid radioactive wastes from the site.
- b. The requirements of Specifications 3.0.3 and 3.0.4 do not apply.

#### SURVEILLANCE REQUIREMENTS

---

4.11.3.1.1 The PROCESS CONTROL PROGRAM shall be used to verify the SOLIDIFICATION of wastes prior to shipment.

3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING

See specification section 3/4.16 for HNP-Unit 1.

# ART SLIP SHEET

FIGURE NO.

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RESPONSIBLE AUTHOR

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EDITOR/COORDINATOR

SPECIAL INSTRUCTIONS

*Jan - September 1, 1983, RETS -  
HNP - Unit 1*

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FIGURE

TABLE

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NUREG-0473

RADIOLOGICAL EFFLUENT  
TECHNICAL SPECIFICATIONS  
HNP-UNIT 1

## 1.0 DEFINITIONS

---

### SOURCE CHECK

A SOURCE CHECK shall be the qualitative assessment of channel response when the channel sensor is exposed to a source of increased radioactivity.

### PROCESS CONTROL PROGRAM

The PROCESS CONTROL PROGRAM shall contain the current formula, sampling, analysis, tests, and determinations to be made to ensure that the processing and packaging of solid radioactive wastes based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to assure compliance with 10 CFR 20, 10 CFR 71, federal and state regulations, and other requirements governing the disposal of radioactive wastes.

### SOLIDIFICATION

SOLIDIFICATION shall be the conversion of wet radioactive wastes into a form that meets shipping and burial ground requirements.

### OFFSITE DOSE CALCULATION MANUAL (ODCM)

An ODCM shall be a manual containing the methodology and parameters to be used in the calculation of offsite doses due to radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring instrumentation alarm/trip setpoints, and in the conducting of environmental radiological monitoring.

### GASEOUS RADWASTE TREATMENT SYSTEM

The GASEOUS RADWASTE TREATMENT SYSTEM is the offgas holdup system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system offgases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to UNRESTRICTED AREAS.

## 1.0 DEFINITIONS (Continued)

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### VENTILATION EXHAUST TREATMENT SYSTEM

VENTILATION EXHAUST TREATMENT SYSTEM is any system designed and installed to reduce gaseous radioiodine or radioactive material in particulate form in effluents by passing ventilation or vent exhaust gases through charcoal adsorbers and/or high efficiency particulate air (HEPA) filters for the purpose of removing iodines or particulates from the gaseous exhaust stream prior to the release to UNRESTRICTED AREAS. Such a system is not considered to have any effect on noble gas effluents. Engineered safety feature (ESF) atmospheric cleanup systems are not considered to be VENTILATION EXHAUST TREATMENT SYSTEM components.

### MEMBER(S) OF THE PUBLIC

MEMBER(S) OF THE PUBLIC shall include all persons who are not occupationally associated with the plant. This category does not include employees of the utility, its contractors, or its vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational, occupational, or other purposes not associated with the plant.

### SITE BOUNDARY

The SITE BOUNDARY shall be that line beyond which the land is not owned, based, or otherwise controlled by Georgia Power Company, as shown in figure 3.15-1.

### UNRESTRICTED AREA

An UNRESTRICTED AREA shall be any area at or beyond the SITE BOUNDARY to which access for purposes of protection of individuals from exposure to radiation and radioactive materials is not controlled by the licensee. This includes any area within the SITE BOUNDARY used for residential quarters or for long-term industrial, commercial, institutional, and/or recreational purposes.

## 1.0 DEFINITIONS (Continued)

---

### PURGE - PURGING

PURGE or PURGING is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration, or other operating condition in such a manner that replacement air or gas is required to purify the confinement.

### VENTING

VENTING is the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration, or other operating condition in such a manner that replacement air or gas is not provided or required during VENTING. The term "vent," used in system names, does not imply a VENTING process.

MILK ANIMAL - A cow or goat that is producing milk for human consumption.

### DOSE EQUIVALENT IODINE

The DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcurie/gram), which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The thyroid dose conversion factors used for this calculation shall be those listed in table III of TID-14844 or those in NRC Regulatory Guide 1.109, Revision 1, October 1977.

### ACTION

ACTION shall be that part of a specification which prescribes remedial measures required under designated conditions.



## 1.0 DEFINITIONS (Continued)

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### CHANNEL CHECK

A CHANNEL CHECK shall be the qualitative assessment of channel behavior during operation by observation. This determination shall include, where possible, comparison of the channel indication and/or status with other indications and/or status derived from independent instrument channels measuring the same parameter.

### CHANNEL FUNCTIONAL TEST

A CHANNEL FUNCTIONAL TEST shall be:

- a. Analog channels - the injection of a simulated signal into the channel as close to the primary sensor as practicable to verify OPERABILITY including alarm and/or trip functions and channel failure trips.
- b. Bistable channels - the injection of a simulated signal into the channel sensor to verify OPERABILITY including alarm and/or trip functions.



TABLE 1.2  
FREQUENCY NOTATIONS

<u>Notation</u>	<u>Definition</u>	<u>Frequency</u>
S	Once per shift	Once per 12 hours
D	Daily	Once per 24 hours
W	Weekly	Once per 7 days
M	Monthly	Once per 31 days
Q	Quarterly	Once per 92 days
SA	Semi-annually	Once per 184 days
R	REFUELING	Once per 18 months
S/U	STARTUP	Prior to each reactor startup
P	Prior	Completed prior to each release
NA	Not applicable	Not applicable

## INSTRUMENTATION

### RADIOACTIVE LIQUID EFFLUENT INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

---

3.14.1 The radioactive liquid effluent monitoring instrumentation channels shown in table 3.14.1-1 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.15.1 are not exceeded. The alarm/trip setpoints of these channels shall be determined in accordance with the OFFSITE DOSE CALCULATION MANUAL (ODCM).

#### APPLICABILITY

As shown in table 3.14.1-1.

#### ACTION

- a. With a radioactive liquid effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above specification, without delay suspend the release of radioactive liquid effluents monitored by the affected channel, declare the channel inoperable, or change to a conservative value.
- b. With the number of channels OPERABLE less than the minimum channels required by table 3.14.1-1, take the ACTION shown in table 3.14.1-1.
- c. The provisions of Specification 6.9.1.13(b) are not applicable.
- d. When the ACTION statement or other requirements of this LCO cannot be met, steps need not be taken to change the OPERATIONAL CONDITION of the Unit. Entry into an OPERATIONAL CONDITION or other specified condition may be made if, as a minimum, the requirements of the ACTION statement are satisfied.

#### SURVEILLANCE REQUIREMENTS

---

4.14.1 Each radioactive liquid effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations and at the frequencies shown in table 4.14.1-1.

TABLE 3.14.1-1 (SHEET 1 OF 2)

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

<u>Instrument</u>	<u>Minimum Channels OPERABLE</u>	<u>Applicability</u>	<u>ACTION</u>
1. Gross Radioactivity Monitors Providing Automatic Termination of Release			
Liquid Radwaste Effluent Line	1	(a)	100
2. Gross Radioactivity Monitors not Providing Automatic Termination of Release			
Service Water System Effluent Line	1	(b)	101
3. Flowrate Measurement Devices**			
Liquid Radwaste Effluent Line	1	(a)	102
Discharge Canal	1	(b) (a)	102
4. Service Water System to Closed Cooling Water System Differential Pressure	1	At all times	103

\*\*Pump curves may be utilized to estimate flow; in such cases, action statement 102 is not required.

(a) Whenever the radwaste discharge valves are not locked closed.

(b) Whenever the service water system pressure is below the closed cooling water system pressure or  $\Delta P$  indication is not available.

TABLE 3.14.1-1 (SHEET 2 OF 2)

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

Table Notations

ACTION 100 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases may be continued, provided that prior to initiating a release:

- a. At least two independent samples are analyzed in accordance with Specification 4.15.1.1.2.
- b. At least two technically qualified individuals independently verify the release rate calculations and discharge valving.

Otherwise, suspended release of radioactive effluents via this pathway. If the channel remains inoperable for over 30 days, an explanation of the circumstances shall be included in the next semi-annual effluent release report.

ACTION 101 - With the numbers of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided that once per shift grab samples are collected and analyzed for gross radioactivity (beta or gamma) at a Minimum Detectable Concentration of at least  $10^{-7}$   $\mu\text{Ci/ml}$ . If the channel remains inoperable for over 30 days, an explanation of the circumstances shall be included in the next semi-annual effluent release report.

ACTION 102 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided the flowrate is estimated at least once per 4 hours during actual releases. If the channel remains inoperable for over 30 days, an explanation of the circumstances shall be included in the next semi-annual effluent release report.

ACTION 103 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, assure that the service water system effluent system monitor is OPERABLE.

TABLE 4.14.1-1 (SHEET 1 OF 2)

RADIOACTIVE LIQUID EFFLUENT MONITORING  
INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Instrument</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
1. Gross Gamma Radioactivity Monitors Pro- viding Alarm and Automatic Isolation				
Liquid Rad- waste Efflu- ent Line	D*	P <sup>(1)</sup>	R	Q <sup>(1)</sup>
2. Gross Gamma Radioactivity Monitors Pro- viding Alarm but not Provid- ing Automatic Isolation				
Service Water System Efflu- ent Line	D *	M	R	NA
3. Flowrate Measure- ment Devices				
Liquid Rad- waste Efflu- ent Line	D <sup>(2)</sup> *	NA	R	Q
Discharge Canal	D <sup>(2)</sup> *	NA	R	Q
4. Service Water System to Closed Cooling Water System Differential Pressure				
	D	NA	R	NA

TABLE 4.14.1-1 (SHEET 2 OF 2)

RADIOACTIVE LIQUID EFFLUENT MONITORING  
INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Table Notations

\*During releases via this pathway.

- (1) The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exist:
  - a. Instrument indicates measured levels above the alarm/trip setpoint.
  - b. Instrument indicates an isolation or high alarm.
  - c. Instrument controls are not set in operate mode.
- (2) CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once daily on any day on which continuous, periodic, or batch releases are made.
- (3) The SOURCE CHECK prior to release shall consist of verifying that the instrument is reading onscale.

## INSTRUMENTATION

### RADIOACTIVE GASEOUS EFFLUENT INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

---

3.14.2 The radioactive gaseous and effluent monitoring instrumentation channels shown in table 3.14.2-1 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.15.2.1 are not exceeded. The alarm/trip setpoints of these channels shall be determined in accordance with the ODCM.

#### APPLICABILITY

As shown in table 3.14.2-1.

#### ACTION

- a. With a radioactive gaseous or effluent monitoring instrumentation channel alarm/trip setpoint less conservative than a value that will ensure that the limits of 3.15.2.1 are met, without delay restore the setpoint to a value that will ensure that the limits of Specification 3.15.2.1a, are met or declare the channel inoperable.
- b. With the number of channels OPERABLE less than the minimum channels required by table 3.14.2-1, take the ACTION shown in table 3.14.2-1.
- c. The provisions of Specification 6.9.1.13(b) are not applicable.
- d. When the ACTION statement or other requirements of this LCO cannot be met, steps need not be taken to change the OPERATIONAL CONDITION of the Unit. Entry into an OPERATIONAL CONDITION or other specified condition may be made if, as a minimum, the requirements of the ACTION statement are satisfied.

#### SURVEILLANCE REQUIREMENTS

---

4.14.2 Each radioactive gaseous or effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations and at the frequencies shown in table 4.14.2-1.



TABLE 3.14.2-1 (SHEET 1 OF 4)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

<u>Instrument</u>	<u>Minimum Channels OPERABLE</u>	<u>Applicability</u>	<u>Parameter</u>	<u>ACTION</u>
1. Main Condenser Offgas Treatment System Explosive Gas Monitoring System				
Hydrogen Monitor	(1)	**	% Hydrogen	106
2. Reactor Building Vent Stack Monitoring System				
a. Noble Gas Activity Monitor	(1)	*	Radioactivity Rate Measurement	105
b. Iodine Sampler Cartridge	(1)	*	Verify Presence of Cartridge	107
c. Particulate Sampler Filter	(1)	*	Verify Presence of Filter	107
d. Effluent System Flowrate Measurement Device	(1)	*	System Flowrate Measurement	104
e. Sampler Flowrate Measurement Device	(1)	*	Sampler Flowrate Measurement	104
3. Recombiner Building Ventilation Monitoring System				
a. Noble Gas Activity Monitor	(1)	*	Radioactivity Rate Measurement	105
b. Iodine Sampler Cartridge	(1)	*	Verify Presence of Cartridge	107
c. Particulate Sampler Filter	(1)	*	Verify Presence of Filter	107
d. Sampler Flowrate Measurement Device	(1)	*	Sampler Flowrate Measurement	104



TABLE 3.14.2-1 (SHEET 2 OF 4)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

<u>Instrument</u>	<u>Minimum Channels OPERABLE</u>	<u>Applicability</u>	<u>Parameter</u>	<u>ACTION</u>
4. Main Stack Monitoring System				
a. Noble Gas Activity Monitor	(1)	*	Radioactivity Rate Measurement	105
b. Iodine Sampler Cartridge	(1)	*	Verify Presence of Cartridge	107
c. Particulate Sampler Filter	(1)	*	Verify Presence of Filter	107
d. Effluent System Flowrate Measuring Devices	(1)	*	System Flowrate Measurement	104
e. Sampler Flowrate Measuring Device	(1)	*	Sampler Flowrate Measurement	104

TABLE 3.14.2-1 (SHEET 3 OF 4)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

Table Notations

\*During releases via this pathway.

\*\*During main condenser offgas treatment system operation.

ACTION 104 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided the flowrate is estimated at least once per 4 hours.

If the number of channels OPERABLE remains less than required by the Minimum Channels OPERABLE requirement for over 30 days, an explanation of the circumstances shall be included in the next semi-annual effluent release report.

ACTION 105 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided grab samples are taken daily and analyzed daily for gross activity within 24 hours.

If the number of channels OPERABLE remains less than required by the Minimum Channels OPERABLE requirement for over 30 days, an explanation of the circumstances shall be included in the next semi-annual effluent release report.

ACTION 106 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of the main condenser offgas treatment system may continue provided:

- (a) Gas samples are collected once per 4 hours and analyzed within the ensuing 4 hours, or
- (b) Using a temporary hydrogen analyzer installed in the offgas system line downstream of the recombiner, hydrogen concentration readings are taken and logged every 4 hours.

TABLE 3.14.2-1 (SHEET 4 OF 4)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

Table Notations

ACTION 107 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue, provided samples are continuously collected with auxiliary sampling equipment for periods on the order of 7 days and analyzed within 48 hours after the end of the sampling period.

If the number of channels OPERABLE remains less than required by the Minimum Channels OPERABLE requirement for over 30 days, an explanation of the circumstances shall be included in the next semi-annual effluent release report.

TABLE 4.14.2-1 (SHEET 1 OF 3)

RADIOACTIVE GASEOUS EFFLUENT MONITORING  
INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Instrument</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
1. Main Condenser Offgas Treatment System Explosive Gas Monitoring System				
Hydrogen Monitor	D**	NA	Q(2)	M
2. Reactor Building Vent Stack Monitoring System				
a. Noble Gas Activ- ity Monitor	D*	M	R	NA
b. Iodine Sampler Cartridge	W*(3)	NA	NA	NA
c. Particulate Sampler Filter	W*(3)	NA	NA	NA
d. Effluent System Flowrate Measuring Device	D*	NA	R	Q
e. Sampler Flowrate Measuring Device	D*	NA	R	Q

TABLE 4.14.2-1 (SHEET 2 OF 3)

RADIOACTIVE GASEOUS EFFLUENT MONITORING  
INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Instrument</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
3. Recombiner Building Ventilation Monitoring System				
a. Noble Gas Activity Monitor	D*	M	R	Q(1)
b. Iodine Sampler Cartridge	W*(3)	NA	NA	NA
c. Particulate Sample Filter	W*(3)	NA	NA	NA
d. Sampler Flowrate Measuring Device	D*	NA	R	Q
4. Main Stack Monitoring System				
a. Noble Gas Activity Monitor	D*	M	R	NA
b. Iodine Sampler	W*(3)	NA	NA	NA
c. Particulate Sampler	W*(3)	NA	NA	NA
d. Flowrate Monitor	D*	NA	R	Q
e. Sampler Flowrate Monitor	D*	NA	R	Q

TABLE 4.14.2-1 (SHEET 3 OF 3)

RADIOACTIVE GASEOUS EFFLUENT MONITORING  
INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Table Notations

\*During releases via this pathway.

\*\*During main condenser offgas treatment system operation.

- (1) The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exist:
  - a. Instrument indicates measured levels above the alarm/trip setpoint.
  - b. Circuit failure occurs.
  - c. Instrument indicates a downscale failure.
- (2) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:
  - a. One volume-percent hydrogen, balance nitrogen
  - b. Four volume-percent hydrogen, balance nitrogen.
- (3) The CHANNEL CHECK shall consist of verifying the presence of a filter element and sampler flow at the weekly filter changeout.

### 3/4.15 RADIOACTIVE EFFLUENTS

#### 3/4.15.1 LIQUID EFFLUENTS

##### CONCENTRATION

##### LIMITING CONDITION FOR OPERATION

---

3.15.1.1 The concentration of radioactive material released at any time from the site to UNRESTRICTED AREAS (figure 3.15-1) shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table II (column 2) for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to  $2 \times 10^{-4}$   $\mu\text{Ci/ml}$  total activity.

