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

TERA

October 1, 1980

Docket No. 50-409

Mr. Frank Linder
General Manager
Dairyland Power Cooperative
2615 East Avenue South
La Crosse, Wisconsin 54601

Dear Mr. Linder:

By letter dated August 14, 1979, you proposed to amend the existing Technical Specifications of the La Crosse Boiling Water Reactor, for the radiological effluent and environmental monitoring systems, to implement the provisions of Appendix I to 10 CFR Part 50. Our review of the proposed Radiological Effluent Technical Specifications was based on the model Radiological Effluent Technical Specifications for Boiling Water Reactors, NUREG-0473, Revision 2, July 1979.

Our comments and a marked-up copy of your proposed radiological effluent Technical Specifications are contained in Enclosures 1 and 2 to this letter. You should incorporate these changes into your resubmittal. Your proposed amendment did not include the required Technical Specifications on solid radioactive waste, system operability, curie content in outdoor liquid holdup tanks, noble gas release rate, and administrative controls. The enclosed comments and marked-up specifications do not include comments on your Offsite Dose Calculation Manual.

To date, we have not received this submittal. It should also be noted that the proposed amendment references Specifications 3.0.3 and 3.0.4 of the Standard Technical Specifications (STS), which are presently not part of the LACBWR Technical Specifications. Counterparts to BWR STS 3.0.3, 3.0.4 and accompanying 3.0.5 should be proposed and submitted to the NRC for review. An example of the 3.0.3 through 3.0.5 specifications and a Section 6.0 are enclosed for your information.

You have not submitted a Process Control Program (PCP) for solidification of radioactive wastes for La Crosse Boiling Water Reactor, nor referenced the PCP in your solidifcation system specifications. Whether you use a contractor for waste solidification/dewatering or perform your own waste processing, a PCP should be submitted. We request that the PCP be submitted for our review, and that a response to the enclosed comments be made within thirty days of receipt of this letter.

Sincerely,

Dennis M. Crutchfield

Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing

Enclosures:
1. NRC Comments
2. Marked-up RETS
3. Sample Specifications
4. Sample STS Section 6.0

cc w/enclosures:
See next page

cc w/enclosures:
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COMMENTS ON LA CROSSE BOILING WATER REACTOR RADIOLOGICAL EFFLUENT TECHNICAL SPECIFICATIONS (RETS)

1. We have reviewed the subject radiological effluent Technical Specifications as submitted by the licensee, and have marked them up to reflect a document which, subject to resolution of these comments, is acceptable to us. We have, in a number of cases, changed the licensee's wording, contents, and table format, to make them conform more closely to the contents of NUREG-0473, Revision 2, in an attempt to streamline these specifications. Specific changes made may require subsequent discussion.

2. In Section 1.0, add definitions 1.33 through 1.37 and modify definitions 1.30 and 1.32, as shown in markup.

3. Modify the following Specifications as shown in the markup:

3.3.3.8	4.11.1.3.1	3.11.2.3
3.3.3.9	4.11.1.3.2	4.11.2.3.1
3.11.1.1	3.11.2.1	3.11.2.4
4.11.1.1.1	4.11.2.1.3	4.11.2.4.2
4.11.1.1.2	4.11.2.1.4	3.11.2.5
4.11.1.1.3	3.11.2.2	4.11.2.5.1
3.11.1.2	4.11.2.2.1	3.11.2.6
3.11.1.3		

4. Delete the following Specifications as shown in the markup:

4.3.3.8.1	4.11.1.1.4	4.11.2.1.5
4.3.3.8.3	4.11.1.2.2	4.11.2.2.2
4.3.3.9.1	4.11.2.1.1	4.11.2.3.2
4.3.3.9.3	4.11.2.1.2	4.11.2.4.1
		4.11.2.5.2

5. Add Specifications for the following:

   a. Liquid holdup tanks maximum curie content (Specification 3.11.1.4 of NUREG-0473).

   b. Noble gas release rate (Specification 3.11.2.7 of NUREG-0473).

   c. Ventilation exhaust treatment system operability (Specification 3.11.2.5 of NUREG-0473).

6. Modify Tables 3.3-11 and 4.3-11 as shown in the markup and address the following:

   a. Gross radioactivity monitors on the liquid radwaste effluent line should provide automatic termination of releases.

   b. A gross radioactivity monitor should be provided for the component cooling water system effluent line.

   c. A flow rate measurement device should be provided for the discharge canal.

   d. List the tank level indicating devices for any outdoor tanks potentially containing radioactive liquids in accordance with NUREG-0473.

   e. In Table 4.3-11, is the turbine condenser cooling water line monitor the same as the service water system effluent line monitor listed in Table 3.3-11?

7. Modify Tables 3.3-12 and 4.3-12 as shown in the markup and address the following:

a. The offgas storage vault discharge monitor should have capability to alarm and automatically terminate release.

b. The offgas treatment system explosive gas monitoring system should have redundant hydrogen monitors with automatic control functions to reduce the potential of a hydrogen explosion. Acceptable types of control functions are delineated in NUREG-75/087, Standard Review Plan 11.3, Revision 1.

c. Particulate activity monitors, items 1.b, 3.b, and 5.b of Tables 3.3-12 and 4.3-12, are not required to be listed per NUREG-0473.

d. The containment building and stack effluent release points should have flow rate measurement devices.

e. In Table 4.3-12, expand on Table Notation item (3).

8. In Table 4.11-1 add sampling for P-32 and Fe-55, and modify Table Notation as shown in the markup.

9. Revise Figure 3.11-1. This figure shall consist of a map of the site area showing the perimeter of the site and locating the points where liquid effluent leaves the site. If on-site water areas containing radioactive wastes are utilized by the public for recreational or other purposes, the points of release to these water areas shall be identified. The figure shall be sufficiently detailed to allow identification of structures near the release points and areas within the site boundary where ground and surface water is accessible by members of the general public. See NUREG-0133 for additional guidance.

10. Modify Table 4.11-2 as shown in the markup in accordance with NUREG-0473.

11. Modify solidification system Specifications 3.11.3.1, 4.11.3.1.1, and 4.11.3.1.2 as shown in markup to include the Process Control Program.

12. Figure 5.1-1 is referenced in a number of specifications, but has not been provided for review. This figure shall consist of a map of the site area showing the perimeter of the site and locating the points where gaseous effluents are released. If on-site land areas subject to radioactive materials in gaseous waste are utilized by the public for recreational or other purposes, then these areas shall be identified by occupancy factors and the licensee's method of occupancy control. The figure shall be sufficiently detailed to allow identification of structures and release point elevations, and areas within the site boundary that are accessible by members of the general public. See NUREG-0133 for additional guidance.

13. Base 3/4.11.2.6 discusses explosive gas mixtures and automatic control features, however, based on our review (see also comment 7.b), there are no automatic control features in this regard.