##### APPLICABILITY

At all times.

##### ACTION

- a. With the concentration of radioactive material released from the site to UNRESTRICTED AREAS exceeding the above limits, without delay restore concentration within the above limits and provide notification to the Commission by including a discussion of the causes and corrective actions taken in the next report per Specification 6.9.1.8.
- b. When the ACTION statement or other requirements of this LCO cannot be met, steps need not be taken to change the OPERATIONAL CONDITION of the Unit. Entry into an OPERATIONAL CONDITION or other specified condition may be made if, as a minimum, the requirements of the ACTION statement are satisfied.

##### SURVEILLANCE REQUIREMENTS

---

4.15.1.1.1 Radioactive liquid effluents shall be sampled and analyzed according to the sampling and analysis program of table 4.15.1-1.

4.15.1.1.2 The result of radioactive analysis shall be used in accordance with the methods of the OFFSITE DOSE CALCULATION MANUAL (ODCM) to assure that the concentrations at the point of release are maintained within the limits of Specification 3.15.1.1.



TABLE 4.15.1-1 (SHEET 1 OF 2)

RADIOACTIVE LIQUID EFFLUENT SAMPLING AND ANALYSIS PROGRAM

Liquid Release Type	Sampling (d) Frequency	Minimum Analysis Frequency	Minimum Type of Activity Analysis	Minimum Detectable Concentration (a) $\frac{(\mu\text{Ci/l})}{\text{}} \text{---}$
A. Batch Waste Release Tanks	P Each Batch	P Each Batch	Principal $(\approx)$ Gamma Emitters (e)	$5 \times 10^{-7} \text{ (b)}$
			I-131	$1 \times 10^{-6}$
	P One Batch/M	M	Dissolved and Entrained Gases	$1 \times 10^{-5}$
	P Each Batch	M (c) Composite	H-3	$1 \times 10^{-5}$
			Gross Alpha	$1 \times 10^{-7}$
	P Each Batch	Q (c) Composite	Sr-89 Sr-90	$5 \times 10^{-6}$
			Fe-55	$2 \times 10^{-6}$

TABLE 4.15.1-1 (SHEET 2 OF 2)

RADIOACTIVE LIQUID EFFLUENT SAMPLING AND ANALYSIS PROGRAM

Table Notations

- a. The Minimum Detectable Concentration is defined in table notation (a) of table 4.16.1-2, Specification 4.16.1.2.
- b. For certain radionuclides with low-gamma yield or low energies or for certain radionuclide mixtures, it may not be possible to measure radionuclides in concentrations near the Minimum Detectable Concentration. Under these circumstances, the Minimum Detectable Concentration may be increased inversely proportional to the magnitude of the gamma yield (i.e.,  $5 \times 10^{-7}/I$ , where:  $I$  = photon abundance expressed as a decimal fraction), but in no case shall the Minimum Detectable Concentration, as calculated in this manner for a specific radionuclide, be greater than 10% of the Maximum Permissible Concentration value specified in 10 CFR 20, Appendix B, Table II (column 2).
- c. A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen that is representative of the liquids released.
- d. A batch release is the discharge of liquid wastes of a discrete volume. Prior to sampling for analysis, each batch shall be isolated and then thoroughly mixed by a method described in the ODCM to assure representative sampling.
- e. The principal gamma emitters for which the Minimum Detectable Concentration specification will apply are exclusively the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144. This list does not mean that only these nuclides are to be detected and reported. Other measurable and identifiable peaks together with the above nuclides, shall also be identified and reported.

## RADIOACTIVE EFFLUENTS

### DOSE

#### LIMITING CONDITION FOR OPERATION

---

3.15.1.2 The dose or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released, from each reactor unit, from the site (figure 3.15-1) shall be limited to:

- a. During any calendar quarter to less than or equal to 1.5 mrem to the total body and to less than or equal to 5 mrem to any organ
- b. During any calendar year to less than or equal to 3 mrem to the total body and to less than or equal to 10 mrem to any organ.

### APPLICABILITY

At all times.

### ACTION

- a. With the calculated dose from the release of radioactive materials in liquid effluents exceeding any of the above limits, prepare and submit to the Commission ~~within 30 days~~, pursuant to Specification 6.9.1.8, a section in the semi-annual effluent report which identifies the cause(s) for exceeding the limit(s) and defines the corrective actions to be taken to reduce the releases of radioactive materials in liquid effluents during the remainder of the current calendar quarter and during the subsequent three calendar quarters, so that the cumulative dose or dose commitment to ~~an individual~~ from these releases is within 3 mrem to the total body and 10 mrem to any organ. (This ~~special~~ report shall also include (1) the results of radiological analyses of the drinking water source and (2) the radiological impact on finished drinking water supplies with regard to the requirements of 40 CFR 141, Safe Drinking Water Act.)
- b. When the ACTION statement or other requirements of this LCO cannot be met, steps need not be taken to change the OPERATIONAL CONDITION of the Unit. Entry into an OPERATIONAL CONDITION or other specified condition may be made if, as a minimum, the requirements of the ACTION statement are satisfied.

a MEMBER OF THE PUBLIC

## RADIOACTIVE EFFLUENTS

### DOSE (Continued)

#### SURVEILLANCE REQUIREMENTS

---

4.15.1.2 Dose Calculations - Cumulative dose contributions from liquid effluents shall be determined monthly in accordance with the ODCM.

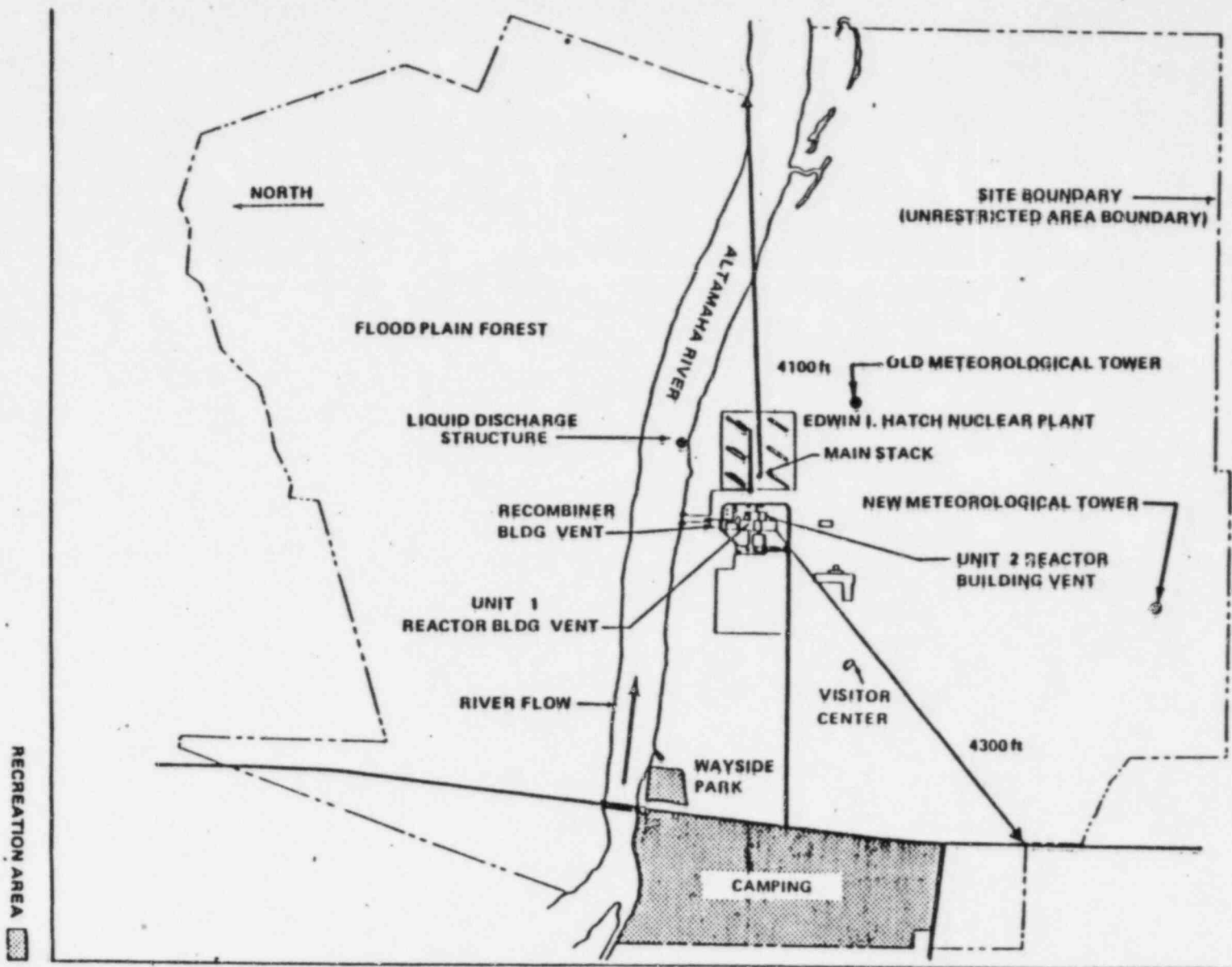


FIGURE 3.15-1 UNRESTRICTED AREA BOUNDARY

## RADIOACTIVE EFFLUENTS

### LIQUID WASTE TREATMENT

as described in the ODCM

### LIMITING CONDITION FOR OPERATION

---

3.15.1.3 The liquid radwaste treatment system shall be used to reduce the radioactive materials in liquid wastes prior to their discharge when the projected doses due to the liquid effluent from the site (figure 3.15-1) when averaged over the calendar quarter would exceed 0.18 mrem to the total body or 0.62 mrem to any organ.

### APPLICABILITY

At all times.

### ACTION

- a. With radioactive liquid waste being discharged without treatment and in excess of the above limits, prepare and submit to the Commission, pursuant to Specification 6.9.1.8, a section in the semi-annual effluent report that includes the following information:
  1. Identification of the inoperable equipment or subsystems and the reason for inoperability
  2. Action(s) taken to restore the inoperable equipment to OPERABLE status
  3. Summary description of action(s) taken to prevent a recurrence.
- b. When the ACTION statement or other requirements of this LCO cannot be met, steps need not be taken to change the OPERATIONAL CONDITION of the Unit. Entry into an OPERATIONAL CONDITION or other specified condition may be made if, as a minimum, the requirements of the ACTION statement are satisfied.

### SURVEILLANCE REQUIREMENTS

---

4.15.1.3.1 Doses due to liquid releases shall be projected monthly in accordance with the ODCM.

## RADIOACTIVE EFFLUENTS

### LIQUID HOLDUP TANKS

#### LIMITING CONDITION FOR OPERATION

---

3.15.1.4<sup>(a)</sup> The contents within any outside temporary tank shall be limited to  $\leq 10$  curies, excluding tritium and dissolved or entrained noble gases.

#### APPLICABILITY

At all times. This specification does not apply to disposable liners used for shipment of radioactive waste.

#### ACTION

- a. With the contents within any outside temporary tank exceeding the above limit, immediately suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents within the limit and provide notification to the Commission pursuant to Specification 6.9.1.8.
- b. The provisions of Specification 6.9.1.13(b) are not applicable.

#### SURVEILLANCE REQUIREMENTS

---

4.15.1.4 The ~~contents within~~ any outside temporary tank shall be determined to be within the above limit by analyzing a sample of each batch of radioactive material prior to its addition to the tank.

quantity of radioactive material contained in

- 
- a. An outside temporary tank is not surrounded by liners, dikes, or walls that are capable of holding the tank contents and not having tank overflows and drains connected to the liquid radwaste treatment system.



## RADIOACTIVE EFFLUENTS

### 3/4.15.2 GASEOUS EFFLUENTS

#### DOSE RATE

#### LIMITING CONDITION FOR OPERATION

---

3.15.2.1 The dose rate at any time in the UNRESTRICTED AREAS (figure 3.15-1) due to radioactive materials released in gaseous effluents from the site shall be limited to the following values:

- a. The dose rate limit for noble gases shall be  $\leq 500$  mrem/year to the total body and  $\leq 3000$  mrem/year to the skin
- b. The dose rate limit for I-131, I-133, tritium, and for all radioactive materials in particulate form with half-lives greater than 8 days shall be  $\leq 1500$  mrem/year to any organ.

#### APPLICABILITY

At all times.

#### ACTION

With the dose rate(s) exceeding the above limits, without delay decrease the release rate to comply with the limit(s) given in Specification 3.15.2.1.

#### SURVEILLANCE REQUIREMENTS

---

4.15.2.1.1 The dose rate due to noble gases in gaseous effluents shall be determined to be within the above limits in accordance with methods and procedures described in the ODCM.

4.15.2.1.2 The dose rate due to radioactive materials other than noble gases in gaseous effluents shall be determined to be within the above limits in accordance with the methods and procedures described in the ODCM by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in table 4.15.2-1.

TABLE 4.15.2-1 (SHEET 1 OF 3)

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

<u>Gaseous Release Type</u>	<u>Sampling Frequency</u>	<u>Minimum Analysis Frequency</u>	<u>Type of Activity Analysis</u>	<u>Minimum Detectable Concentration<sup>(a)</sup> (<math>\mu\text{Ci/ml}</math>)</u>
A. Environmental Release Points 1. Main Stack 2. Reactor Building Vent 3. Recombiner Building Vent	M <sup>(c)</sup> Grab Sample	M <sup>(c)</sup>	Principal Gamma Emitters <sup>(f)</sup>	$1 \times 10^{-4}$ (b)
			H-3	$1 \times 10^{-6}$
B. All Release Types (as listed in A and B above)	Continuous <sup>(e)</sup>	W <sup>(d)</sup> Charcoal Sample	I-131	$1 \times 10^{-12}$
			I-133	$1 \times 10^{-10}$
	Continuous <sup>(e)</sup>	W <sup>(d)</sup> Particulate Sample	Principal Gamma Emitters <sup>(f)</sup> (I-131, Others)	$1 \times 10^{-11}$
	Continuous <sup>(e)</sup>	M Composite Particulate Sample	Gross Alpha	$1 \times 10^{-11}$
	Continuous <sup>(e)</sup>	Q Composite Particulate Sample	Sr-89, Sr-90	$1 \times 10^{-11}$

TABLE 4.15.2-1 (SHEET 2 OF 3)

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

Table Notations

- a. Minimum Detectable Concentration is defined in table notation (a) of table 4.16.1-2, Specification 4.16.1.1.
- b. For certain radionuclides with low-gamma yield or low energies, or for certain radionuclide mixtures, it may not be possible to measure radionuclides in concentrations near the Minimum Detectable Concentration. Under these circumstances, the Minimum Detectable Concentration may be increased inversely proportional to the magnitude of the gamma yield (i.e.,  $1 \times 10^{-4}/I$ , where:  $I$  = the photon abundance expressed as a decimal fraction), but in no case shall the Minimum Detectable Concentration, as calculated in this manner for a specific radionuclide, be greater than 10 percent of the Maximum Permissible Concentration value specified in 10 CFR 20, Appendix B, Table II (column 1).
- c. Analyses shall also be performed following shutdown, startup, or a THERMAL POWER change exceeding 15 percent of the RATED THERMAL POWER within a 1-hour period.
- d. Sampling shall be performed weekly, and analyses shall be completed within 48 hours after changing (or after removal from sampler). Sampling shall also be performed once per 24 hours for 7 days following each shutdown, startup, or THERMAL POWER change exceeding 15-percent RATED THERMAL POWER in 1 hour and analyses completed within 48 hours of changing. When samples collected for 24 hours are analyzed, the corresponding Minimum Detectable Concentrations may be increased by a factor of 10.
- e. The ratio of the sample flowrate to the sampled stream flowrate shall be known for the time period covered by each dose or dose rate calculation made in accordance with Specifications 3.15.2.1, 3.15.2.2, and 3.15.2.3.
- f. The principal gamma emitters for which the Minimum Detectable Concentration specification will apply are exclusively the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, and Xe-138 for gaseous emissions; and Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144 for particulate emissions. This list does not mean that only these nuclides are to be detected and reported. Other measurable and identifiable peaks, together with the above nuclides, shall also be identified and

TABLE 4.15.2-1 (SHEET 3 OF 3)

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

Table Notations

reported. Nuclides below the Minimum Detectable Concentration for the analyses should not be reported as being present at the Minimum Detectable Concentration level for that nuclide. When unusual circumstances result in Minimum Detectable Concentrations higher than required, the reasons shall be documented in the semi-annual effluent report.

## RADIOACTIVE EFFLUENTS

### DOSE, NOBLE GASES

#### LIMITING CONDITION FOR OPERATION

---

3.15.2.2 The air dose in UNRESTRICTED AREAS (figure 3.15-1) due to noble gases released in gaseous effluents shall be limited to the following:

- a. During any calendar quarter, to  $\leq 5$  mrad for gamma radiation and  $\leq 10$  mrad for beta radiation
- b. During any calendar year, to  $\leq 10$  mrad for gamma radiation and  $\leq 20$  mrad for beta radiation.

#### APPLICABILITY

At all times.