14. Modify BASES Section as shown in the markup.

15. Reporting requirements should be specified in the administrative controls section of the Technical Specifications.

16. In general, the ODCM is not acceptable in its present form. Guidance for preparation of this document is contained in NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants." Some specific deficiencies are as follows:

    a. No description provided of effluent monitors and their corresponding alarms and trip setpoints. Instruments should be specifically identified.

    b. The setpoint methodology discussion should be expanded to explain how actual setpoints for each device are arrived at. This should include factors such as instrument sensitivity, instrument error, effects of other effluent streams on the setpoints, and the conservatisms incorporated. Sample setpoint calculations should be provided for each device.

    c. Credit for in-plant dilution flow in establishing monitor setpoints is allowable only if sufficient safeguards exist to terminate releases upon loss or reduction of dilution flow; i.e., interlocks with dilution flow sensing devices.

    d. The methodology employed for establishing gaseous effluent monitor setpoints appears cumbersome and should be reconsidered in light of Section 5.1.1 of NUREG-0133.

ENCLOSURE 2

ENCLOSURE 1

PROPOSED CHANGES TO TECHNICAL SPECIFICATIONS

CHANNEL CALIBRATION

1.4 A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds with the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. The CHANNEL CALIBRATION may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is calibrated.

CHANNEL CHECK

1.5 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 instrumentation channels measuring the same parameter.

CHANNEL FUNCTIONAL TEST

1.6 A CHANNEL FUNCTIONAL TEST shall be:

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

b. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.

SOURCE CHECK

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

OFFSITE DOSE CALCULATION MANUAL (ODCM)

1.30 An OFFSITE DOSE CALCULATION MANUAL (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 and in the calculation of gaseous and liquid effluent monitoring instrumentation alarm/trip setpoints. ~~Requirements of the ODCM are provided in Specification 6.16.~~

GASEOUS RADWASTE TREATMENT SYSTEM

1.31 A GASEOUS RADWASTE TREATMENT SYSTEM is any 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 the environment.

VENTILATION EXHAUST TREATMENT SYSTEM

1.32 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 absorbers and/or HEPA filters for the purpose of removing iodines or particulates from the gaseous exhaust stream prior to the release to the environment (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.

DOSE EQUIVALENT I-131

1.33 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, "Calculation of Distance Factors for Power and Test Reactor Sites."

PROCESS CONTROL PROGRAM (PCP)

1.34 The PROCESS CONTROL PROGRAM shall contain the sampling, analysis, and formulation determination by which SOLIDIFICATION of radioactive wastes from liquid systems is assured.

SOLIDIFICATION

1.35 SOLIDIFICATION shall be the conversion of radioactive wastes from liquid systems to a homogeneous (uniformly distributed), monolithic, immobilized solid with definite volume and shape, bounded by a stable surface of distinct outline on all sides (free-standing).

PURGE - PURGING

1.36 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

1.37 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. Vent, used in system names, does not imply a VENTING process.

TABLE 1.2

FREQUENCY NOTATION

NOTATION	FREQUENCY
S	At least once per 12 hours.
D	At least once per 24 hours.
W	At least once per 7 days.
M	At least once per 31 days.
Q	At least once per 92 days.
SA	At least once per 184 days.
R	At least once per 18 months.
S/U	Prior to each reactor startup.
P	Completed Prior to each release.
N.A.	Not applicable.

INSTRUMENTATION

MONITORING

RADIOACTIVE LIQUID EFFLUENT INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.8 The radioactive liquid effluent monitoring instrumentation channels shown in Table 3.3-11 shall be OPERABLE with their alarm/trip setpoints ~~within the specified limits~~ 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 Offsite Dose Calculation Manual (ODCM).

APPLICABILITY: ~~As shown in Table 3.3-11.~~ At all times.

ACTION:

a. With a radioactive liquid effluent monitoring instrumentation channel alarm/trip setpoint less conservative than ~~the value shown in Table 3.3-11 which ensures that the limits of 3.11.1.1 are met,~~ immediately suspend the release of radioactive liquid effluents monitored by the affected channel or declare the channel inoperable.

b. With ~~one or more~~ less than the minimum number of ~~the above required~~ radioactive liquid effluent monitoring instrumentation channels ~~inoperable~~ OPERABLE, take the ACTION required by Table 3.3-11.

c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

~~4.3.3.8.1 The setpoints shall be determined in accordance with procedures as described in the ODCM and shall be recorded on the Liquid Waste Batch Form L-81.~~

4.3.3.8.2 Each radioactive liquid effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION operations ~~during the conditions and~~ at the frequencies shown in Table 4.3-11.

~~4.3.3.8.3 Records - Auditable records shall be maintained, in accordance with procedures in the ODCM, of all radioactive liquid effluent monitoring instrumentation alarm/trip setpoints. Setpoints and setpoint calculations shall be available for review to ensure that the limits required by Specification 3.11.1.1 are met.~~

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TABLE 3.3-11

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	~~APPLICABLE CONDITIONS~~	~~ALARM/TRIP SETPOINT~~	ACTION
1. Gross Radioactivity Monitors Not Providing Automatic Termination of Release				
a. Liquid Radwaste Effluent Line	1	~~At All Times~~	~~OCDM #~~	51
b. Service Water System Effluent Line	1	~~At All Times~~	~~OCDM #~~	52
2. Flow Rate Measurement Devices				
a. Liquid Radwaste Effluent Line	1	~~At All Times~~	~~NONE~~	53

See Comment #6

TABLE 3.3-11
(Cont'd)

TABLE NOTATION

ACTION 51 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirements, effluent releases may be resumed for up to 14 days, provided that prior to initiating a release:

1. At least two independent samples are analyzed in accordance with Specification 4.11.1.1.3, and;

2. At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge valving;

Otherwise, suspend release of radioactive effluents via this pathway.

ACTION 52 With the numbers of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 ~~14~~ days provided that at least oncer per 8 hours grab samples are collected and analyzed for gross radioactivity (beta or gamma) at a lower limit of detection of at least 10^{-7} μCi/ml.

ACTION 53 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 ~~14~~ days provided the flow rate is estimated at least once per 4 hours during the actual releases. Pump curves may be used to estimate flows.

TABLE 4.3-11

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION
1. Gross Beta or Gamma Radioactivity Monitors Providing Alarm But Not Providing Automatic Isolation				
a. Liquid Radwaste Effluent Line	D ~~+(2)~~	~~#~~ P	Q(~~3~~)	R(4) } IAW Comment #6.a
b. Turbine Condenser Cooling Water Line (see Comment 6.e)	D	M	Q(1)	R(4)
2. Flow Rate Measurement Devices				
a. Liquid Radwaste Effluent Line	D(3)	N.A.	Q	R

TABLE 4.3-11
(Cont'd)

TABLE NOTATION

(1) The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exist:

1. Instrument indicates measured levels above the alarm/trip setpoint.

2. Circuit failure.

3. Instrument indicates a downscale failure.

4. Instrument Controls not set in OPERATE mode.

~~(2) A CHANNEL CHECK of residual radioactivity shall be performed within one hour of beginning of release.~~

(3) CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once per 24 hours ~~daily~~ on ~~any~~ days on which continuous, periodic, or batch releases are made.

(4) The CHANNEL CALIBRATION shall include the use of a known liquid radioactive source positioned in a reproducible geometry with respect to the sensor and emitting beta and gamma radiation with the fluences and energies in the ranges measured by the channel during normal operation.

required by the above Specification, immediately suspend the release of radioactive gaseous effluents monitored by the affected channel or

INSTRUMENTATION

MONITORING

RADIOACTIVE GASEOUS EFFLUENT INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.9 The radioactive gaseous ~~process and~~ effluent monitoring instrumentation channels shown in Table 3.3-12 shall be OPERABLE with their alarm/trip setpoints ~~within the specified limits~~ set to ensure that the limits of Specification 3.11.2.1 are not exceeded. The alarm/trip setpoints of these channels shall be determined in accordance with the ODCM.