#### ACTION

- a. With the calculated air dose from radioactive noble gases in gaseous effluents exceeding any of the above limits, prepare and submit to the Commission, pursuant to Specification 6.9.1.8, a section in the semi-annual effluent release report identifying the cause(s) for exceeding the limit(s) and defining the corrective actions taken to reduce the releases and proposed corrective actions to be taken to assure that subsequent releases will be in compliance with Specification 3.15.2.2.
- b. When the ACTION statement or other requirements of this LCO cannot be met, steps need not be taken to change the OPERATIONAL CONDITION of the Unit. Entry into an OPERATIONAL CONDITION or other specified condition may be made if, as a minimum, the requirements of the ACTION statement are satisfied.

#### SURVEILLANCE REQUIREMENTS

---

4.15.2.2.1 Dose Calculations - Cumulative dose contributions for the total time period shall be determined monthly in accordance with the ODCM.

## RADIOACTIVE EFFLUENTS

### DOSE, RADIOIODINES, RADIOACTIVE MATERIAL IN PARTICULATE FORM, AND RADIONUCLIDES OTHER THAN NOBLE GASES

#### LIMITING CONDITION FOR OPERATION

---

3.15.2.3 The dose to any organ of a MEMBER OF THE PUBLIC from I-131, I-133, tritium, and materials in particulate form with half-lives greater than 8 days in gaseous effluents released to UNRESTRICTED AREAS (figure 3.15-1) from each reactor unit shall be limited to the following:

- a. During any calendar quarter to  $\leq 7.5$  mrem to any organ
- b. During any calendar year to  $\leq 15$  mrem to any organ.

#### APPLICABILITY

At all times.

#### ACTION

- a. With the calculated dose from the release of I-131, I-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days, in gaseous effluents exceeding any of the above limits, prepare and submit to the Commission, pursuant to Specification 6.9.1.8, a section in the semi-annual effluent report identifying the cause(s) for exceeding the limit and defining the corrective actions taken to reduce releases and proposed corrective actions to be taken to assure that subsequent releases will be in compliance with Specification 3.15.2.3.
- b. When the ACTION statement or other requirements of this LCO cannot be met, steps need not be taken to change the OPERATIONAL CONDITION of the Unit. Entry into an OPERATIONAL CONDITION or other specified condition may be made if, as a minimum, the requirements of the ACTION statement are satisfied.

#### SURVEILLANCE REQUIREMENTS

---

4.15.2.3.1 Dose Calculations - Cumulative dose contributions for the current calendar quarter and the current calendar year shall be determined monthly in accordance with the ODCM.



RADIOACTIVE EFFLUENTS

as described in the ODCM

GASEOUS RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION

---

3.15.2.4 The GASEOUS RADWASTE TREATMENT SYSTEM shall be in operation.

APPLICABILITY

Whenever the main condenser air ejector system is in operation.

ACTION

- a. With the GASEOUS RADWASTE TREATMENT SYSTEM inoperable for more than 31 days, prepare and submit to the Commission ~~within 30 days~~, pursuant to Specification 6.9.1.8, a semi-annual effluent release report which includes the following information:
  1. Identification of the inoperable equipment or subsystems and the reason for inoperability
  2. Action(s) taken to restore the inoperable equipment to OPERABLE status
  3. Summary description of action(s) taken to prevent a recurrence.
- b. When the ACTION statement or other requirements of this LCO cannot be met, steps need not be taken to change the OPERATIONAL CONDITION of the Unit. Entry into an OPERATIONAL CONDITION or other specified condition may be made if, as a minimum, the requirements of the ACTION statement are satisfied.

SURVEILLANCE REQUIREMENTS

---

4.15.2.4.1 Doses due to gaseous releases to UNRESTRICTED AREAS shall be projected monthly in accordance with the ODCM.



## RADIOACTIVE EFFLUENTS

### DOSE

#### LIMITING CONDITION FOR OPERATION

---

3.15.2.5 The dose or dose commitment to a MEMBER OF THE PUBLIC from all uranium fuel cycle sources is limited to  $\leq 25$  mrem to the total body or any organ (except the thyroid, which is limited to  $\leq 75$  mrem) over a calendar year.

### APPLICABILITY

At all times.

### ACTION

- a. With the calculated doses from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of Specifications 3.15.1.2(a), 3.15.2.3(a), or 3.15.2.3(b), in lieu of any other report required by Specification 6.9.1, prepare and submit within 30 days a special report to the Director, Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, which defines the corrective action to be taken to reduce subsequent releases to prevent recurrence of exceeding the limits of Specification 3.15.2.5. This special report shall include an analysis which estimates the radiation exposure (dose) to a MEMBER OF THE PUBLIC from uranium fuel cycle sources (including all effluents pathways and direct radiation) for a 12 consecutive month period that includes the release(s) covered by this report. If the estimated condition resulting in violation of 40 CFR 190 has not already been corrected, the special report shall include a request for a variance in accordance with the provisions of 40 CFR 190, including the specified information of paragraph 190.11. Submittal of the report is considered a timely request, and a variance is granted until staff action on the request is complete. The variance only relates to the limits of 40 CFR 190 and does not apply in any way to the requirements for dose limitation of 10 CFR Part 20, as addressed in other sections of this technical specification.
- b. When the ACTION statement or other requirements of this LCO cannot be met, steps need not be taken to change the OPERATIONAL CONDITION of the Unit. Entry into an OPERATIONAL CONDITION or other specified condition may be made if, as a minimum, the requirements of the ACTION statement are satisfied.

## RADIOACTIVE EFFLUENTS

### DOSE (Continued)

#### SURVEILLANCE REQUIREMENTS

---

4.15.2.5.1 Dose Calculations - Cumulative dose contributions from liquid and gaseous effluents shall be determined in accordance with Specifications 3.15.1.1, 3.15.1.2, and the ODCM.

## RADIOACTIVE EFFLUENTS

## EXPLOSIVE GAS MIXTURE

## LIMITING CONDITION FOR OPERATION

---

3.15.2.6 The concentration of hydrogen downstream of the recombiners in the main condenser offgas treatment system shall be limited to  $\leq 4$  percent by volume.

## APPLICABILITY

At all times.

## ACTION

- a. With the concentration of hydrogen downstream of the recombiners in the main condenser offgas treatment system exceeding the limit, restore the concentration ~~to~~ within the limit within 48 hours.
- b. The provisions of Specification 6.9.1.13(b) are not applicable.

## SURVEILLANCE REQUIREMENTS

---

4.15.2.6 The concentration of hydrogen downstream of the recombiners in the main condenser offgas treatment system shall be determined to be within the above limits by monitoring the waste gases in the main condenser offgas treatment system with the (hydrogen) monitors required OPERABLE by table 3.14.2-1, Specification 3.14.2.

## RADIOACTIVE EFFLUENTS

### MAIN CONDENSER

#### LIMITING CONDITION FOR OPERATION

---

3.15.2.7 The gross gamma radioactivity rate of noble gases measured at the main condenser evacuation system pretreatment monitor station shall be limited to  $\leq 240,000 \mu\text{Ci/second}$ .

#### APPLICABILITY

At all times.

#### ACTION

With the gross gamma radioactivity rate of noble gases at the pretreatment monitor exceeding  $240,000 \mu\text{Ci/second}$ , restore the gross radioactivity rate to within its limit within 72 hours or be in at least OPERATIONAL CONDITION 2 within the next 12 hours.

#### SURVEILLANCE REQUIREMENTS

---

4.15.2.7 The gross radioactivity (beta and/or gamma) rate of noble gases from the main condenser air ejector shall be determined to be within the above limit at the following frequencies by performing an isotopic analysis of a representative sample of gases taken at the pretreatment monitoring station:

- a. Monthly when plant is operating
- b. Within 4 hours following an evacuation system pretreatment increase of greater than 50 percent, as indicated by the condenser monitor, after factoring out increases due to changes in THERMAL POWER level, in the nominal steady-state fission gas release from the primary coolant.

## RADIOACTIVE EFFLUENTS

### 3/4.15.3 SOLID RADIOACTIVE WASTE

#### LIMITING CONDITION FOR OPERATION

---

3.15.3.1 The solid radwaste system shall be used to provide for the SOLIDIFICATION of wet solid wastes and for the SOLIDIFICATION and packaging of other radioactive wastes, as required, to ensure the meeting of the requirements of 10 CFR Part 20 and of 10 CFR Part 71 prior to shipment of radioactive wastes from the site.

#### APPLICABILITY

At all times.

#### ACTION

- a. With the requirements of 10 CFR Part 20 and 10 CFR Part 71 not satisfied, suspend shipments of defective containers of solid radioactive wastes from the site.
- b. When the ACTION statement or other requirements of this LCO cannot be met, steps need not be taken to change the OPERATIONAL CONDITION of the Unit. Entry into an OPERATIONAL CONDITION or other specified condition may be made if, as a minimum, the requirements of the ACTION statement are satisfied.

#### SURVEILLANCE REQUIREMENTS

---

4.15.3.1 The PROCESS CONTROL PROGRAM shall be used to verify the SOLIDIFICATION of wastes prior to shipment.

## RADIOLOGICAL ENVIRONMENTAL MONITORING

### 3/4.16.1 MONITORING PROGRAM

#### LIMITING CONDITION FOR OPERATION

---

3.16.1 The radiological environmental monitoring program shall be conducted as specified in table 3.16.1-1.

#### APPLICABILITY

At all times.

#### ACTION

- a. Any deviations in conducting the radiological environmental monitoring program<sup>(a)</sup> from that as specified in table 3.16.1-1 shall be documented in the Annual Radiological Environmental Surveillance Report; the reasons for these deviations and any appropriate plans for preventing a recurrence shall be stated. (Deviations are permitted from the required sampling schedule if specimens are unobtainable due to hazardous conditions, unavailability, inclement weather, malfunction of equipment, or other just reasons. If deviations are due to equipment malfunction, strenuous efforts shall be made to complete corrective action prior to the end of the next sampling period).
- b. With the confirmed<sup>(b)</sup>, measured level of radioactivity in an environmental sampling medium as specified in table 3.16.1-1 exceeding the reporting levels of table 3.16.1-2 when averaged over any calendar quarter, submit to the Commission within 30 days from the end of the affected calendar quarter or after confirmation, whichever is later, a report pursuant to Specification 6.9.1.13. When more than one of the radionuclides in table 3.16.1-2 is detected in the sampling medium, this report shall be submitted if:
  - a. The requirements for radiological environmental monitoring are the same for both units at the site. Thus, a single program including monitoring, land use survey, and quality assurance serves both units.
  - b. Defined as a confirmatory reanalysis of the original, a duplicate, or a new sample, as appropriate. The results of the confirmatory analysis shall be completed at the earliest time consistent with the analysis.



## RADIOLOGICAL ENVIRONMENTAL MONITORING

### 3/4.16.1 MONITORING PROGRAM (Continued)

$$\frac{\text{concentration}(1)}{\text{limit level (1)}} + \frac{\text{concentration}(2)}{\text{limit level (2)}} + \dots > 1.0$$

When radionuclides other than those in table 3.16.1-2 are detected and are the result of plant effluents, this report shall be submitted if the calculated quarterly dose to an individual is equal to or greater than the calendar quarter limits of Specifications 3.15.1.2, 3.15.2.2, and 3.15.2.3. This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event, the condition shall be described in the Annual Radiological Environmental Surveillance Report. The levels of naturally occurring radionuclides need not be reported.

- c. If adequate samples of milk or grass (during the growing season) from any of the sample locations required by table 3.16.1-1 can no longer be obtained or the availability is frequently or persistently wanting, efforts shall be made to find replacement locations. The cause of the unavailability and identification of the affected locations and the locations (if any) for obtaining replacement samples shall be submitted to the Commission in the next semi-annual radioactive effluent release report. The locations from which samples became unavailable may be deleted; however, any locations from which suitable replacement samples are available shall be added to the program.
- d. The requirements of Specification 6.9.1.13(b) do not apply.

### SURVEILLANCE REQUIREMENTS

4.16.1 The radiological environmental monitoring samples shall be collected, pursuant to table 3.16.1-1, from the locations given in the table and figure in the ODCM and shall be analyzed pursuant to the requirements of tables 3.16.1-1 and 4.16.1-1.



TABLE 3.16.1-1 (SHEET 1 OF 2)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

<u>Exposure Pathway and/or Sample</u>	<u>Approximate Number of Sample Locations</u> <sup>(a)</sup>	<u>Sampling and Collection Frequency</u>	<u>Type of Analysis and Frequency</u>
1. Airborne			
a. Radioiodine and Particulates	5	Continuous operation of sampler with sample collection as required weekly.	Radioiodine canister. I-131 weekly.  Particulate sampler. Analyze for gross beta radioactivity not less than 24 hours following filter change and analyze for I-131 weekly. Perform gamma isotopic analysis on affected sample when gross beta activity is >10 times the yearly mean of control samples. Composite (by location) for gamma isotopic analysis quarterly.
2. Direct Radiation	35	Quarterly	Gamma dose quarterly.
3. Waterborne			
a. Surface	2	Composite <sup>(b)</sup> sample collected monthly.	Gamma isotopic analysis monthly. Composite (by location) for tritium analysis quarterly.
b. Ground	2	Quarterly	Tritium analysis quarterly.
c. Sediment	1	Yearly.	Gamma isotopic analysis sample yearly.
4. Ingestion			
a. Milk	4 <sup>(c)</sup>	Bi-weekly	Gamma isotopic and I-131 analyses bi-weekly.
b. Fish <sup>(d)</sup>	2	Yearly	Gamma isotopic analysis on edible portions yearly.
c. Grass	3	Monthly during growing season.	Gamma isotopic analysis monthly. <sup>(e)</sup>

TABLE 3.16.1-1 (SHEET 2 OF 2)

Table Notations

- a. Sample locations are shown on figure and table in the ODCM.
- b. Composite samples shall be collected by collecting an aliquot at intervals not exceeding a few hours.
- c. Up to three sampling locations within 5 miles and in different sectors will be utilized as available. In addition, one or more control locations beyond 10 miles will be used.
- d. Two different commercially or recreationally important species shall be sampled.
- e. If gamma isotopic analysis is not sensitive enough to meet the Minimum Detectable Concentration, a separate analysis for I-131 may be performed.

TABLE 3.16.1-2

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES

Analysis	Water (pCi/l)	Airborne Particulates or Gases (pCi/m <sup>3</sup> )	Fish (pCi/kg, wet)	Milk (pCi/l)	Grass (pCi/kg, wet)
H-3	$6 \times 10^4$				
Mn-54	$2 \times 10^3$		$7 \times 10^4$		
Fe-59	$8 \times 10^2$		$3 \times 10^4$		
Co-58	$2 \times 10^3$		$6 \times 10^4$		
Co-60	$7 \times 10^2$		$2 \times 10^4$		
Zn-65	$5 \times 10^2$		$4 \times 10^4$		
Nb-95	$1 \times 10^3$				
Zr-95	$8 \times 10^2$				
I-131	$4 \times 10^0$	$2 \times 10^0$		$7 \times 10^0$	$2 \times 10^2$
Cs-134	$7 \times 10^1$	$3 \times 10^1$	$2 \times 10^3$	$1 \times 10^2$	$3 \times 10^3$
Cs-137	$1 \times 10^2$	$4 \times 10^1$	$4 \times 10^3$	$1 \times 10^2$	$4 \times 10^3$
Ba-140	$4 \times 10^2$			$5 \times 10^2$	
La-140	$3 \times 10^2$			$8 \times 10^2$	

TABLE 4.16.1-1 (SHEET 1 OF 3)

MINIMUM DETECTABLE CONCENTRATION <sup>(a)(b)</sup>

Analysis	Water (pCi/l)	Airborne Particulates or Gases (pCi/m <sup>3</sup> )	Fish (pCi/kg, wet)	Milk (pCi/l)	Grass (pCi/kg, wet)	Sediment (pCi/kg, dry)
Gross Beta		$1 \times 10^{-2}$				
H-3	2000					
Mn-54	20		100			
Fe-59	30		300			
Co-58	20		100			
Co-60	20		100			
Zn-65	30		300			
Zr-95	30					
Nb-95	20					
I-131	1	$7 \times 10^{-2}$		1	60	
Cs-134	20	$5 \times 10^{-2}$	100	20	60	200
Cs-137	20	$6 \times 10^{-2}$	200	20	80	200
Ba-140	60			60		
La-140	20			20		

TABLE 4.16.1-1 (SHEET 2 OF 3)

MINIMUM DETECTABLE CONCENTRATION

Table Notations

- a. The Minimum Detectable Concentration is the smallest concentration of radioactive material in a sample that will be detected with 95-percent probability with 5-percent probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system, which may include radiochemical separation:

$$\text{MDC} = \frac{4.66 s_b}{E \cdot V \cdot 2.22 \cdot Y \cdot \exp(-\lambda \Delta T)}$$

where:

- MDC = the Minimum Detectable Concentration as defined pCi per unit mass or volume)
- $s_b$  = the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute)
- E = the counting efficiency (as counts per disintegration)
- V = the sample size (in units of mass or volume)
- 2.22 = the number of disintegrations per minute per picocurie
- Y = the fractional radiochemical yield (when applicable)
- $\lambda$  = the radioactive decay constant for the particular radionuclide
- $\Delta T$  = the elapsed time between sample collection (or end of the sample collection period) and time of counting (for environmental samples, not plant effluent samples).