APPLICABILITY: As shown in Table 3.3-12.

ACTION:

a. With a radioactive gaseous ~~process or~~ effluent monitoring instrumentation channel alarm/trip setpoint less conservative than ~~the value shown in Table 3.3-12 which ensures that the limits of 3.11.2.1 are met,~~ declare the channel inoperable.

b. With less than the minimum number of ~~one or more~~ radioactive gaseous ~~process or~~ effluent monitoring instrumentation channels ~~inoperable~~ OPERABLE, take the ACTION required by Table 3.3-12.

c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

~~4.3.3.9.1 The setpoints shall be determined in accordance with procedures as described in the ODCM and shall be recorded in the calibration records.~~

4.3.3.9.2 Each radioactive gaseous ~~process or~~ effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL FUNCTIONAL TEST, and CHANNEL CALIBRATION operations ~~during the conditions and~~ at the frequencies shown in Table 4.3-12.

~~4.3.3.9.3 Auditable records shall be maintained of the calculations made in accordance with procedures in the ODCM, of all radioactive process and effluent monitoring instrumentation alarm/trip setpoints. Setpoints and setpoint calculations shall be available for review to ensure that the limits required by Specification 3.11.2.1 are met.~~

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TABLE 3.3-12

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE CONDITIONS	~~ALARM/TRIP SETPOINT~~	ACTION
1. Main Condenser Offgas System Monitoring System (10-Minute Holdup Tank Effluent)				
a. Noble Gas Activity Monitor	1	***	~~ODCM #~~	58
See Comment 7.c b. System Flow Rate Measuring Device	1	*	~~NONE~~	54
2. Offgas Treatment System Explosive Gas Monitoring System				
a. Hydrogen Monitor	~~1~~ 2	**	~~< 4% Hydrogen By Volume~~	56
3. Reactor Containment Building Ventilation Monitor System				
a. Gaseous Activity Monitor	1	*	~~ODCM #~~	55
See Comment 7.c b. Particulate Activity Monitor	1	*	~~ODCM #~~	55
c. Sampler Flow Rate Measurement Device	1	*	~~ODCM #~~	54

TABLE 3.3-12 - (Cont'd)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABLE CONDITIONS	~~ALARM/TRIP SETPOINT~~	ACTION
4. Offgas Storage Vault Discharge Monitor (After Treatment System)				
a. Noble Gas Activity Monitor	1	*	~~ODCM #~~	~~55~~ 59
b. System Flow Rate Measuring Device	1	*	~~NONE~~	54
5. Stack Monitoring System				
a. Gaseous Activity Monitor	1	*	~~ODCM #~~	~~56~~ 59
b. Particulate Activity Monitor (see Comment 7.c)	1	*	~~ODCM #~~	55
c. Iodine Sampler ~~Cartridge~~	1	*	~~NONE, Verify Presence of Cartridge and System Operation~~	57
d. Particulate Sampler ~~Filter~~	1	*	~~NONE, Verify Presence of Filter and System Operation~~	57
e. Sampler Flow Rate Measuring Device	1	*	~~ODCM #~~	54

TABLE 3.3-12
(Cont'd)

TABLE NOTATION

~~*During releases via this pathway.~~ At all times.

**During offgas treatment system operation.

*** During operation of the main condenser air ejector.

ACTION 58 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, gases from the main condenser offgas system may be released to the environment provided:

1. The offgas delay system is not bypassed; and
2. The offgas ~~delay system~~ storage vault discharge noble gas activity monitor is OPERABLE;

Otherwise, be in at least HOT STANDBY within ~~72~~ 12 hours.

ACTION 54 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to ~~28~~ 30 days provided the flow rate is estimated at least once per 4 hours.

ACTION 55 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, ~~effluent releases via this pathway may continue for up to 28 days provided grab samples are taken at least once per 8 hours and these samples are analyzed for gross activity within 24 hours.~~

ACTION 56 With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, operation of the offgas treatment system may continue for up to ~~28~~ 14 days. ~~provided recombiner temperatures are monitored hourly and indicate recombination is satisfactory.~~

ACTION 57 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to ~~28~~ 30 days, provided samples are continuously collected with auxiliary sampling equipment ~~for periods on the order of seven (7) days and analyzed within 48 hours after the end of the sampling period.~~

ACTION 59 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided grab samples are taken at least once per 8 hours and these samples are analyzed for gross activity within 24 hours.

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for up to 72 hours

Suspend release of radioactive effluents via this pathway.

as required in Table 4.11-2.

two channels inoperable, be in at least HOT STANDBY within 6 hours.

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TABLE 4.3-12

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	SURVEILLANCE REQUIREMENT CONDITIONS
1. Main Condenser Offgas System Monitoring System (10-Minute Holdup Tank Effluent)					
a. Noble Gas Activity Monitor	D	M	Q(1)	R(3)	***
See Comment 7.c — b. System Flow Rate Measuring Device	D	N.A.	Q(7)	R	*
2. Offgas Treatment System Explosive Gas Monitoring System					
a. Hydrogen Monitor	D	N.A.	M	Q(4)	**
3. Reactor Containment Building Ventilation Monitoring System					
a. Gaseous Activity Monitor	D	M	Q(1)	R(3) or (5)	*
See Comment 7.c — b. Particulate Activity Monitor	D	M	Q(1)	R(5)	*
c. Sampler Flow Rate Measuring Device	D	N.A.	Q(7)	R	*

TABLE 4.3-12 - (Cont'd)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	SURVEILLANCE REQUIREMENT CONDITIONS
4. Offgas Storage Vault Discharge Monitor (After Treatment System)					
a. Noble Gas Activity Monitor	D	M	~~Q(1)~~ Q(1)	R(3)	*
b. System Flow Rate Measuring Device	D	N.A.	~~N.A.~~ Q	R	*
5. Stack Monitoring System					
a. Gaseous Activity Monitor	D	M	Q(2)	R(3) or (5)	*
b. Particulate Activity Monitor (see Comment 7.c)	D	M	Q(2)	R(5)	*
c. Iodine Sampler ~~Cartridge~~	D	N.A.	N.A.	N.A.	*
d. Particulate Sampler ~~Filter~~	D	N.A.	N.A.	N.A.	*
e. Sampler Flow Rate Measuring Device	D	N.A.	Q(7)	R	*

TABLE 4.3-12
(Cont'd)

TABLE NOTATION

*~~During releases via this pathway.~~ At all times.

**During offgas treatment system ~~recombiner~~ operation.

*** During operation of the main condenser air ejector.

(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:

1. Instrument indicates measured levels above the alarm/trip setpoint.

2. Circuit failure (provides control room annunciation alarm only).

3. Instrument indicates a downscale failure (provides control room annunciation alarm only).

4. Instrument controls not set in operate mode.

(2) The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exist:

1. Instrument indicates measured levels above the alarm/trip setpoint.

2. Circuit failure.

3. Instrument indicates a downscale failure.

4. Instrument controls not set in operate mode.

(3) The CHANNEL CALIBRATION for radioactivity measurement instrumentation shall be performed by analyzing the gaseous radioactive stream for specific activity.