TABLE 4.16.1-1 (SHEET 3 OF 3)

MINIMUM DETECTABLE CONCENTRATION

Table Notations

The value of  $s_b$  used in the calculation of the MDC for a detection system shall be based on the actual observed variance of the background counting rate or of the counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance. In calculating the MDC for a radionuclide determined by gamma-ray spectrometry, the background shall include the typical contributions of other radionuclides normally present in the samples, e.g., potassium-40 in milk samples. Typical values of E, V, Y, and  $\Delta T$  should be used in the evaluation.

- b. This does not mean that only the radionuclides in table 4.16.1-1 are to be detected and reported. Other measurable and identifiable peaks, together with the above nuclides, shall be identified and reported. Only manmade radionuclides need be reported.

LIMITING CONDITION FOR OPERATION

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3.16.2 A land use survey shall be conducted to identify the location of the nearest milk animal and the nearest permanent residence in each of the 16 meteorological sectors within a distance of 5 miles and the locations of all milk animals within a distance of 3 miles.

APPLICABILITY

At all times.

ACTION

- a. With a land use survey identifying a location(s) yielding a calculated thyroid dose or dose commitment greater than the values currently being calculated in Specification 4.15.2.3, submit the new location(s) to the Commission in the next semi-annual radioactive effluent release report.
- b. With a land use survey identifying a location(s) yielding a calculated thyroid dose or dose commitment (via the same exposure pathway) 20 percent greater than at a location from which samples are currently being obtained, add the new location(s) to the program within 30 days if samples are available. The sampling location having the lower calculated thyroid dose may then be deleted from the program.
- c. The provisions of Specification 6.9.1.13(b), are not applicable.

SURVEILLANCE REQUIREMENTS

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4.16.2 The land use survey shall be conducted once per 12 months by door-to-door survey, by visual survey from automobile or aircraft, by consulting local agriculture authorities, or by a combination of these methods as feasible using the information to provide a good survey. Results of the annual survey, as well as any changes in sampling locations, shall be discussed in the annual radiological environmental surveillance report.



## RADIOLOGICAL ENVIRONMENTAL MONITORING

### 3/4.16.3 INTERLABORATORY COMPARISON PROGRAM

#### LIMITING CONDITION FOR OPERATION

---

3.16.3 Analyses shall be performed on radioactive materials supplied as part of an Interlaboratory Comparison Program that has been approved by the Nuclear Regulatory Commission. Analyses need to be performed only where the type analysis and sample are the same as that required in table 3.16.1-1.

#### APPLICABILITY

At all times.

#### ACTION

- a. With analyses not being performed as required above, report the corrective actions taken (to prevent a recurrence) in the Annual Radiological Environmental Surveillance Report.
- b. The provisions of Specification 6.9.1.13(b) are not applicable.

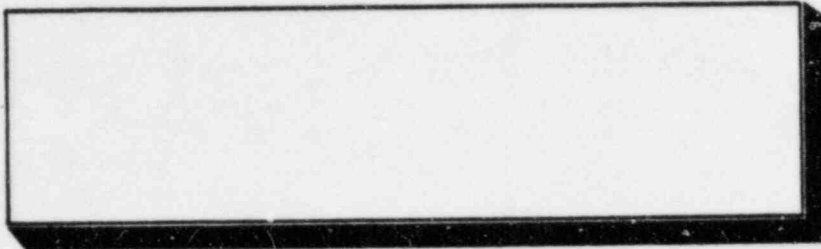
#### SURVEILLANCE REQUIREMENTS

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4.16.3 A summary of results obtained as part of the above required Interlaboratory Comparison Program shall be included in the Annual Radiological Environmental Surveillance Report. In lieu of submission of this data in the annual report, the program code may be provided so that the Nuclear Regulatory Commission may review the data directly.

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FIGURE NO.



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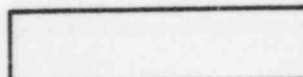
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FIGURE \_\_\_\_\_

TABLE \_\_\_\_\_



SECTION 3/4  
BASES

(Similar for Both Units)

## INSTRUMENTATION

### BASES

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#### 3/4.3.6.9 RADIOACTIVE LIQUID EFFLUENT INSTRUMENTATION

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases of liquid effluents. The alarm/trip setpoints for these instruments shall be calculated in accordance with the methods in the OFFSITE DOSE CALCULATION MANUAL (ODCM) to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50.

#### 3/4.3.6.10 RADIOACTIVE GASEOUS AND EFFLUENT MONITORING INSTRUMENTATION

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The alarm/trip setpoints for these instruments shall be calculated in accordance with the methods in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The ~~process~~ monitoring instrumentation includes provisions for monitoring (and controlling) the concentrations of potentially explosive gas mixtures in the main condenser offgas treatment system. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50.

## RADIOACTIVE EFFLUENTS

### BASES

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#### 3/4.11.1 LIQUID EFFLUENTS

##### 3/4.11.1.1 CONCENTRATION

This specification is provided to ensure that the concentration of radioactive materials released in liquid waste effluents from the site to UNRESTRICTED AREAS will be less than the concentration levels specified in 10 CFR Part 20, Appendix B, Table II. This limitation provides additional assurance that the levels of radioactive materials in bodies of water outside the site will not result in exposures within the Section II.A design objectives of Appendix I, 10 CFR Part 50, to an individual; and the limits of 10 CFR Part 20.106(e) to the population. The concentration limit for noble gases is based upon the assumption that Xe-135 is the controlling radioisotope, and its Maximum Permissible Concentration in air (submersion) was converted to an equivalent concentration in water using the methods described in International Commission on Radiological Protection (ICRP) Publication 2.

##### 3/4.11.1.2 DOSE

This specification is provided to implement the requirements of Sections II.A, III.A, and IV.A of Appendix I, 10 CFR Part 50. The Limiting Condition for Operation (LCO) implements the guides set forth in Section II.A of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive material in liquid effluents will be kept "as low as is reasonably achievable" (ALARA). The dose calculations in the ODCM implement the requirements in Section III.A of Appendix I, which state that conformance with the guides of Appendix I be shown by calculational procedures based on models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated. The equations specified in the ODCM for calculating the doses due to the actual release rates of radioactive materials in liquid effluents will be consistent with the methodology provided in Regulatory Guide 1.109, Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I, Revision 1,

## RADIOACTIVE EFFLUENTS

### BASES

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October 1977. NUREG-0133 provides methods for dose calculations consistent with Regulatory Guides 1.109 and 1.113.

This specification applies to the release of liquid effluents from each reactor at the site. For units with shared radwaste treatment systems, the liquid effluents from the shared systems are proportioned among the units sharing that system.

#### 3/4.11.1.3 LIQUID WASTE TREATMENT

The OPERABILITY of the liquid radwaste treatment system ensures that this system will be available for use whenever liquid effluents require treatment prior to release to UNRESTRICTED AREAS. environment. The requirements that the appropriate portions of this system be used when specified provides assurance that the releases of radioactive materials in liquid effluents will be kept ALARA. This specification implements the requirements of 10 CFR Part 50.36(a), General Design Criterion 60 of Appendix A to 10 CFR Part 50; and design objective Section II.D of Appendix I to 10 CFR Part 50. The specified limits governing the use of appropriate portions of the liquid radwaste treatment system were specified as a suitable fraction of the guide set forth in Section II.A of Appendix I, 10 CFR Part 50, for liquid effluents.

#### 3/4.11.1.4 LIQUID HOLDUP TANKS

Restricting the quantity of radioactive material contained in the specified tanks provides assurance that in the event of an uncontrolled release of the tanks' contents, the resulting concentrations would be less than the limits of 10 CFR Part 20, Appendix A, Table II (column 2) at the nearest surface water supply in an UNRESTRICTED AREAS ..

#### 3/4.11.2 GASEOUS EFFLUENTS

##### 3/4.11.2.1 DOSE RATE

This specification is provided to ensure that at all times the dose rate at the exclusion area boundary from gaseous effluents from all onsite units will be within the annual dose limits of 10 CFR Part 20 for UNRESTRICTED AREAS. The annual dose limits are the doses associated with the concentrations of



## RADIOACTIVE EFFLUENTS

### BASES

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10 CFR Part 20, Appendix B, Table II. These limits provide reasonable assurance that radioactive material discharged in gaseous effluents will not result in the exposure of an individual in an UNRESTRICTED AREA, either within or outside the exclusion area boundary, to annual average concentrations exceeding the limits specified in Appendix B, Table II of 10 CFR Part 20 (10 CFR Part 20.106(b)). For individuals who may at times be within the exclusion area boundary, the occupancy of the individual will be sufficiently low to compensate for any increase in the atmospheric diffusion factor above that for the exclusion area boundary. The specified release rate limits restrict, at all times, the corresponding gamma and beta dose rates above background to an individual at or beyond the exclusion area boundary to  $\leq 500$  mrem/year to the total body or to  $\leq 3000$  mrem/year to the skin. These release rate limits also restrict, at all times, the corresponding thyroid dose rate above background to an infant via the cow-milk-infant pathway to  $\leq 1500$  mrem/year for the nearest cow to the plant.

This specification applies to the release of gaseous effluents from all reactors at the site. For units with shared radwaste treatment systems, the gaseous effluents from the shared system are proportioned among the units sharing that system.

### 3/4.11.2.2 DOSE, NOBLE GASES

This specification is provided to implement the requirements of Sections II.B, III.A, and IV.A of Appendix I, 10 CFR Part 50. The LCO implements the guides set forth in Section II.B of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I, assuring that the releases of radioactive material in gaseous effluents will be kept ALARA. The Surveillance Requirements implement the requirements in Section III.A of Appendix I, which state that conformance with the guides of Appendix I is to be shown by calculational procedures based on models and data such that the actual exposure of an individual through the appropriate pathways is unlikely to be substantially underestimated. The dose calculations established in the OFFSITE DOSE CALCULATION MANUAL (ODCM) for calculating the doses due to the actual release rates of radioactive noble gases in gaseous effluents will be



## RADIOACTIVE EFFLUENTS

### BASES

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consistent with the methodology provided in Regulatory Guide 1.109, Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I, Revision 1, October 1977; and Regulatory Guide 1.111, Methods for Estimating Atmosphere Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors, Revision 1, July 1977. The ODCM equations provided for determining the air doses at the exclusion area boundary will be based upon the historical average atmospheric conditions. NUREG-0133 provides methods for dose calculations consistent with Regulatory Guides 1.109 and 1.111.

#### 3/4.11.2.3 DOSE, RADIOIODINES, RADIOACTIVE MATERIAL IN PARTICULATE FORM AND RADIONUCLIDES OTHER THAN NOBLE GASES

This specification is provided to implement the requirements of Sections II.C, III.A, and IV.A of Appendix I, 10 CFR Part 50. The LCO implements the guides set forth in Section II.C of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I, assuring that the releases of radioactive materials in gaseous effluents will be kept ALARA. The ODCM calculational methods specified in the surveillance requirements implement the requirements in Section III.A of Appendix I, which state that conformance with the guides of Appendix I be shown by calculational procedures based on models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated. The ODCM calculational methods approved by the NRC for calculating the doses due to the actual release rates of the subject materials are required to be consistent with the methodology provided in Regulatory Guide 1.109, Calculating of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I, Revision I, October 1977; Regulatory Guide 1.111, Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors, Revision 1, July 1977. These equations also provide for determining the actual doses based upon the historical average atmospheric conditions. The release rate specifications for radioiodines, radioactive and

## RADIOACTIVE EFFLUENTS

### BASES

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material in particulate form, and radionuclides other than noble gases are dependent upon the existing radionuclide pathways to man in the UNRESTRICTED AREA. The pathways examined in the development of these calculations are:

- a. Individual inhalation of airborne radionuclides
- b. Deposition of radionuclides into green, leafy vegetation with subsequent consumption by man
- c. Deposition onto grassy areas where milk animals and meat-producing animals graze with consumption of the milk and the meat by man
- d. Deposition on the ground with subsequent exposure of man.

#### 3/4.11.2.4 GASEOUS WASTE TREATMENT

The OPERABILITY of the GASEOUS RADWASTE TREATMENT SYSTEM and the VENTILATION EXHAUST TREATMENT SYSTEMS ensures that the systems will be available for use whenever gaseous effluents require treatment prior to release to UNRESTRICTED AREAS. The requirement that the appropriate portions of these systems be used when specified provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept ALARA. This specification implements the requirements of 10 CFR Part 50.36(a), General Design Criterion 60 of Appendix A to 10 CFR Part 50; and design objective Section IID of Appendix I to 10 CFR Part 50. The specified limits governing the use of appropriate portions of the systems were specified as a suitable fraction of the guide set forth in Sections II.B and II.C of Appendix I, 10 CFR Part 50, for gaseous effluents.

#### 3/4.11.2.5 DOSE

This specification is provided to meet the reporting requirements of 40 CFR 190.

## RADIOACTIVE EFFLUENTS

### BASES

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#### 3/4.11.2.6 EXPLOSIVE GAS MIXTURE

This specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas treatment system is maintained below the flammability limits of hydrogen and oxygen. (Automatic control features are included in the system to prevent the hydrogen and oxygen concentrations from reaching these flammability limits. These automatic control features include isolation of the source of hydrogen and/or oxygen, automatic diversion to recombiners or injection of dilutants to reduce the concentration below the flammability limits.) Maintaining the concentration of hydrogen and oxygen below their flammability limits provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of General Design Criterion 60 of Appendix A to 10 CFR Part 50.

#### 3/4.11.2.7 MAIN CONDENSER

Restricting the gross radioactivity rate of noble gases from the main condenser provides reasonable assurance that the total-body exposure to an individual at the exclusion area boundary will not exceed a small fraction of the limits of 10 CFR Part 100 in the event this effluent is inadvertently discharged without treatment directly to the environment. This specification implements the requirements of General Design Criteria 60 and 64 of Appendix A to 10 CFR Part 50.

#### 3/4.11.3 SOLID RADIOACTIVE WASTE

The OPERABILITY of the solid radwaste system ensures that the system will be available for use whenever solid radwastes require processing and packaging prior to offsite shipping. This specification implements the requirements of 10 CFR Part 50.36(a) and General Design Criterion 60 of Appendix A to 10 CFR Part 50. The process parameters included in establishing the PROCESS CONTROL PROGRAM may include, but are not limited to, waste type, waste pH, waste/liquid/solidification agent/catalyst ratios, waste oil content, waste principal chemical constituents, and mixing and curing times.

### 3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING

#### BASES

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#### 3/4.16.1 MONITORING PROGRAM

The radiological monitoring program required by this specification provides measurements of radiation and radioactive materials in those exposure pathways and for those radionuclides leading to the highest potential radiation exposures of individuals, resulting from the station operation. This monitoring program thereby supplements the radiological effluent monitoring program by measuring concentrations of radioactive materials and levels of radiation that may then be compared with those expected on the basis of the effluent measurements and modeling of the environmental exposure pathways.

#### 3/4.16.2 LAND USE SURVEY

This specification is provided to ensure that changes in the use of UNRESTRICTED AREAS are identified and that modifications to the monitoring program are made, if required, by the results of this survey. This survey satisfies the requirements of Section IV.B.3 of Appendix I to 10 CFR Part 50.

#### 3/4.16.3 INTERLABORATORY COMPARISON PROGRAM

The requirement for participation in an Interlaboratory Comparison Program is provided to ensure that independent checks on the precision and accuracy of the measurements of radioactive material in environmental sample matrices are performed as part of a quality assurance program for environmental monitoring to demonstrate that the results are reasonably valid.

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FIGURE NO.

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SPECIAL INSTRUCTIONS

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*HWP - Unit 1 and Unit 2*

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FIGURE

TABLE

ADMINISTRATIVE CONTROLS

(Similar for Both Units)



## 6.0 ADMINISTRATIVE CONTROLS

### 6.1 RESPONSIBILITY

6.1.1 The General Manager-Plant Hatch shall be responsible for overall unit operation, except for portions of the Radiological Environmental Monitoring Program as described below and for delegation in writing of the succession to this responsibility during his absence.

6.1.2 The Manager-Environmental Affairs shall be responsible for sampling the fish and shoreline sediment described in Specification 3/4.16.1 and for conducting the land use survey described in Specification 3/4.16.2.

6.1.3 The ~~Chief Nuclear Engineer~~ shall be responsible for assessing the results of the Radiological Environmental Monitoring Program and for writing the Annual Radiological Environmental Surveillance Report.

The ~~Chief Nuclear Engineer~~ shall review the proposed changes to plant systems or equipment, provided that such changes are identified by the Plant Review Board (PRB) as having a potential radiological environmental impact.

6.1.4 Each of the above mentioned individuals is responsible for the accuracy of the procedures needed to implement his responsibilities.

### 6.2 ORGANIZATION

#### OFFSITE

6.2.1 The offsite organization for unit management and technical support shall be as shown on figure 6.2.1-1.

#### UNIT STAFF

6.2.2 The unit organization shall be as shown on figure 6.2.2-1 and as follows:

- a. Each on-duty shift shall be composed of at least the minimum shift crew composition shown in table 6.2.2-1.
- b. At least one licensed operator shall be in the control room for each reactor containing fuel.