(4) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

1. One volume percent hydrogen, balance nitrogen; and

2. Four volume percent hydrogen, balance nitrogen.

TABLE 4.3-12
(Cont'd)

TABLE NOTATION

(5) The CHANNEL CALIBRATION shall include the use of a known radioactive source positioned in a reproducible geometry with respect to the sensor and emitting beta and gamma radiation with the fluences and energies in the ranges measured by the channel during normal operation.

(6) The CHANNEL FUNCTIONAL TEST shall demonstrate that the control room local alarm occurs if the instrument indicates measured levels above the alarm/trip setpoint.

(7) The CHANNEL FUNCTION TEST shall demonstrate that the control room local alarm occurs if the flow instrument indicates measured leve's below the minimum and/or above the maximum alarm/trip setpoint.

The radioactivity concentration of liquids discharged from continuous release points shall be determined by collection and analysis of samples in accordance with Table 4.11-1. The results of the analyses shall be used with the calculational methods in the ODCM to assure that the concentrations at the point of release are maintained within the limits of Specification 3.11.1.1.

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~~ (see 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 x 10^{-4} µCi/ml total activity.

APPLICABILITY: At all times.

ACTION:

With the concentration or radioactive material released from the site ~~to unrestricted areas~~ exceeding the above limits, immediately restore concentration to within the above limits. ~~and provide prompt notification to the Commission pursuant to Specification 6.9.1.12.~~

SURVEILLANCE REQUIREMENTS

4.11.1.1.1 ~~The concentration of radioactive material at any time in liquid effluents released from the site shall be continuously monitored in accordance with Table 3.3-11.~~

4.11.1.1.2 The radioactivity content of each batch of radioactive liquid waste to be discharged shall be determined prior to release by sampling and analysis in accordance with Table 4.11-1. The results of pre-release analyses shall be used with the calculational methods in the ODCM to assure that the concentration at the point of release is ~~limited to the values in~~ Specification 3.11.1.1.

4.11.1.1.3 Post-release analyses of composited samples from batch releases shall be performed in accordance with Table 4.11-1. The results of the previous post-release analyses shall be used with the calculational methods in the ODCM to assure that the concentrations at the point of release ~~are limited to the values in~~ Specification 3.11.1.1.

~~4.11.1.1.4 Reports. The semiannual Radioactive Effluent Release Report shall include the information specified in Specification 6.9.1.9.~~

→ maintained within the limits of

→ were maintained within the limits of

TABLE 4.11-1

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

Liquid Release Type	Sampling Frequency	Minimum Analysis Frequency	Type of Activity Analysis	Lower Limit of Detection (LLD) (uCi/ml)[a]
A. Batch Waste Release Tanks[d]	P Each Batch	P Each Batch	Principal Gamma Emitters[e]	5×10^{-7}
			I-131	1×10^{-6}
	P One Batch/M	M	Dissolved and Entrained Gases	1×10^{-5}
	P Each Batch	M Composite[c]	H-3	1×10^{-5}
			Gross a	1×10^{-7}
			P-32	1×10^{-6}
	P Each Batch	Q Composite[c]	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}

TABLE 4.11-1
(Cont'd)

TABLE NOTATION

a. The lower limit of detection (LLD) is defined in Table Notation a. of Table 4.12-1 of Specification 4.12.1.1.

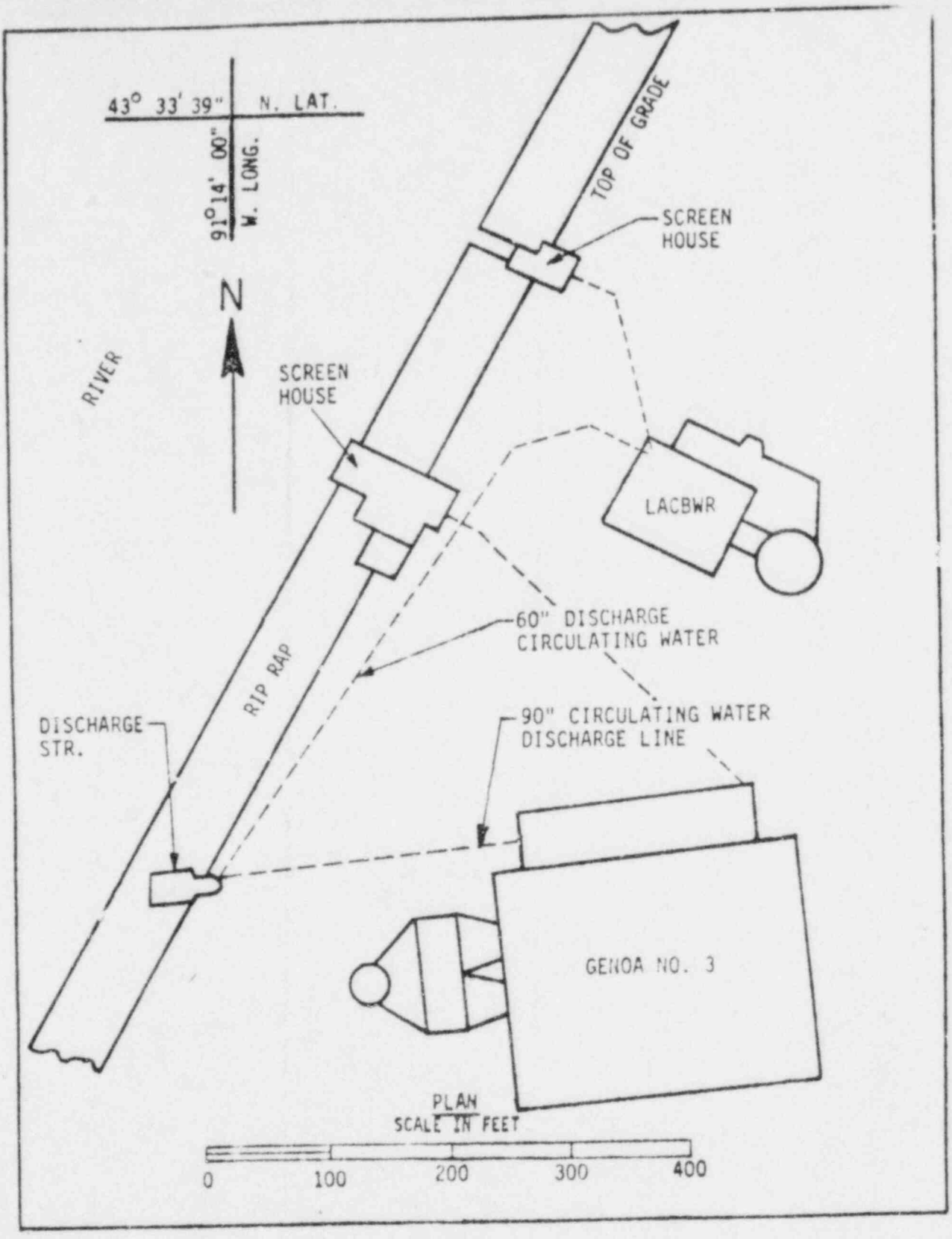
~~b. For certain radionuclides with low gamma yield or low energies, or for certain radionuclide mixtures, it may not be possible to measure radionuclides in concentrations near the LLD. Under these circumstances, the LLD may be increased inversely proportionally to the magnitude of the gamma yield (i.e., $5 \times 10^{-7}/I$, where I is the photon abundance expressed as a decimal fraction), but in no case shall the LLD, as calculated in this manner for a specific radionuclide, be greater than 10% of the MPC 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 which is representative of the liquid released.