Manager-Nuclear Engineering and Chief Nuclear Engineer



## 6.0 ADMINISTRATIVE CONTROLS

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- c. At least two licensed operators shall be present in the control room for each reactor in the process of startup, for scheduled reactor shutdown, and during recovery from reactor trips.
- d. An individual qualified to implement radiation protection procedures shall be onsite when fuel is in either reactor.
- e. All CORE ALTERATIONS shall be directly supervised by either a licensed senior reactor operator or senior reactor operator limited to fuel handling who has no other concurrent responsibilities during this operation.
- f. A fire team of at least five members shall be maintained onsite at all times. The fire team shall not include the minimum shift crew necessary for safe shutdown of Units 1 and 2 or any personnel required for other essential functions during a fire emergency.

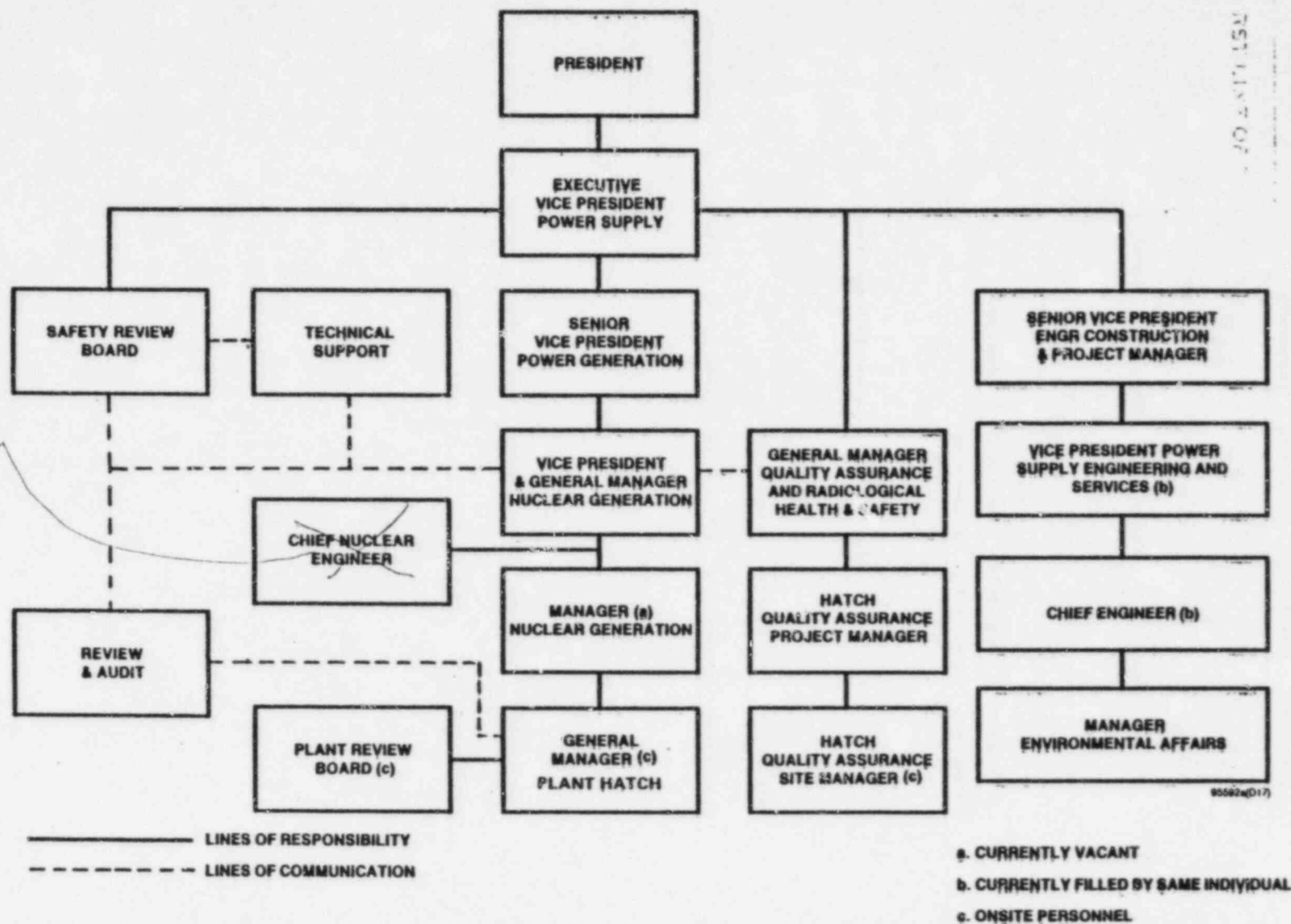


FIGURE 6.2.1-1 OFFSITE ORGANIZATION

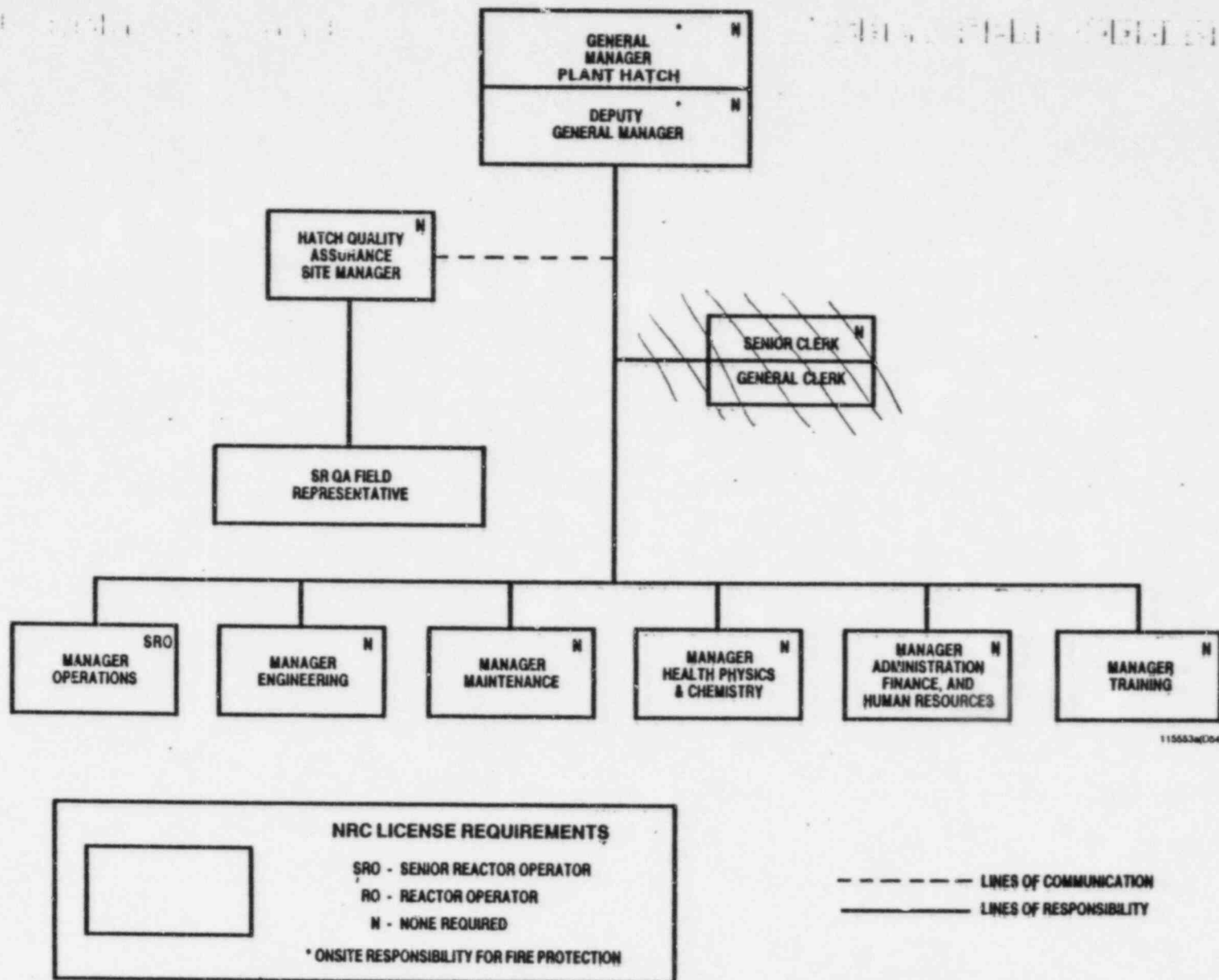


FIGURE 6.2,2-1 UNIT ORGANIZATION

TABLE 6.2.2-1 (SHEET 1 OF 3)

MINIMUM SHIFT CREW COMPOSITION<sup>(a)</sup>

Condition of Unit 1 and Unit 2 in Reactor Power  
Operation, HOT STANDBY, or HOT SHUTDOWN Condition

<u>License Category</u>	<u>Applicable OPERATIONAL CONDITIONS</u>	
	1, 2, 3	4 & 5
SOL <sup>(c)</sup>	2	2 <sup>(b)</sup>
OL <sup>(c)</sup>	3	2
Nonlicensed	3	3
Shift Technical Advisor	1	1

Condition of Unit 1 and Unit 2 in COLD SHUTDOWN  
Condition or Refuel Mode

<u>License Category</u>	<u>Applicable OPERATIONAL CONDITIONS</u>	
	1, 2, 3	4 & 5
SOL <sup>(c)</sup>	2	1 <sup>(b)</sup>
OL <sup>(c)</sup>	2	2
Nonlicense	3	3
Shift Technical Advisor	1	None

TABLE 6.2.2-1 (SHEET 2 OF 3)  
MINIMUM SHIFT CREW COMPOSITION

Condition of Unit 1 - No Fuel in Unit 2

<u>License Category</u>	<u>Applicable OPERATIONAL CONDITIONS</u>	
	1, 2, 3	4 & 5
SOL	1	1(b)
OL	2	1
Nonlicensed	2	1
Shift Technical Advisor	1	None

a. Shift crew composition, including an individual qualified in radiation protection procedures, may be less than the minimum requirements for a period of time not to exceed 2 hours to accommodate unexpected absence of on duty shift crew members, provided immediate action is taken to restore the shift crew composition to within the minimum requirements of table 6.2.2-1.

b. Does not include the licensed senior reactor operator or senior reactor operator limited to fuel handling, supervising CORE ALTERATIONS.

c. Assumes each individual is licensed on both units.

TABLE 6.2.2-1 (SHEET 3 OF 3)  
MINIMUM SHIFT CREW COMPOSITION

Table Notations

<u>OPERATIONAL CONDITION</u>	<u>Definition</u>
1	Run mode
2	Start and Hot Standby Mode
3	Shutdown Mode, HOT SHUTDOWN Condition
4	Shutdown Mode, COLD SHUTDOWN Condition
5	Refuel Mode

## ADMINISTRATIVE CONTROLS

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### 6.3 UNIT STAFF QUALIFICATIONS

6.3.1 Each member of the unit staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions except for the Health Physics Superintendent who shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975 and the Shift Technical Advisor who shall have a bachelor's degree or equivalent in a scientific or engineering discipline with specific training in plant design, and response and analysis of the plant for transients and accidents.

### 6.4 TRAINING

6.4.1 A retraining and replacement training program for the unit staff shall be maintained under the direction of the Manager of Training and shall meet or exceed the requirements and recommendations of Section 5.5 of ANSI N18.1-1971 and Appendix A of 10 CFR Part 55.

6.4.2 A training program for fire protection shall be maintained under the direction of the Senior Regulatory Specialist and shall meet or exceed the requirements of Section 27 of the NFPA Code-1975, except for fire protection training sessions which shall be held quarterly.

### 6.5 REVIEW AND AUDIT

#### 6.5.1 PLANT REVIEW BOARD (PRB)

##### FUNCTION

6.5.1.1 The PRB shall function to advise the General Manager-Plant Hatch on all matters related to nuclear safety.

##### COMPOSITION

6.5.1.2 The PRB shall be composed of the:

Chairman <sup>(a)</sup>	General Manager-Plant Hatch
Member	Deputy General Manager-Plant Hatch
Member	Superintendent of Operations
Member	Superintendent of Maintenance
Member	Health Physics Superintendent
Member	Superintendent of Quality Control

a. General Manager to designate chairman from voting PRB membership as necessary.



## ADMINISTRATIVE CONTROLS

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Member	Superintendent of Plant Engineering and Services
Member	Superintendent of Regulatory Compliance
Member (Non-Voting)	Representative of Site Quality Assurance Department

### ALTERNATES

6.5.1.3 All alternate members shall be appointed in writing by the PRB Chairman to serve on a temporary basis; however, no more than two alternates shall participate as voting members in PRB activities at any one time.

### MEETING FREQUENCY

6.5.1.4 The PRB shall meet at least once per calendar month and as convened by the PRB Chairman or his designated alternate.

### QUORUM

6.5.1.5 The minimum quorum of the PRB necessary for the performance of the PRB responsibility and authority provisions of these Technical Specifications shall consist of the Chairman and three members, including alternates.

### RESPONSIBILITIES

6.5.1.6 The PRB shall be responsible for:

- a. Review of all procedures required by Specification 6.8 and changes thereto, and any other proposed procedures or changes thereto as determined by the General Manager-Plant Hatch to affect nuclear safety.
- b. Review of all proposed tests and experiments that affect nuclear safety.
- c. Review of all proposed changes to Appendix A Technical Specifications.
- d. Review of all proposed changes or modifications to unit systems or equipment that affect nuclear safety.
- e. Investigation of all violations of the Technical Specifications including the preparation and forwarding of reports covering evaluation and recommendations to prevent recurrence to the Manager-Nuclear Generation

## ADMINISTRATIVE CONTROLS

or the Vice President and General Manager-Nuclear Generation and to the Safety Review Board (SRB).

- General Manager-Plant Hatch
- f. Review of events requiring 24-hour written notification to the Commission.
  - g. Review of unit operations to detect potential nuclear safety hazards.
  - h. Performance of special reviews, investigations or analyses, and reports thereon as requested by the ~~General Manager~~ or the SRB.
  - i. Review of the Security Plan and implementing procedures and submit recommended changes to the SRB.
  - j. Review of the Emergency Plan and implementing procedures and submit recommended changes to the SRB.
  - k. Review of any unplanned onsite release of radioactive material to the environs when such release is in excess of 1 Ci, excluding dissolved and entrained gases and tritium for liquid effluents, and in excess of 150 Ci of noble gases or 0.02 Ci of radioiodines for gaseous effluents. Also included is the preparing and forwarding to the ~~General Manager~~ and the SRB reports covering evaluation, recommendations, and disposition of the corrective action to prevent recurrence.
  - l. Review of changes to the PROCESS CONTROL PROGRAM and the OFFSITE DOSE CALCULATION MANUAL (ODCM).
  - m. Review of proposed change(s) to plant systems and equipment to determine whether the proposed change has a potential radiological environmental impact. Such change(s) will be reported to the Chief Nuclear Engineer.

Manager-Nuclear Engineering and

### AUTHORITY

#### 6.5.1.7 The PRB shall:

- a. Recommend in writing to the General Manager-Plant Hatch approval or disapproval of items considered under 6.5.1.6, (a) through (d).
- b. Render determinations in writing with regard to whether or not each item considered under 6.5.1.6, (a) through (e), constitutes an unreviewed safety question.

## ADMINISTRATIVE CONTROLS

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- c. Provide written notification within 24 hours to the Manager-Nuclear Generation or the Vice President and General Manager-Nuclear Generation and SRB of disagreement between the PRB and the General Manager; however, the General Manager shall have the responsibility for resolution of those disagreements pursuant to 6.1.1.

## RECORDS

6.5.1.8 The PRB shall maintain written minutes of each PRB meeting that, at a minimum, document and the results of all PRB activities performed under the responsibility and authority provisions of these Technical Specifications. Copies shall be provided to the Manager-Nuclear Generation or the Vice President and General Manager-Nuclear Generation and the SRB.

## 6.5.2 SAFETY REVIEW BOARD

### FUNCTION

6.5.2.1 The SRB shall function to provide independent review and audit of designated activities in the areas of:

- a. Nuclear power plant operations
- b. Nuclear engineering
- c. Chemistry and radiochemistry
- d. Metallurgy
- e. Instrumentation and control
- f. Radiological safety
- g. Mechanical and electrical engineering
- h. Quality assurance practices.

### COMPOSITION

6.5.2.2 The SRB shall be composed of a minimum of seven persons who as a group provide the expertise to review and audit the operation of a nuclear power plant. The Chairman, Vice Chairman, and other members shall be appointed by the Executive Vice President-Power Supply or designee. The composition of the SRB shall meet the requirements of ANSI N18.7-1976.

General Manager-Plant Hatch

## ADMINISTRATIVE CONTROLS

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### ALTERNATES

6.5.2.3 All alternate representatives shall be appointed in writing by the absent member to serve on a temporary basis; however, no more than two alternates shall participate in SRB activities at any one time. Alternate representatives shall not have voting privileges.

### CONSULTANTS

6.5.2.4 Consultants shall be utilized as determined by the SRB Chairman or Vice Chairman to provide expert advice to the SRB.

### MEETING FREQUENCY

6.5.2.5 The SRB shall meet at least once per calendar quarter during the initial year of unit operation following fuel loading and at least once per 6 months thereafter.

### QUORUM

6.5.2.6 The minimum quorum of the SRB necessary for the performance of the SRB review and audit functions of these Technical Specifications shall consist of the Chairman or Vice Chairman and at least three SRB members. No more than a minority of the quorum shall have line responsibility for operation of the unit.