Prior to analyses, all samples taken for the composite shall be thoroughly mixed in order for the composite sample to be representative of the effluent release.

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 LLD 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 peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported. ~~Nuclides which are below the LLD for the analyses should not be reported as being present at the LLD level. When unusual circumstances result in LLD's higher than required, the reasons shall be documented in the semiannual Radioactive Effluent Release Report.~~


43° 33' 39" N. LAT.
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N
RIVER
TOP OF GRADE
SCREEN HOUSE
SCREEN HOUSE
LACBWR
60" DISCHARGE CIRCULATING WATER
RIP RAP
DISCHARGE STR.
90" CIRCULATING WATER DISCHARGE LINE
GENOA NO. 3
PLAN
SCALE IN FEET
0
100
200
300
400

Figure 3.11-1

RADIOACTIVE EFFLUENTS

DOSE

LIMITING CONDITION FOR OPERATION

3.11.1.2 The dose or dose commitment to an individual from radioactive materials in liquid effluents released from the site ~~to unrestricted areas~~ (see Figure 3.11-1) shall be limited:

a. During any calendar quarter to ≤ 1.5 mrem to the total body and to ≤ 5 mrem to any organ, and

b. During any calendar year to ≤ 3 mrem to the total body and 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 6.9.2, a Special 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 ~~average~~ cumulative dose or dose commitment to an individual from such releases during these four calendar quarters is within 3 mrem to the total body and 10 mrem to any organ.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.1.2.1 Dose Calculations. Cumulative dose contributions from liquid effluents shall be determined in accordance with the Offsite Dose Calculation Manual (ODCM) at least once per 31 days.

~~4.11.1.2.2 Reports. The semiannual Radioactive Effluent Release Report shall include the information specified in Specification 6.9.1.9.~~

in lieu of any other report required by Specification 6.9.1,

RADIOACTIVE EFFLUENTS

LIQUID WASTE TREATMENT

LIMITING CONDITION FOR OPERATION

3.11.1.3 The liquid radwaste treatment system shall be OPERABLE. The system shall be used to reduce the radioactive materials in liquid wastes prior to their discharge when the projected dose due to liquid effluent releases from the site ~~to unrestricted areas~~ (see Figure 3.11-1) when averaged over 31 days would exceed ~~0.30~~ 0.06 mrem to the total body or ~~1.0~~ 0.2 mrem to any organ.

APPLICABILITY: At all times.

ACTION:

a. With the liquid radwaste system inoperable for more than 31 days or in lieu of any other report required by Specification 6.9.1, with radioactive liquid waste being discharged without treatment and in excess of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which includes the following information:

   1. Identification of the inoperable equipment or subsystems ~~not OPERABLE~~ and the reason for ~~nonoperability.~~ inoperability.

   2. Action(s) taken to restore the inoperable ~~nonoperable~~ equipment to OPERABLE status, and

   3. Summary description of action(s) taken to prevent a recurrence.

b. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.1.3.1 Doses due to liquid releases ~~to unrestricted areas~~ shall be projected at least once per 31 days, in accordance with the ODCM.

4.11.1.3.2 The liquid radwaste system shall be demonstrated OPERABLE at least once per 92 days unless the liquid radwaste system has been utilized to process radioactive liquid effluents during the previous 92 days.

by operating the liquid radwaste treatment system equipment for at least ____ minutes.

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 (see Figure 5.1-1~~ due to radioactive materials released in gaseous effluents from the site shall be limited to the following ~~values~~: (see Figure 5.1-1)

a. The dose rate limit for noble gases shall be ≤ 500 mrem/yr to the total body and ≤ 3000 mrem/year to the skin, and

b. The dose rate limit for all radioiodines and for all radioactive materials in particulate form and radionuclides (other than noble gases) with half lives greater than 8 days, shall be ≤ 1500 mrem/year to any organ.

APPLICABILITY: At all times.

ACTION:

With the dose rate(s) exceeding the above limits (within the above limit(s)), immediately decrease the release rate to ~~comply with the limit(s) given in 3.11.2.1 and provide prompt notification to the Commission pursuant to Specification 6.9.1.12~~.

SURVEILLANCE REQUIREMENTS

~~4.11.2.1.1 The release rate at any time of noble gases in gaseous effluents shall be controlled by the offsite dose rate as established above in Specification 3.11.2.1.~~

~~4.11.2.1.2 The noble gas effluent continuous monitors having provisions for the automatic termination of gaseous releases, as listed in Table 3.3-12, shall be used to limit offsite doses within the values established in Specification 3.11.2.1 when monitor setpoint values are exceeded.~~

4.11.2.1.3 ~~The release rate of radioactive materials, other than noble gases, in gaseous effluents shall be determined by obtaining representative samples and performing analyses in accordance with the sampling and analysis program, specified in Table 4.11-2~~.

4.11.2.1.4 ~~The dose rate in unrestricted areas, due to radioactive materials, other than noble gases, released in gaseous effluents, shall be determined to be within the~~ above ~~limits by using the results of the sampling and analysis program, specified in Table 4.11-2, in performing the calculations of dose rate in unrestricted areas.~~

~~4.11.2.1.5 Reports The semiannual Radioactive Effluent Release Report shall include the information specified in Specification 6.9.1.9.~~

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 of the ODCM by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in Table 4.11-2.

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 of the ODCM.

TABLE 4.11-2

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

Gaseous Release Type	Sampling Frequency	Minimum Analysis Frequency	Type of Activity Analysis	Lower Limit of Detection (LLD) (uCi/cc)[a]
A. Containment Purge ~~Main Condenser Off-Gas System 10 Minute Holdup Tank Effluent~~	~~Hour~~ P Grab Sample Each Purge[e]	P Each ~~Sample~~ Purge[e]	Principal Gamma Emitters[h]	1 x 10-4b
			H-3	1×10^{-6}
B. Off-Gas Storage Vault Discharge	M~~onthly~~ Grab Sample	Each Sample	Principal Gamma Emitters[h]	1 x 10-4b
C. Stack Effluents	Continuous[g]	W~~eekly~~ Charcoal Sample	I-131	1 x 10-12
			I-133	1 x 10-10
	Continuous[g]	W~~eekly~~ Particulate Sample	Principal Gamma Emitters[h] (I-131, Others)	1 x 10-11
	Continuous[g]	M Composite Particulate Sample	Gross Alpha	1 x 10-11
	Continuous[g]	Q Composite Particulate Sample	Sr-89, Sr-90	1 x 10-11
	~~Hourly~~ Continuous	~~Once per Each Sample~~ Monitor	~~H-3~~ Noble Gases Gross Beta and Gamma	~~1 x 10-11~~ 1×10^{-6}
D. Stack Effluents	M[e,f] Grab Sample	M[e]	Principle Gamma Emitters	1×10^{-4}
			H-3	1×10^{-6}

TABLE 4.11-2
(Cont'd)

TABLE NOTATION

a. The lower limit of detection (LLD) is defined in Table Notation a. of Table 4.12-1 of Specification 4.12.1.1.

~~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 LLD. Under these circumstances, the LLD may be increased inversely proprotionally to the magnitude of the gamma yield (i.e., 1 x 10^-4/I, where I is the photon abundance expressed as a decimal fraction), but in no case shall the LLD, as calculated in this manner for a specific radionuclide, be greater than 10% of the MPC value specified in 10 CFR 20, Appendix B, Table II, Column 1.~~

c. ~~Analyses shall also be performed following shutdown, startup, or similar operational occurrence which could significantly alter the mixture or concentration of radionuclides.~~

~~d. During releases via this pathway.~~

e. Analyses shall also be performed ~~at least once within 48 hours~~ following ~~each~~ shutdown, startup, or ~~similar operational occurrence which could lead to significant increases or decreases in radioiodine releases. When samples collected for 24 hours are analyzed, the corresponding LLD's may be increased by a factor of 10.~~

~~f. (Deleted).~~ f. Tritium grab samples shall be taken at least once per 7 days from the ventilation exhaust from the spent fuel pool area whenever spent fuel is in the spent fuel pool.

g. The ratio of the sample flow rate to the sampled stream flow rate 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.

h. The principal gamma emitters for which the LLD 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 peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported. ~~Nuclides which are below the LLD for the analyses should not be reported as being present at the LLD level for that nuclide. When unusual circumstances result in LLD's higher than required, the reasons shall be documented in the semi-annual effluent report.~~

Samples shall be changed at least once per 7 days and analyses shall be completed within 48 hours after changing (or after removal from sampler). Sampling and analyses shall also be performed at least once per 24 hours for at least 7 days following each shutdown, startup or THERMAL POWER change exceeding 15 percent of RATED THERMAL POWER in one hour. When samples collected for 24 hours are analyzed, the corresponding LLD's may be increased by a factor of 10.

A THERMAL POWER change exceeding 15 percent of the RATED THERMAL POWER within a one hour period.

RADIOACTIVE EFFLUENTS

DOSE, NOBLE GASES

LIMITING CONDITION FOR OPERATION

3.11.2.2 The air dose ~~in unrestricted areas (see Figure 5.1-1)~~ due to noble gases released in gaseous effluents from the site (see Figure 5.1-1) shall be limited to the following:

a. During any calendar quarter, to ≤ 5 mrad for gamma radiation and ≤ 10 mrad for beta radiation;

b. During any calendar year, to ≤ 10 mrad for gamma radiation and ≤ 20 mrad for beta radiation;

~~(The dose design objectives shall also be reduced based on expected public occupancy of areas, e.g., beaches and visitor centers within the unrestricted area boundary.~~

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 within 30 days, pursuant to Specification 6.9.2, a Special 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 noble gases in gaseous effluents during the remainder of the current calendar quarter and during the subsequent three calendar quarters so that the ~~average~~ cumulative dose during these four calendar quarters is within (10) mrad for gamma radiation and (20) mrad for beta radiation. (in lieu of any other report required by Specification 6.9.1,)

b. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.2.1 Dose Calculations Cumulative dose contributions for the ~~total time period~~ current calendar quarter and current calendar year shall be determined in accordance with the Offsite Dose Calculation Manual (ODCM) at least once every 31 days.

~~4.11.2.2.2 Reports The semiannual Radioactive Effluent Release Report shall include the information specified in Specification 6.9.1.9.~~

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 an individual from radioiodines, radioactive materials in particulate form, and radionuclides (other than noble gases) with half-lives greater than 8 days, in gaseous effluents released ~~to~~ from the site ~~unrestricted areas~~ (see Figure 5.1-1) shall be limited to the following:

a. During any calendar quarter to ≤ 7.5 mrem;

b. During any calendar year to ≤ 15 mrem;

(The dose design objective shall be reduced based on predicted carbon-14 releases if effluent sampling is not provided.)

APPLICABILITY: At all times.

ACTION:

a. With the calculated dose from the release of radioiodines, radioactive materials in particulate form, or radionuclides (other than noble gases) with half lives greater than 8 days, in gaseous effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which identifies the cause(s) for exceeding the limit and defines the corrective actions to be taken to reduce the releases of radioiodines, radioactive materials in particulate form, and radionuclides (other than noble gases) with half-lives greater than 8 days, in gaseous effluents during the remainder of the current calendar quarter and during the subsequent three calendar quarters so that the cumulative ~~average~~ dose or dose commitment to an individual from such releases during these four calendar quarters is within (15) mrem to any organ.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

→ in lieu of any other report required by Specification 6.9.1.

SURVEILLANCE REQUIREMENTS

4.11.2.3.1 Dose Calculations Cumulative dose contributions for the current calendar quarter and current calendar year ~~total time per~~ shall be determined in accordance with the ODCM at least once every 31 days.

~~4.11.2.3.2 Reports The semiannual Radioactive Effluent Release Report shall include the information specified in Specification 6.9.1.9.~~

RADIOACTIVE EFFLUENTS

GASEOUS RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION

3.11.2.4 The gaseous radwaste treatment system shall be in operation. ~~OPERABLE. The gaseous radwaste treatment system shall be used to reduce radioactive materials in gaseous wastes prior to their discharge when the projected gaseous effluent air doses due to gaseous effluent releases to unrestricted areas (see Figure 5.1-1) when averaged over 31 days would exceed 0.2 mrad for gamma radiation and 0.4 mrad for beta radiation.~~

APPLICABILITY: ~~At all times~~ Whenever the main condenser air ejector system is in operation.

ACTION:

a. With the GASEOUS RADWASTE TREATMENT SYSTEM inoperable for more than 7 days, in lieu of any other report required by Specification 6.9.1, ~~With gaseous wastes being discharged for more than 31 days without treatment and in excess of the above limits,~~ prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which includes the following information:

1. Identification of the inoperable equipment or subsystems ~~not OPERABLE~~ and the reason for nonoperability.

2. Action(s) taken to restore the inoperable ~~non-operable~~ equipment to OPERABLE STATUS.

3. Summary description of action(s) taken to prevent a recurrence.

b. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

~~4.11.2.4.1 Doses due to gaseous releases to unrestricted areas shall be projected at least once per 31 days.~~

4.11.2.4.2 The gas radwaste treatment systems shall be demonstrated OPERABLE at least once per 92 days unless the ~~appropriate~~ system has been utilized to process radioactive gaseous effluents during the previous 92 days.

by operating the GASEOUS RADWASTE TREATMENT SYSTEM equipment for at least ____ minutes,

RADIOACTIVE EFFLUENTS

TOTAL DOSE

LIMITING CONDITION FOR OPERATION

3.11.2.5 The dose or dose commitment to ~~a real individual from all~~ any member of the public, due to releases of radioactivity and radiation, from uranium fuel cycle sources ~~to~~ shall be limited to ≤ 25 mrem to the total body or any organ (except the thyroid, which is limited to ≤ 75 mrem) over a period of 12 consecutive months.

APPLICABILITY: At all times.