### REVIEW

6.5.2.7 The SRB shall review:

- a. The safety evaluations for changes to procedures, equipment, or systems; and for tests or experiments completed under the provision of Section 50.59, 10 CFR to verify that such actions did not constitute an unreviewed safety question.
- b. Proposed changes to procedures, equipment, or systems involving an unreviewed safety question as defined in Section 50.59, 10 CFR.
- c. Proposed tests or experiments involving an unreviewed safety question as defined in Section 50.59, 10 CFR.
- d. Proposed changes to Technical Specifications or this Operating License.

## ADMINISTRATIVE CONTROLS

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- e. Violations of codes, regulations, orders, Technical Specifications, license requirements, or internal procedures or instructions having nuclear safety significance.
- f. Significant operating abnormalities or deviations from normal and expected performance of unit equipment that affect nuclear safety.
- g. Events requiring 24-hour written notification to the Commission.
- h. Recognized indications of an unanticipated deficiency in some aspect of design or operation of structures, systems, or components that could affect nuclear safety.
- i. Reports and meeting minutes of the PRB.

### AUDITS

6.5.2.8 Audits of unit activities shall be performed under the cognizance of the SRB. Each inspection or audit shall be performed within the specified time interval with:

- 1. A maximum allowable extension not to exceed 25 percent of the inspection or audit interval.
- 2. A total maximum combined interval time for any three consecutive inspection or audit intervals not to exceed 3.25 times the specified inspection or audit interval.

These audits shall encompass:

- a. The conformance of unit operation to provisions contained within the Technical Specifications and applicable license conditions annually.
- b. The performance, training, and qualifications of the unit staff annually.
- c. The results of actions taken to correct deficiencies occurring in unit equipment, structures, systems, or method of operation that affect nuclear safety semi-annually.
- d. The performance of activities required by the Operational Quality Assurance Program to meet the criteria of Appendix B of 10 CFR 50 annually.



## ADMINISTRATIVE CONTROLS

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- e. The Emergency Plan and implementing procedures annually.
- f. The Security Plan and implementing procedures annually.
- g. Any other area of unit operation considered appropriate by the SRB or the Executive Vice President-Power Supply.
- h. The Fire Protection Program and implementing procedures bi-annually.
- i. An independent fire protection and loss prevention inspection and audit shall be performed annually utilizing either qualified offsite licensee personnel or an outside fire protection firm.
- j. An inspection and audit of the fire protection and loss prevention program shall be performed by an outside qualified fire consultant at intervals no greater than 3 years. During the year in which the inspection or audit occurs, the requirements of 6.5.2.8 (i) can be affected concurrently.

Specification
- k. The Radiological Environmental Monitoring Program and the results thereof annually.

## AUTHORITY

6.5.2.9 The SRB shall report to and advise the Executive Vice President-Power Supply on those areas of responsibility specified in sections 6.5.2.7 and 6.5.2.8.

## RECORDS

6.5.2.10 Records of SRB activities shall be prepared, approved, and distributed as indicated below:

- a. Minutes of each SRB meeting shall be prepared, approved, and forwarded to the Executive Vice President-Power Supply within 14 days following each meeting.
- b. Reports of reviews encompassed by section 6.5.2.7 shall be prepared, approved, and forwarded to the Executive Vice President-Power Supply within 14 days following completion of the review.
- c. Audit reports encompassed by section 6.5.2.8 shall be forwarded to the Executive Vice President-Power Supply and to the management positions responsible for the areas audited within 30 days after the audit completion.

## ADMINISTRATIVE CONTROLS

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### 6.6 REPORTABLE OCCURRENCE ACTION

6.6.1 The following actions shall be taken for REPORTABLE OCCURRENCES:

- a. The Commission shall be notified and/or a report submitted pursuant to the requirements of Specification 6.9./,
- b. Each REPORTABLE OCCURRENCE requiring 24-hour notification to the Commission shall be reviewed by the Plant Review Board and submitted to the SRB and the Vice President and General Manager-Nuclear Generation.

### 6.7 SAFETY LIMIT VIOLATION

6.7.1 The following actions shall be taken in the event a safety limit is violated:

- a. The unit shall be placed in at least HOT SHUTDOWN within 2 hours.
- b. The safety limit violation shall be reported to the Commission, the Vice President and General Manager-Nuclear Generation and to the Safety Review Board (SRB) within 24 hours.
- c. A safety limit violation report shall be prepared. The report shall be reviewed by the Plant Review Board. This report shall describe applicable circumstances preceding the violation; effects of the violation upon facility components, system, or structures; and corrective action taken to prevent recurrence.
- d. The safety limit violation report shall be submitted to the Commission, the SRB, and the Manager-Nuclear Generation or the Vice President and General Manager-Nuclear Generation within 14 days of the violation.

### 6.8 PROCEDURES

6.8.1 Written procedures shall be established, implemented, and maintained covering the activities referenced below:

- a. The applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978
- b. Refueling operations



## ADMINISTRATIVE CONTROLS

- c. Surveillance and test activities of safety-related equipment
- d. Security Plan implementation
- e. Emergency Plan implementation
- f. Fire Protection Program implementation
- g. PROCESS CONTROL PROGRAM implementation
- h. OFFSITE DOSE CALCULATION MANUAL implementation

6.8.2 Each procedure of 6.8.1 (above) and changes thereto shall be reviewed by the Plant Review Board (PRB), approved by the ~~General Manager~~ prior to implementation, and reviewed periodically as set forth in administrative procedures.

6.8.3 Temporary changes to procedures of 6.8.1 may be made provided:

- a. The intent of the original procedure is not altered.
- b. The change is approved by two members of the plant management staff, at least one of whom holds a Senior Reactor Operator's License on the affected unit.
- c. The change is documented, reviewed by the PRB, and approved by the ~~General Manager~~ within 14 days of implementation.

6.8.4 Proposed changes to procedures for implementing the responsibilities specified in section 6.1.2 shall be reviewed and approved by the Manager-Environmental Affairs. Proposed changes to procedures for implementing the responsibilities specified in section 6.1.3 shall be reviewed and approved by the ~~Chief Nuclear Engineer~~. When deemed appropriate by the Manager-Environmental Affairs or the ~~Chief Nuclear Engineer~~, such proposed changes shall also be reviewed by the Safety Review Board prior to implementation.

## 6.9 REPORTING REQUIREMENTS

### ROUTINE REPORTS AND REPORTABLE OCCURRENCES

6.9.1 In addition to the applicable reporting requirements of Title 10 CFR, the following reports shall be submitted to the Director of the Regional Office of Inspection and Enforcement, unless otherwise noted.

## ADMINISTRATIVE CONTROLS

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### STARTUP REPORT

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following receipt of an operating license; amendment to the license involving a planned increase in power level; installation of fuel that has a different design or has been manufactured by a different fuel supplier; and modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.

6.9.1.2 The startup report shall address each of the tests identified in the Final Safety Analysis Report and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.

6.9.1.3 Startup reports shall be submitted within 90 days following completion of the startup test program; 90 days following resumption or commencement of commercial power operation; or 9 months following initial criticality, whichever is earliest. If the startup report does not cover all three events (i.e., initial criticality, completion of startup test program, the resumption or commencement of commercial operation), supplementary reports shall be submitted at least every 3 months until all three events have been completed.

### ANNUAL REPORTS<sup>(a)</sup>

6.9.1.4 Annual reports covering the activities of the unit, as described below, for the previous calendar year shall be submitted prior to March 1 of each year.

6.9.1.5 Reports required on an annual basis shall include:

- a. A tabulation on an annual basis of the number of station, utility, and other personnel, including contractors, who receive exposures greater than 100 mrem/year and their associated man rem exposure according to work and job functions, e.g., reactor operations and surveillance, inservice inspection,

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a. A single submittal may be made for a multiple-unit station. The submittal should combine those sections common to all units at the station.

## ADMINISTRATIVE CONTROLS

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routine maintenance, special maintenance (describe maintenance), waste processing, and refueling. The dose assignment to various duty functions may be estimates based on pocket dosimeter, TLD, or film badge measurements. Small exposures totaling less than 20 percent of the individual total dose need not be accounted for. In the aggregate, at least 80 percent of the total whole-body dose received from external sources shall be assigned to specific major work functions.

- b. Any other unit-unique reports required on an annual basis.

### ANNUAL RADIOLOGICAL ENVIRONMENTAL SURVEILLANCE REPORT

6.9.1.6 Routine radiological environmental surveillance reports covering the radiological environmental surveillance activities related to the plant during the previous calendar year shall be submitted prior to May 1 of each year. A single report may fulfill this requirement for both units.

6.9.1.7 The Annual Radiological Environmental Surveillance Report shall include summaries, interpretations, and statistical evaluation of the results of the radiological environmental surveillance activities for the reporting period, including (as appropriate) a comparison with preoperational studies, operational controls, previous environmental surveillance reports, and an assessment of any observed impacts of the plant operation on the environment. The reports shall also include the results of the land use surveys required by Specification 3.16.2 and the results of licensee participation in the interlaboratory comparison program required by Specification 3.16.3.

The Annual Radiological Environmental Surveillance Report shall include summarized and tabulated results in the format of table 6.9.1.7-1 of all radiological environmental samples taken during the report period, with the exception of naturally occurring radionuclides which need not be reported. In the event that some results are not available for inclusion with the report, the report shall be submitted, noting and explaining the reasons for the missing results. The missing data shall be submitted as soon as practicable in a supplementary report.

The reports shall also include the following:

- a. Summary description of the radiological environmental monitoring program
- b. Map of all sampling locations as keyed to a table indicating distances and directions from main stack.

## ADMINISTRATIVE CONTROLS

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- c. Results of the licensee participation in the Inter-laboratory Comparison Program.

### SEMI-ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT<sup>(a)</sup>

6.9.1.8 Routine radioactive effluent release reports covering the operation of the unit during the previous 6 months of operation shall be submitted within 60 days after January 1 and July 1 of each year.

Any changes to the ODCM shall be submitted with the next semi-annual report in which the change(s) was made effective. In addition, a report of any major changes to the radioactive waste treatment systems shall be submitted with the monthly operating report for the period in which the evaluation was reviewed and accepted by the Plant Review Board.

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a. A single submittal may be made for a multiple-unit station. The submittal should combine those sections that are common to all units at the station; however, the submittal shall specify the releases of radioactive material from each unit.

TABLE 6.9.1.7-1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARYName of Facility Edwin I. Hatch Nuclear Plant Docket No. 50-321, 50-366Location of Facility Appling County, Georgia Reporting Period \_\_\_\_\_

<u>Medium or Pathway Sampled (Unit of Measurement)</u>	<u>Type and Total Number of Analyses Performed</u>	<u>Minimum Detectable Concentration<sup>(a)</sup></u>	<u>All Indicator Locations Mean Range<sup>(b)</sup></u>	<u>Location of Highest Annual Mean</u>		<u>Control Locations Mean Range</u>	<u>Number of REPORTABLE OCCURRENCES</u>
				<u>Name, Distance, and Direction</u>	<u>Mean Range<sup>(b)</sup></u>		

a. Minimum Detectable Concentration is defined in table notation a. of table 4.16.1-1, Specification 4.16.1 of Unit 1.

b. Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses.



## ADMINISTRATIVE CONTROLS

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6.9.1.9 The Radioactive Effluent Release Report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit as outlined in Regulatory Guide 1.21, Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants, Revision 1, June 1974, with data summarized on a quarterly basis following the format of Appendix B thereof.

The Radioactive Effluent Release Report to be submitted 60 days after January 1 of each year shall include an annual summary of meteorological data collected over the previous year. This annual summary may be either in the form of an hour-by-hour listing of wind speed, wind direction atmospheric stability and precipitation (if measured) on magnetic tape or in the form of joint frequency distributions of wind speed, wind direction, and atmospheric stability. This same report shall include an assessment of the radiation doses due to the radioactive liquid and gaseous effluents released from the unit or station during the previous calendar year. All assumptions used in making these assessments, i.e., specific activity, exposure time, and location, shall be included in these reports. Historical annual average meteorological conditions or meteorological conditions concurrent with the time of release of radioactive materials in gaseous effluents, as determined by sampling frequency and measurement, shall be used for determining the gaseous pathway doses. The assessment of radiation doses shall be performed in accordance with the OFFSITE DOSE CALCULATION MANUAL (ODCM).

The Radioactive Effluents Release Report shall include the following information for each type of solid waste shipped offsite during the report period:

- a. Container volume
- b. Total curie quantity (specify whether determined by measurement or estimate)
- c. Principal radionuclides (specify whether determined by measurement or estimate)
- d. Type of waste, e.g., spent resin, compacted dry waste, evaporator bottoms
- e. Type of container, e.g., LSA, type A, type B, large quantity
- f. Solidification agent, e.g., cement.

## ADMINISTRATIVE CONTROLS

---

The Radioactive Effluent Release Report shall include (on a quarterly basis) unplanned releases from the site to unrestricted areas of radioactive materials in gaseous and liquid effluents that were in excess of 1 Ci, excluding dissolved and entrained gases and tritium for liquid effluents, or those in excess of 150 Ci of noble gases or 0.02 Ci of radioiodines for gaseous releases.

The Radioactive Effluent Release Report shall include any changes to the PROCESS CONTROL PROGRAM made during the reporting period.

### MONTHLY REACTOR OPERATING REPORT

6.9.1.10 Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis to the Director, Office of Management and Program Analysis, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the Regional Office of Inspection and Enforcement, no later than the 15th of each month following the calendar month covered by the report.

### REPORTABLE OCCURRENCES

6.9.1.11 The REPORTABLE OCCURRENCES of Specifications 6.9.1.12 and 6.9.1.13 including corrective actions and measures to prevent recurrence, shall be reported to the NRC. Supplemental reports may be required to fully describe final resolution of occurrence. In case of corrected or supplemental reports, a licensee event report shall be completed and reference shall be made to the original report date.

### PROMPT NOTIFICATION WITH WRITTEN FOLLOWUP

6.9.1.12 The types of events listed below shall be reported within 24 hours by telephone and confirmed by telegraph, mailgram, or facsimile transmission to the Director of the Regional Office or his designee no later than the first working day following the event, with a written followup report within 14 days. The written followup report shall include, as a minimum, a completed copy of a Licensee Event Report form. Information provided on this form shall be supplemented, as needed, by additional narrative material to provide a complete explanation of the circumstances surrounding the event.

- a. Failure of the reactor protection system or other systems subject to limiting safety system settings to initiate the required protective function by the time a monitored parameter reaches the setpoint specified as



## ADMINISTRATIVE CONTROLS

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the limiting safety system setting in the Technical Specifications or failure to complete the required protective function.

- b. Operation of the unit or affected systems when any parameter or operation subject to a limiting condition for operation is less conservative than the least conservative aspect of the limiting condition for operation established in the Technical Specifications.
- c. Abnormal degradation discovered in fuel cladding, reactor coolant pressure boundary, or primary containment.
- d. Reactivity anomalies involving disagreement with the predicted value of reactivity balance under steady-state conditions during power operation greater than or equal to 1-percent  $\Delta k/k$ ; a calculated reactivity balance indicating a SHUTDOWN MARGIN less conservative than specified in the Technical Specifications; short-term reactivity increases that correspond to a reactor period of less than 5 seconds or, if subcritical, an unplanned reactivity insertion of more than 0.5-percent  $\Delta k/k$ ; or occurrence of any unplanned criticality.
- e. Failure or malfunction of one or more components that prevents or could prevent, by itself, the fulfillment of the functional requirements of the system(s) used to cope with accidents analyzed in the Safety Analysis Report.
- f. Personnel error or procedural inadequacy that prevents or could prevent, by itself, the fulfillment of the functional requirements of systems required to cope with accidents analyzed in the Safety Analysis Report.
- g. Conditions arising from natural or manmade events that, as a direct result of the event, require unit shutdown, operation of safety systems, or other protective measures required by the Technical Specifications.
- h. Errors discovered in the transient or accident analyses or in the methods used for such analyses as described in the Safety Analysis Report or in the Technical Specifications bases that have or could have permitted reactor operation in a manner less conservative than assumed in the analyses.

## ADMINISTRATIVE CONTROLS

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- i. Performance of structures, systems, or components that requires remedial action or corrective measures to prevent operation in a manner less conservative than assumed in the accident analyses in the Safety Analysis Report or the Technical Specifications bases; or discovery during unit life of conditions not specifically considered in the Safety Analysis Report or Technical Specifications that require remedial action or corrective measures to prevent the existence or development of an unsafe condition.

### THIRTY-DAY WRITTEN REPORTS

6.9.1.13 The types of events listed below shall be the subject of written reports to the Director of the Regional Office within 30 days of the occurrence of the event. The written report shall include, as a minimum, a completed copy of a licensee event report form. Information provided on the form shall be supplemented, as needed, by additional narrative material to provide a complete explanation of the circumstances surrounding the event.

- a. Reactor protection system or engineered safety feature instrument settings found to be less conservative than those established by the Technical Specifications but not preventing the fulfillment of the functional requirements of affected systems.
- b. Conditions leading to operation in a degraded mode permitted by a Limiting Condition for Operation or plant shutdown required by a Limiting Condition for Operation.
- c. Observed inadequacies in the implementation of administrative or procedural controls that threaten to cause reduction of degree of redundancy provided in reactor protection systems or engineered safety feature systems.
- d. Abnormal degradation of systems, other than those specified in 6.9.1.13(c), designed to contain radioactive material resulting from the fission process.