ACTION:

a. With the calculated dose from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of Specifications 3.11.1.2.a, 3.11.1.2.b, 3.11.2.2.a, 3.11.2.2.b, 3.11.2.3.a, or 3.11.2.3.b, prepare and submit a Special Report to the ~~Commission pursuant to Specification 6.9.2 and limit the subsequent releases such that the dose or dose commitment to a real individual from all uranium fuel cycle sources is limited to ≤ 25 mrem to the total body or any organ (except thyroid, which is limited to ≤ 75 mrem) over 12 consecutive months.~~ This Special Report shall include an analysis which ~~demonstrates that~~ radiation exposures to ~~all real individuals~~ from ~~all~~ uranium fuel cycle sources (including all effluent pathways and direct radiation) ~~are less than the 40 CFR Part 190 Standard. Otherwise, obtain a variance from the Commission to permit releases which exceeds the 40 CFR Part 190 Standard.~~

b. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

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.a, 3.11.1.2.b, 3.11.2.2.a, 3.11.2.2.b, 3.11.2.3.a, and 3.11.2.3.b,~~ and in accordance with the Offsite Dose Calculation Manual (ODCM).

~~4.11.2.5.2 Reports Special Reports shall be submitted as required under Specification 3.11.2.5.a.~~

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 3.11.4, and if the release 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 and including the specified information of § 190.11(b). 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.

Director, Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, within 30 days, 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.

a member of the public

in lieu of any other report required by Specification 6.9.1,

estimates the

4.11.1.2.1, 4.11.2.2.1, & 4.11.2.3.1,

RADIOACTIVE EFFLUENTS

EXPLOSIVE GAS MIXTURE

LIMITING CONDITION FOR OPERATION

3.11.2.6 The concentration of hydrogen in the main condenser offgas treatment system shall be limited to $\leq \frac{V}{2}$% by volume, ~~after recombination.~~

APPLICABILITY: At all times.

ACTION:

a. ~~With the concentration of hydrogen in the main condenser offgas treatment system exceeding the limit, restore the concentration to within the limit with 48 hours.~~

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.6 The concentration of hydrogen in the main condenser offgas treatment system shall be determined to be within the above limits by continuously monitoring the waste gases in the main condenser offgas treatment system with the hydrogen monitors required OPERABLE by Table 3.3-12 of Specification 3.3.3.9.

a. With the concentration of hydrogen ~~and/or oxygen~~ in the main condenser offgas treatment system greater than 2% by volume but less than or equal to 4% by volume, restore the concentration of hydrogen ~~and/or oxygen~~ to within the limit within 48 hours.

b. With the concentration of hydrogen ~~and/or oxygen~~ in the main condenser offgas treatment system greater than 4% by volume, immediately suspend all additions of waste gases to the system and reduce the concentration of hydrogen ~~and/or oxygen~~ to less than or equal to 2% within 48 hours.

RADIOACTIVE EFFLUENTS

3/4.11.3 SOLID RADIOACTIVE WASTE

LIMITING CONDITION FOR OPERATION

3.11.3.1 The solid radwaste system shall be OPERABLE and used, as applicable in accordance with a PROCESS CONTROL PROGRAM, to provide for the packaging of ~~other~~ radioactive wastes, ~~and~~ 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 packaging requirements of 10 CFR Part 20 and/or 10 CFR Part 71 not satisfied, suspend shipments of ~~defective containers of~~ solid radioactive wastes defectively packaged from the site.

b. With the solid radwaste system inoperable ~~not OPERABLE for more than 31 days, when required to meet 10 CFR Part 20 and 10 CFR Part 71~~, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which includes the following information:

1. Identification of the inoperable equipment ~~or~~ or subsystems ~~not OPERABLE~~ and the reasons for inoperability.

2. Action(s) taken to restore the inoperable equipment to OPERABLE status.

3. A description of the alternative used for SOLIDIFICATION and packaging of radioactive wastes.

4. Summary description of action(s) taken to prevent a recurrence.

c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.3.1.1 The solid radwaste system shall be demonstrated OPERABLE at least once per 92 days by ~~or there be the capability for packaging of waste by meeting one or more of the conditions below:~~

~~a. By performance of functional tests of the equipment and components of the solid radwaste system.~~

a~~b~~. ~~By~~ operating the solid radwaste system at least once in the previous 92 days in accordance with the PROCESS CONTROL PROGRAM, or

b~~c~~ Verification of the existence of a valid contract for ~~packaging~~ SOLIDIFICATION to be performed by a contractor in accordance with a PROCESS CONTROL PROGRAM.

in lieu of any other report required by Specification 6.9.1, SOLIDIFICATION and

4.11.3.1.2 ~~Reports - The semiannual Radioactive Effluent 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 (determined by measurement or estimate),~~

~~c. principal gamma radionuclides (determined by measurement or estimate),~~

~~d. type of waste (e.g., spent resin, compressed dry waste, evaporator bottoms), and~~

~~e. type of container (e.g., LSA, Type A, Type B, Large Quantity).~~

THE PROCESS CONTROL PROGRAM shall be used to verify the SOLIDIFICATION of at least one representative test specimen from at least every tenth batch of each type of wet radioactive waste (e.g., filter sludges, spent resins, evaporator bottoms, boric acid solutions, and sodium sulfate solutions).

a. If any test specimen fails to verify SOLIDIFICATION, the SOLIDIFICATION of the batch under test shall be suspended until such time as additional test specimens can be obtained, alternative SOLIDIFICATION parameters can be determined in accordance with the PROCESS CONTROL PROGRAM, and a subsequent test verifies SOLIDIFICATION. SOLIDIFICATION of the batch may then be resumed using the alternative SOLIDIFICATION parameters determined by the PROCESS CONTROL PROGRAM.

b. If the initial test specimen from a batch of waste fails to verify SOLIDIFICATION, the PROCESS CONTROL PROGRAM shall provide for the collection and testing of representative test specimens from each consecutive batch of the same type of wet waste until at least 3 consecutive initial test specimens demonstrate SOLIDIFICATION. The PROCESS CONTROL PROGRAM shall be modified as required, as provided in Specification 6.13, to assure SOLIDIFICATION of subsequent batches of waste.

3/4.3.3.8 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 ~~NRC approved methods~~ the procedures in the 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.

3/4.3.3.9 RADIOACTIVE GASEOUS ~~PROCESS 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 ~~NRC approved methods~~ the procedures 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.

3/4.11 RADIOACTIVE EFFLUENTS

BASES

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 (1) the Section II.A design objectives of Appendix I, 10 CFR Part 50, to an individual and (2) 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 MPC 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 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 ~~II.A~~ of Appendix I to assure that the releases of radioactive material in liquid effluents will be kept "as low as is reasonably achievable." Also, for fresh water sites with drinking water supplies which can be potentially affected by plant operations, there is reasonable assurance that the operation of the facility will not result in radionuclide concentrations in the finished drinking water that are in excess of the requirements of 40 CFR 141. The dose calculations in the ODCM implement the requirements in Section III.A of Appendix I 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 are consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine with 10 CFR Part 50, Appendix I," Revision 1, October 1977 and Regulatory Guide 1.113, "Estimating Aquatic Dispersion of Effluents from Accidental and Routine Reactor Releases for the Purpose of Implementing Appendix I," April 1977. ~~NUREG-0133 provides methods for dose calculations consistent with Regulatory Guides 1.109 and 1.113~~.