6.9.2 Special reports shall be submitted to the Director of the Regional Office of Inspection and Enforcement within the time period specified for each report.

TABLE 6.9.2-1

SPECIAL REPORTING REQUIREMENTS

<u>Area</u>	<u>Tech Spec Reference</u>	<u>Submittal Date</u>
Primary Containment Leak Rate Tests 'a'	4.7.A	Within 3 months following conduct of test
Secondary Containment Leak Rate Tests 'b'	4.7.C	Within 3 months following conduct of test
Primary Coolant Leakage to Drywell	4.6.C	5 years 'C'
Inservice Inspection Evaluation	4.6.K	5 years 'C'
Reactor Coolant Radioactivity in Excess of Specified Limits	4.6.F	Within 30 days of the occurrence

Notes:

- a. Each integrated leak rate test of the primary containment shall be the subject of a summary technical report including results of the local leak rate tests since the last report. The report as described in the 10 CFR Part 50, Appendix J, Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors, shall include data, analysis, and interpretations of the results that demonstrate compliance in meeting the specified leak rate limits.
- b. Each integrated leak rate test of the secondary containment shall be the subject of a summary technical report. This report should include data on wind speed, wind direction, outside and inside temperatures during the test, concurrent reactor building pressure, and emergency ventilation flowrate.
- c. The report shall be submitted within the period of time listed based on the commercial service date as the starting period.
- d. Records of gaseous and liquid radioactive material released to the environs
- e. Records of reactor tests and experiments
- f. Records of training and qualification for current members of the unit staff

## ADMINISTRATIVE CONTROLS

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### 6.10 RECORD RETENTION

In addition to the applicable record retention requirements of Title 10 CFR, the following records shall be retained for at least the minimum period indicated.

6.10.1 The following records shall be retained for at least 5 years:

- a. Records and logs of unit operation covering the time interval at each power level
- b. Records and logs of principal maintenance activities, inspections, repair, and replacement of principal items of equipment related to nuclear safety
- c. All REPORTABLE OCCURRENCES submitted to the Commission
- d. Records of surveillance activities, inspections, and calibrations required by these Technical Specifications
- e. Records of changes made to the procedures required by Specification 6.8.1
- f. Records of radioactive shipments
- g. Records of sealed source and fission detector leak tests and results
- h. Records of annual physical inventory of all sealed source material of record.

6.10.2 The following records shall be retained for the duration of the unit Operating License:

- a. Records and drawing changes reflecting unit design modifications made to systems and equipment described in the Final Safety Analysis Report
- b. Records of new and irradiated fuel inventory, fuel transfers, and assembly burnup histories
- c. Records of radiation exposure for all individuals entering radiation control areas.

TABLE 6.9.2-1

SPECIAL REPORTING REQUIREMENTS

<u>Area</u>	<u>Tech Spec Reference</u>	<u>Submittal Date</u>
Primary Containment Leak Rate Tests 'a'	4.7.A	Within 3 months following conduct of test
Secondary Containment Leak Rate Tests 'b'	4.7.C	Within 3 months following conduct of test
Primary Coolant Leakage to Drywell	4.6.C	5 years 'c'
Inservice Inspection Evaluation	4.6.K	5 years 'c'
Reactor Coolant Radioactivity in Excess of Specified Limits	4.6.F	Within 30 days of the occurrence

Notes:

- a. Each integrated leak rate test of the primary containment shall be the subject of a summary technical report including results of the local leak rate tests since the last report. The report as described in the 10 CFR Part 50, Appendix J, Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors, shall include data, analysis, and interpretations of the results that demonstrate compliance in meeting the specified leak rate limits.
- b. Each integrated leak rate test of the secondary containment shall be the subject of a summary technical report. This report should include data on wind speed, wind direction, outside and inside temperatures during the test, concurrent reactor building pressure, and emergency ventilation flowrate.
- c. The report shall be submitted within the period of time listed based on the commercial service date as the starting period.
- d. Records of gaseous and liquid radioactive material released to the environs
- e. Records of reactor tests and experiments
- f. Records of training and qualification for current members of the unit staff



- g. Records of inservice inspections performed pursuant to these Technical Specifications
- h. Records of Quality Assurance activities required by the Quality Assurance Manual
- i. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59
- j. Records of PRB and Safety Review Board meetings.

#### 6.11 RADIATION PROTECTION PROGRAM

Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained, and adhered to for all operations involving personnel radiation exposure.

#### 6.12 HIGH-RADIATION AREA ~~(OPTIONAL)~~

6.12.1 In lieu of the "control device" or "alarm signal" required by paragraph 20.203(c)(2) of 10 CFR 20, each high-radiation area in which the intensity of radiation is greater than 100 mrem/hour but less than 1000 mrem/hour shall be barricaded and conspicuously posted as a high-radiation area, and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP).<sup>(a)</sup> Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

- a. A radiation monitoring device which continuously indicates the radiation dose rate in the area
- b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made knowledgeable of them.

a. Health Physics personnel or personnel escorted by Health Physics personnel, in accordance with approved emergency procedures, shall be exempt from the RWP issuance requirement during the performance of their radiation protection duties, provided they comply with approved radiation protection procedures for entry into high-radiation areas.

- c. An individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device. This individual shall be responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the facility Health Physicist in the RWP.

1000 6.12.2 The requirements of 6.12.1, shall also apply to each high-radiation area in which the intensity of radiation is greater than 100 mrem/hour. In addition, locked doors shall be provided to prevent unauthorized entry into such areas, and the keys shall be maintained under the administrative control of the shift supervisor on duty or the Plant Health Physicist.

#### 6.13 INTEGRITY OF SYSTEMS OUTSIDE CONTAINMENT

Plant Hatch shall implement a program to reduce leakage from systems outside containment that would or could contain highly radioactive fluids during a serious transient or accident to as low as practical levels. This program shall include the following:

- a. Provisions establishing preventive maintenance and periodic visual inspection requirements
- b. System leak test requirements, to the extent permitted by system design and radiological conditions, for each system at a frequency not to exceed refueling cycle intervals. The systems subject to this testing are residual heat removal, core spray, reactor water cleanup, HPCI, and RCIC.

#### 6.14 IODINE MONITORING

Plant Hatch shall implement a program which will ensure the capability to accurately determine the airborne iodine concentration in vital areas<sup>(a)</sup> under accident conditions. This program shall include the following:

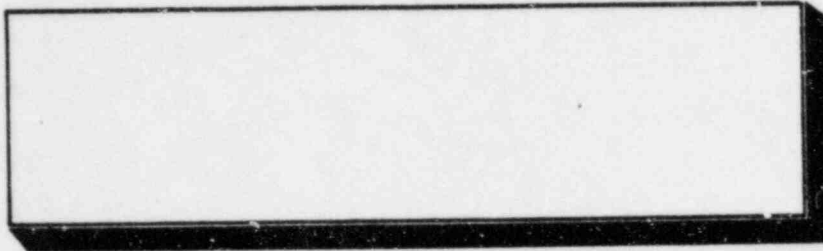
- a. Training of personnel
- b. Procedures for monitoring
- c. Provisions for maintenance of sampling and analysis equipment.

a. Areas requiring personnel access for establishing HOT SHUTDOWN condition.



# ART SLIP SHEET

FIGURE NO.



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EDITOR/COORDINATOR

SPECIAL INSTRUCTIONS

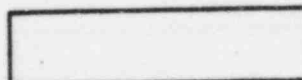
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HWP-Unit 1 and Unit 2*

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FIGURE \_\_\_\_\_

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ENVIRONMENTAL TECHNICAL SPECIFICATIONS

EDWIN I. HATCH NUCLEAR PLANT

UNITS 1 AND 2

## TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 Definitions	1
2.0 (Section Deleted)	
3.0 Environmental Monitoring	3
3.1 Nonradiological Monitoring	3
3.1.1 Abiotic	3
3.1.2 Biotic	3
4.0 Special Surveillance and Study Activities	5
4.1 Erosion Control Inspection	5
4.2 Unusual or Important Events Requirements	5
4.3 Exceeding Limits of Other Relevant Permits	5
5.0 Administrative Controls	7
5.1 Responsibility	
5.1.1 General Manager	7
5.1.2 Manager-Environmental Affairs	7
5.1.3 General Manager-Quality Assurance and Radiological Health and Safety	7
5.2 Organization	7
5.3 Review and Audit	8
5.3.1 Independent Review	8
5.3.2 Audit Responsibility	9
5.4 State and Federal Permits and Certificates	9
5.5 Procedures	9
5.5.1 Environmental Programs Description Document	10
5.5.2 Quality Assurance of Program Results	10
5.5.3 Compliance with Procedures	11
5.5.4 Changes in Procedures, EPDD, and Station Design or Operation	11
5.5.5 Consistency with Initially Approved Programs	12
5.5.6 NRC Authority to Require Revisions	13

TABLE OF CONTENTS (CONTINUED)

<u>Section</u>	<u>Page</u>
5.6 Plant Reporting Requirements	13
5.6.1 Routine Reports	13
5.6.2 Nonroutine Reports	14
5.6.3 Changes in Environmental Technical Specifications and Permits	15
5.7 Records Retention	16
5.7.1 Life-of-Plant Records	16
5.7.2 Five-Year Records	16
5.7.3 Records Storage	16

## LIST OF TABLES

<u>Table Number</u>	<u>Title</u>
2.1-1	Radioactive Liquid Waste Sampling and Analysis
2.1-2	Radioactive Gaseous Waste Sampling and Analysis
2.1-3	BWR-Liquid Waste System - Location of Process and Effluent Monitors and Samplers Required by Environmental Technical Specifications
2.1-4	BWR-Gaseous Waste System - Location of Process and Effluent Monitors and Samplers Required by Environmental Technical Specifications
2.1-5	Average Energy Per Disintegration
3.2-1	Radiological Environmental Monitoring Program
3.2-2	Detection Capabilities for Environmental Sample Analysis
3.2-3	Reporting Levels for Nonroutine Operating Reports

## LIST OF FIGURES

<u>Figure Number</u>	<u>Title</u>
3.2-1	Location of Radiological Environmental Monitoring Stations
5.2-1	Organization Structure Related to Environmental Activities

## 1.0 Definitions

Aerial Remote Sensing - The measurement or acquisition from aircraft or spacecraft of information on some property of an object or phenomenon by a recording device that is not in physical or intimate contact with the object or phenomenon under study. The technique employs such devices as the camera, radio frequency receivers, and radar system.

Annually - Once per calendar year at intervals of 12 calendar months, +30 days.

Biweekly - Once every 2 weeks, + 4 days.

Ground Truth or Ground Data Surveys - Supporting data collected on the ground and information derived therefrom, as an aid to the interpretation of a remotely recorded survey, such as aerial imagery. To the extent possible, this should be performed concurrently with the airborne surveys.

Infrared, Photographic - Pertaining to or designating that portion of the electromagnetic spectrum with wavelengths just beyond the red end of the visible spectrum; generally defined as being from 0.7 to about 1.0  $\mu\text{m}$  or the useful limits of film sensitivities.

Monthly - Once during each calendar month at 30-day intervals, +6 days.

Normal Operation - Operation of either unit at the station at greater than 5 percent of rated thermal power in other than a safety or power emergency situation.

NPDES Permit - The National Pollutant Discharge Elimination System Permit No. GA 0004120 (or its subsequent revisions) issued by the State of Georgia, Department of Natural Resources, Environmental Protection Division to Georgia Power Company. This permit authorizes Georgia Power Company to discharge controlled waste water from HNP into the waters of the Altamaha River.

Quarterly - Once during each successive 3-month period of the calendar year, counting from January 1, at 13-week intervals, +14 days.

Scale - The ratio of a distance on a photograph or map to its corresponding distance on the ground.



Semi-Annually - Once during each successive 6-month period of the calendar year, counting from January 1, at 6-month intervals,  $\pm$  21 days.

Spectral Band - A width, generally expressed in wavelength or frequency, of a particular portion of the electromagnetic spectrum. A given sensor, e.g., radiometer detector or camera film, is designated to measure or to be sensitive to energy received from that part of the spectrum.

Station and Unit - Station refers to HNP-Units 1 and 2. Unit refers only to HNP 1 or HNP 2, as defined by its usage. Only the individual unit's instrument is applicable to specifications applied to that unit.

Unusual or Important Event - An event that causes potentially significant environmental impact or that could be of public interest concerning environmental impact from plant operation.

Weekly - Once during each calendar week at 7-day intervals,  $\pm$  2 days.

### 3.0 Environmental Monitoring

The objective of the environmental monitoring program is to determine the effect of plant operation on the environment.

#### 3.1 Nonradiological Monitoring

##### 3.1.1 Abiotic

##### 3.1.2 Biotic

### 3.1.2.2 Terrestrial

#### 3.1.2.2.1 Aerial Remote Sensing

##### Environmental Monitoring Requirement

Plant communities of the site shall be aerially photographed to detect and assess the significance of damage, or lack thereof, related to deposition of cooling tower drift.

This monitoring program shall be conducted as specified in the program description developed by the licensee in accordance with section 5.6.1. The program shall commence at the time of initial commercial operation of Unit 2 and shall continue for at least 2 years, after which the licensee may request modification or termination of this monitoring requirement in accordance with section 5.6.3.

##### Action

Results of the monitoring conducted under this program shall be summarized, analyzed, interpreted, and reported in accordance with section 5.6.1.

The licensee shall record the following information for each flight: date and time of photographs, film type, spectral band, and scale of the photographs.

##### Bases

Impacts that cause stress to vegetation may occur as a result of cooling tower drift deposition. Reconnaissance and aerial photographic inspection of plant communities in the drift field are the methods recommended for detecting possible adverse effects of drift deposition on vegetation.

As discussed in the Edwin I. Hatch Nuclear Plant, Unit No. 2, FES-OL, no effects on vegetation have been observed to result from operation of the Unit 1 cooling towers. However, a continuation of the current Unit 1 monitoring program will serve to verify the FES-OL conclusion that it is unlikely that drift effects on vegetation will be observed for Unit 2.

#### 4.0 Special Surveillance and Study Activities

##### 4.1 Erosion Control Inspection

##### 4.2 Unusual or Important Events Requirements

###### Requirements

The licensee shall be alert to the occurrence of unusual or important events. Unusual or important events are those that cause potentially significant environmental impact or could be of public interest concerning environmental impact from plant operation. The following are examples: unusual or important bird impactation events on cooling tower structures or meteorological towers, onsite plant or animal disease outbreaks, unusual mortality of any species protected by the Endangered Species Act of 1973, fish kills near the HNP site, and significant violations of relevant permits and certifications.

###### Action

Should an unusual or important event occur, the licensee shall make a prompt report to the NRC in accordance with section 5.6.2.

###### Bases

Prompt reporting to the NRC of unusual or important events, as described, is necessary for responsible and orderly regulation of the nation's system of nuclear power reactors. The information thus provided may be useful or necessary to others concerned with the same environmental resources. Prompt knowledge and action may serve to alleviate the magnitude of environmental impact or to place it into a perspective broader than that available to the licensee. The NRC also has an obligation to be responsive to inquiries from the public and the news media concerning potentially significant environmental events at nuclear power stations.

##### 4.3 Exceeding Limits of Other Relevant Permits

###### Requirements

The licensee shall notify the NRC of occurrences exceeding the limits specified in relevant permits and certificates issued by other Federal, State, and local agencies that are reportable to the agency that issued the permit. This requirement shall apply only to topics of NEPA concern within the NRC area of responsibility as identified in the Environmental Technical Specifications (ETS).

This requirement shall commence with the date of issuance of the operating license for Unit 2 and continue until approval for modification or termination is obtained from the NRC in accordance with section 5.6.3.

#### Action

The licensee shall make a report to the NRC in accordance with section 5.6.2 in the event of a reportable occurrence of exceeding a limit specified in a relevant permit or certificate issued by another Federal, State, or local agency.

#### Bases

The NRC is required under NEPA to maintain an awareness of environmental impacts causally related to the construction and operation of facilities licensed under its authority. Further, some of the ETS requirements are couched in terms of compliance with relevant permits, e.g., the NPDES permit, issued by other licensing authorities. The reports of exceeding limits of relevant permits also alert the NRC staff to environmental problems that may require mitigative action.

## 5.0 Administrative Controls

This section describes administrative and management controls established to implement the Environmental Technical Specifications (ETS). Measures specified in this section include assignments of responsibility, review and audit functions, procedures, and reporting requirements.

Corporate responsibility for implementing the ETS and for assuring that the station is operated in such a way as to provide protection for the environment rests with the Executive Vice President-Power Supply.

Responsibilities for compliance with the ETS and for the environmental monitoring program required by the ETS are given below.

Independent audit shall be provided, as discussed in section 5.3.2, by the General Manager-Quality Assurance and Radiological Health and Safety.

### 5.1 Responsibility

5.1.1 The General Manager-Plant Hatch is responsible for the environmental monitoring programs. The General Manager-Plant Hatch is also responsible for implementing the special surveillance activities described in section 4.

5.1.2 The Manager-Environmental Affairs is responsible for the environmental monitoring programs specified in sections 3 and 4. The Manager-Environmental Affairs is responsible for coordinating these programs with appropriate groups.

5.1.3 The General Manager-Quality Assurance and Radiological Health and Safety is responsible for assuring that the periodic audits of plant operations and the environmental monitoring activities to ensure conformance with the ETS are conducted.

### 5.2 Organization

A chart showing company organization relative to environmental matters is presented in figure 5.2-1. Changes affecting company organization depicted in figure 5.2-1 will not require NRC approval prior to implementation, but such changes shall be reported to NRC.



### 5.3 Review and Audit

#### 5.3.1 Independent Review

5.3.1.1 The Manager-Environmental Affairs shall review the following:

- a. The conduct of the environmental monitoring programs, on a routine basis, to ensure that the specifications in sections 3 and 4 are being implemented.
- b. Proposed changes to plant systems or equipment, provided such changes are identified by the Plant Review Board (PRB) as having a potential adverse environmental impact.
- c. Procedures for implementing the responsibilities specified in section 5.1.2 and proposed changes thereto.
- d. Proposed changes to the Environmental Technical Specifications (ETS).
- e. Proposed changes to the Environmental Programs Description Document.

5.3.1.2 The Safety Review Board (SRB) shall review the following:

- a. Proposed changes to the ETS.
- b. Violations of ETS to determine whether adequate corrective action is being taken to prevent recurrence.
- c. Procedures or changes thereto (which could affect the monitoring of station operation) that may be considered by the Manager-Environmental Affairs or the PRB to be appropriate for SRB review.

5.3.1.3 The PRB shall review the following:

- a. Procedures for implementing the responsibilities specified in section 5.1.1 and proposed changes thereto.
- b. Proposed changes to the ETS.



### 5.3.2 Audit Responsibility

5.3.2.1 The General Manager-Quality Assurance and Radiological Health and Safety is responsible for an audit, conducted ~~annually~~ <sup>Plant Hatch</sup>, of the activities of the General Manager and the Manager-Environmental Affairs, related to compliance with the ETS.

5.3.2.2 Audits of facility activities shall be performed annually under the cognizance of the SRB to ensure conformance of facility operation to provisions of the ETS.

### 5.4 State and Federal Permit and Certificates

Section 401 of PL 92-500, the Federal Water Pollution Control Act Amendments of 1972 (FWPCA), requires any applicant for a Federal license or permit to conduct any activity that may result in any discharge into provisions of Sections 301, 302, 306, and 307 of the FWPCA. Section 401 of PL 92-500 further requires that any certification provided under this section shall set any effluent limitations and other limitations and monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with the applicable limitations. Certifications provided in accordance with Section 401 set forth conditions on the Federal license or permit for which the certification is provided. Accordingly, the licensee shall comply with the requirements set forth in the currently applicable 401 certification, and amendments thereto issued to the licensee by the Georgia Environmental Protection Division. In accordance with the provisions of the Georgia Water Quality Act, the FWPCA and the rules and regulations promulgated pursuant to each of these acts, The Georgia Environmental Protection Division, under authority delegated by the U.S. EPA, issued NPDES permit No. GA 0004120 to the licensee. The NPDES permit authorizes the licensee to discharge from HNP Units 1 and 2 to the Altamaha River in accordance with effluent limitations, monitoring requirements, and other conditions stipulated in the permit, effective August 1, 1983, through December 5, 1987.

Subsequent revisions to the certifications will be accommodated in accordance with the provisions of section 5.6.3.

### 5.5 Procedures

Detailed written procedures, including applicable checklists and instructions, shall be prepared and followed for all activities involved in implementing the ETS. ~~Procedures shall apply to.~~

All procedures shall be maintained in a manner convenient for review and inspection. Procedures that are the responsibility of the General Manager-Plant Hatch shall be kept at the plant. Procedures that are the responsibility of the Manager-Environmental Affairs shall be kept at the Georgia Power Company General Office.

#### 5.5.1 Environmental Programs Description Document

Based on these procedures, the licensee shall prepare and follow an Environmental Programs Description document (EPDD) describing the monitoring programs that are required by section 3.1. This document shall include descriptions of sampling equipment locations, frequencies and number of replications, sample analyses, data recording and storage, and instrument calibrations where appropriate. These program descriptions shall be approved by the NRC, and subsequent modifications to these programs shall be made by the licensee in accordance with sections 5.5.4 and 5.5.5.

#### 5.5.2 Quality Assurance of Program Results

Procedures shall be established to assure the quality of ETS program results, including analytical measurements. These procedures shall document the program in policy directives; designate responsible organizations or individuals; describe purchased services; e.g., contractual laboratory or other contract services; and provide for audits of results and procedures by licensee personnel. In addition, these quality assurance procedures shall provide for systems to identify and correct deficiencies in technical monitoring programs or related administrative activities, to investigate anomalous or suspect results, and to review and evaluate program results.

### 5.5.3 Compliance with Procedures

In addition to the procedures specified in section 5.5, the station operating procedures shall include provisions to ensure that each unit and all its systems and components are operated in compliance with the conditions established in the Environmental Technical Specifications (ETS).

### 5.5.4 Changes in Procedures, EPDD, and Station Design or Operation

Changes in the procedures, EPDD, and station design or operation may be made in accordance with section 5.3 and subject to conditions described below:

- a. The licensee may make changes in the station design and operation; make changes in the EPDD developed in accordance with section 5.5.1; and conduct tests and experiments not described in the EPDD without prior NRC approval, unless the proposed change, test, or experiment involves either a change in the objectives of the ETS, an unreviewed environmental question of substantial impact, or affects the requirements of section 5.5.5.
- b. A proposed change, test, or experiment shall be deemed to involve an unreviewed environmental question if it concerns:
  1. A matter which may result in a significant increase in any adverse environmental impact previously evaluated in the final environmental statement, as modified by staff's testimony at the hearing, supplements thereto, environmental impact appraisals, or in initial or final adjudicatory decisions.
  2. A significant change in effluents or power level.
  3. A matter not previously reviewed and evaluated in the documents specified in a. above which may have a significant adverse environmental impact.
- c. The licensee shall maintain records of changes to the EPDD and to facility design or operation made pursuant to this section. The licensee also shall maintain records of tests and experiments carried out pursuant to paragraph a. of this section. These records shall include a written evaluation that provides the bases for the determination that the change, test, or experiment does not involve an unreviewed environmental question of substantive impact, or does not constitute a change in

the objectives of the ETS, or does not affect the requirements of section 5.5.5. The licensee shall furnish to the NRC, annually or at such shorter intervals as may be specified in the license, a report containing descriptions, analyses, interpretations, and evaluations of such changes, tests, and experiments.

- d. Changes in the EPDD that affect sampling frequency, location, gear, or replication shall be reported to the NRC within 30 days after their implementation, unless otherwise reported in accordance with section 5.6.3. Changes that affect sampling technique or data recording and storage shall be reported to the NRC at the end of the year. These reports shall provide a description of the changes made, the reasons for making the changes, and an evaluation of the environmental impact of these changes.
- e. Proposed changes or modifications to plant systems or equipment shall be reviewed in accordance with section 5.3.
- f. Proposed changes to procedures for implementing the responsibilities specified in section 5.1.1 shall be reviewed and approved by the Plant Review Board (PRB). Temporary changes to the procedures that do not change the intent of the original procedure may be made with the concurrence of two individuals holding senior reactor operator licenses. Such changes shall be documented and subsequently reviewed by the PRB and approved by the General Manager on a timely basis.  
-Plant Hatch
- g. Proposed changes to procedures for implementing the responsibilities specified in section 5.1.2 shall be reviewed by the staff of Environmental Affairs. Such proposed changes shall subsequently be reviewed and approved by the Manager-Environmental Affairs. When deemed appropriate by the Manager-Environmental Affairs, such proposed changes also shall be reviewed by the Safety Review Board prior to implementation.

#### 5.5.5 Consistency with Initially Approved Programs

Any modifications or changes to the initially approved EPDD developed in accordance with section 5.5.1 shall be governed by the need to maintain consistency so that direct comparisons of current and previous data are technically valid. Such modifications or changes shall be justified and supported by adequate comparative sampling programs or studies that demonstrate the comparability of results or provide a basis for making adjustments that would permit direct comparisons.



These demonstrations of comparability shall be submitted to the NRC in accordance with sections 5.5.4 and 5.6.1.

#### 5.5.6 NRC Authority to Require Revisions

The NRC may require modifications or revisions of the EPDD developed in accordance with section 5.5.1 or may require modification or revision of changes made by the licensee in accordance with section 5.5.4, as a result of NRC reviews of the results of these programs, if such modifications or revisions are judged necessary to maintain consistency with the initially approved program descriptions or with the intent of the ETS. The NRC also may require modifications or revisions of the EPDD because of changes in plant operation or changes in environmental conditions or concerns associated with plant operation.

### 5.6 Plant Reporting Requirements

#### 5.6.1 Routine Reports

##### Annual Environmental Surveillance Report

A report on the environmental surveillance program for the previous calendar year shall be submitted to the NRC within 90 days after January 1 of each year. The report shall include summaries, analyses, and interpretations or statistical evaluations, where appropriate, of the results of the environmental monitoring activities for the report period.

The Annual Environmental Surveillance Report also will include the following:

- a. Comparison with preoperational studies, with operational controls (as appropriate), and with previous environmental monitoring reports.
- b. An assessment of the observed impacts of plant operation on the environment.
- c. A summary of:
  1. All instances of Environmental Technical Specifications (ETS) noncompliance and corrective actions taken to remedy them.
  2. Changes to Federal and State permits and certificates made in accordance with section 5.6.3.

3. Changes to the Environmental Programs Description Document.
4. Changes in station design or operation that could involve an environmental impact or change in the findings of the final environmental statement.
5. Changes in the ETS.
6. Copies of all reports regarding station discharges made in accordance with NPDES permit No. GA 0004120 (and subsequent revisions); these shall include reports made in accordance with Parts 1B and III of the NPDES permit.

If harmful effects or evidence of irreversible damage are detected by monitoring, the licensee shall provide a further analysis of the problem and a proposed course of action to alleviate the problem.

Results of analysis of all nonradiological environmental data collected shall be summarized and tabulated on an annual basis. In the event that some results are not available within 90 days after January 1, the report shall be submitted, noting and explaining the missing results. The missing data shall be submitted as soon thereafter as possible in a supplementary report.

#### 5.6.2 Nonroutine Reports

A report shall be submitted to the NRC in the event that an unusual or important event occurs, as specified in section 4.2. Reports shall be submitted under one of the report schedules described below:

- a. Prompt Report - Those events requiring prompt reports shall be reported within 24 hours by telephone, telegraph, or facsimile transmission and followed within 10 days by a written report.
- b. Thirty-Day Report - Nonroutine events not requiring a prompt report, as described in section 5.6.2, shall be reported to NRC either:
  1. Within 30 days of their occurrence
  2. Within the time limit designated in the appropriate specification
  3. Within the time limit specified by the reporting requirement of the corresponding certification or permit issued pursuant to Section 401 or 402 of PL 92-500.

The report submitted to NRC in accordance with item 3 above will consist of a copy of the report made to the Georgia Department of Natural Resources, Environmental Protection Division.

Written reports and, to the extent possible, preliminary telephone, telegraph, or facsimile reports shall describe, analyze, and evaluate the occurrence, including extent and magnitude of the impact; describe the cause of the occurrence; and indicate corrective action (including any significant changes made in procedures) taken to preclude recurrence and to prevent similar occurrences involving similar components or systems.

#### 5.6.3 Changes in Environmental Technical Specifications and Permits

##### 5.6.3.1 Changes in Environmental Technical Specifications

Requests for changes in ETS shall be submitted to the NRC for review and authorization in accordance with 10 CFR 50.90. The request shall include an evaluation of the environmental impact of the proposed change and a supporting justification. Implementation of such requested changes in ETS shall not commence prior to incorporation by the NRC of the new specifications in the license.

Proposed changes to the ETS shall be reviewed and approved by the Manager-Environmental Affairs, the Plant Review Board, and the Safety Review Board. Prior to approval, the possible impact of the proposed changes will be evaluated.

##### 5.6.3.2 Changes in Permits and Certificates

Changes or additions to required Federal, State, local, and regional authority permits and certificates for the protection of the environment that pertain to the requirements of the ETS shall be reported to the NRC within 30 days. In the event that the licensee initiates or becomes aware of a request for changes to any water quality requirements, limits, or values stipulated in any certificate or permit issued pursuant to Section 401 or 402 of PL 92-500, which are also the subject of an ETS reporting requirement, the NRC shall be notified concurrently with the authorizing agency. The notification to the NRC shall include an evaluation of the environmental impact of the revised requirement, limit, or value being sought.

If, during the NRC's review of the proposed change, it is determined that a potentially severe environmental impact could result from the change, the NRC will consult with the authorizing agency to determine the appropriate action to be taken.



## 5.7 Records Retention

5.7.1 Records and logs relative to the following areas shall be made and retained for the life of the plant in a manner convenient for review and inspection. These logs shall be made available to the NRC on request.

- a. Records and drawings detailing plant design changes and modifications made to systems and equipment as described in section 5.5.4.
- b. Records of all data from environmental monitoring and surveillance programs required by the ETS.

5.7.2 All other records and logs relating to the ETS shall be retained, in a manner convenient for review and inspection, for 5 years following logging or recording.

5.7.3 These records shall be stored at the plant or at the Georgia Power Company General Office, as appropriate, under the control of the responsible organization.

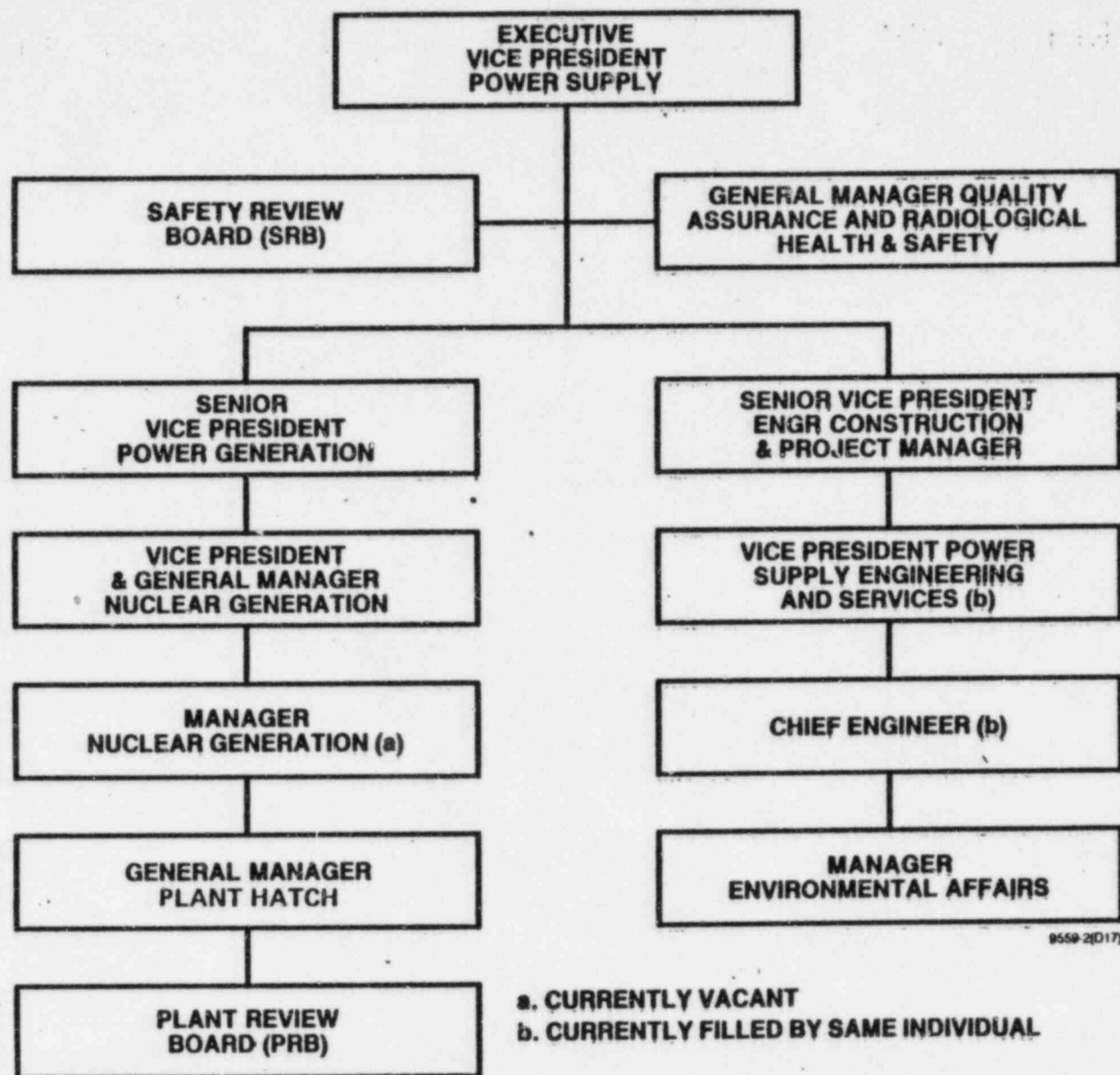


FIGURE 5.2-1  
ORGANIZATIONAL STRUCTURE RELATED TO ENVIRONMENTAL ACTIVITIES