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 the 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 "as low as is reasonably achievable." This specification implements the requirements of 10 CFR Part 50.36a, 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.

3/4.11.2 GASEOUS EFFLUENTS

3/4.11.2.1 DOSE RATE

This specification is provided to ensure that the dose rate at any time at the site ~~exclusion area~~ boundary from gaseous effluents from all units on the site 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 10 CFR Part 20, Appendix B, Table II, Column 1. 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 site ~~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 site ~~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~~ site 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 site ~~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.

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 Limiting Condition for Operation 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 to assure that the releases of radioactive material in gaseous effluents will be kept "as low as is reasonably achievable." The Surveillance Requirements implement the requirements in Section III.A of Appendix I 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 ODCM for calculating the doses due to the actual release rates of radioactive noble gases in gaseous effluents ~~will be~~ are 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 Atmospheric 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~~ site boundary ~~will be~~ are 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 Limiting Conditions for Operation are 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 to assure that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonably achievable." The ODCM calculational methods specified in the surveillance requirements implement the requirements in Section III.A of Appendix I 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 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 and 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 material in particulate form and radionuclides other than noble gases are dependent on the existing radionuclide pathways to man, in the unrestricted area. The pathways which are examined in the development of these calculations are: (1) individual inhalation of airborne radionuclides, (2) deposition of radionuclides onto green leafy vegetation with subsequent consumption by man, (3) deposition onto grassy areas where milk animals and mean producing animals graze with consumption of the milk and meat by man, and (4) 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 ensures that the system will be available for use whenever gaseous effluents require treatment prior to release to the environment. The requirement that the appropriate portions of the system be used when specified provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonably achievable." This specification implements the requirements of 10 CFR Part 50.36a, 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.

dose design objectives

TOTAL

3/4.11.2.5 DOSE

SEE NEXT PAGE

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

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 concentrations from reaching these flammability limits. These automatic control features include containment of the hydrogen and automatic diversion to recombiners. Maintaining the concentration of hydrogen below the 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.

3/4.11.3 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 being shipped offsite. This specification implements the requirements of 10 CFR Part 50.36a 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 principle chemical constituents, mixing and curing times.

3/4.11.5 TOTAL DOSE

This specification is provided to meet the dose limitations of 40 CFR 190. The specification requires the preparation and submittal of a Special Report whenever the calculated doses from plant radioactive effluents exceed twice the design objective doses of Appendix I. For sites containing up to 4 reactors, it is highly unlikely that the resultant dose to a member of the public will exceed the dose limits of 40 CFR 190 if the individual reactors remain within the reporting requirement level. The Special Report will describe a course of action which should result in the limitation of dose to a member of the public for 12 consecutive months to within the 40 CFR 190 limits. For the purposes of the Special Report, it may be assumed that the dose commitment to the member of the public from other uranium fuel cycle sources is negligible, with the exception that dose contributions from other nuclear fuel cycle facilities at the same site or within a radius of 5 miles must be considered. If the dose to any member of the public is estimated to exceed the requirements of 40 CFR 190, the Special Report with a request for a variance (provided the release conditions resulting in violation of 40 CFR 190 have not already been corrected), in accordance with the provisions of 40 CFR 190.11, is considered to be a timely request and fulfills the requirements of 40 CFR 190 until NRC staff action is completed. An individual is not considered a member of the public during any period in which he/she is engaged in carring out any operation which is part of the nuclear fuel cycle.

3/4.0 APPLICABILITY

LIMITING CONDITION FOR OPERATION

3.0.1 Compliance with the Limiting Conditions for Operation contained in the succeeding Specifications is required during the OPERATIONAL CONDITIONS or other conditions specified therein; except that upon failure to meet the Limiting Conditions for Operation, the associated ACTION requirements shall be met.

3.0.2 Noncompliance with a Specification shall exist when the requirements of the Limiting Condition for Operation and associated ACTION requirements are not met within the specified time intervals. If the Limiting Condition for Operation is restored prior to expiration of the specified time intervals, completion of the ACTION requirements is not required.

3.0.3 When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, the unit shall be placed in a CONDITION in which the Specification does not apply by placing it, as applicable, in:

1. At least HOT SHUTDOWN within 6 hours, and
2. At least COLD SHUTDOWN within the next 30 hours.

Where corrective measures are completed that permit operation under the ACTION requirements, the ACTION may be taken in accordance with the specified time limits as measured from the time of failure to meet the Limiting Condition for Operation. Exceptions to these requirements are stated in the individual Specifications.

3.0.4 Entry into an OPERATIONAL CONDITION or other specified condition shall not be made unless the conditions for the Limiting Condition for Operation are met without reliance on provisions contained in the ACTION requirements. This provision shall not prevent passage through OPERATIONAL CONDITIONS as required to comply with ACTION requirements. Exceptions to these requirements are stated in the individual Specifications.

3.0.5 When a system, subsystem, train, component or device is determined to be inoperable solely because its emergency power source is inoperable, or solely because its normal power source is inoperable, it may be considered OPERABLE for the purpose of satisfying the requirements of its applicable limiting condition for Operation provided: (1) its corresponding normal or emergency power source is OPERABLE; and (2) all of its redundant system(s), subsystem(s), train(s), component(s) and device(s) are OPERABLE, or likewise satisfy the requirements of this specification. Unless both conditions (1) and (2) are satisfied, the unit shall be placed in at least HOT SHUTDOWN within 6 hours, and in at least COLD SHUTDOWN within the following 30 hours. This specification is not applicable in OPERATIONAL CONDITION 4 or 5.

6.0 ADMINISTRATIVE CONTROLS

6.1 RESPONSIBILITY

6.1.1 The (Plant Superintendent) shall be responsible for overall unit operation and shall delegate in writing the succession to this responsibility during his absence.

6.1.2 The Shift Supervisor shall be responsible for the Control Room command function, and shall be the only individual that may direct the licensed activities of licensed operators. A management directive to this effect, signed by the (highest level of corporate management) shall be reissued to all station personnel on an annual basis.

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:

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 Reactor Operator other than the Shift Supervisor shall be in the control room when fuel is in the reactor.

c. At least two licensed Reactor Operators other than the Shift Supervisor shall be present in the control room during reactor start-up, scheduled reactor shutdown and during recovery from reactor trips.

d. A health physics technician* shall be onsite when fuel is in the 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 site Fire Brigade of at least 5 members shall be maintained onsite at all times*. The Fire Brigade shall not include (3) members of the minimum shift crew necessary for safe shutdown of the unit and any personnel required for other essential functions during a fire emergency.

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* The health physics technician and Fire Brigade composition may be less than the minimum requirements for a period of time not to exceed 2 hours in order to accommodate unexpected absence provided immediate action is taken to fill the required positions.

This figure shall show the organizational structure and lines of responsibility for the offsite groups that provide technical and management support for the unit. The organizational arrangement for performance and monitoring Quality Assurance activities should also be indicated.

Figure 6.2.1-1

OFFSITE ORGANIZATION

This figure shall show the organizational structure and lines of responsibility for the unit staff. Positions to be staffed by licensed personnel should be indicated.

Figure 6.2.2-1

UNIT ORGANIZATION

TABLE 6.2.2-1

MINIMUM SHIFT CREW COMPOSITION

SINGLE UNIT FACILITY (Optional)

POSITION	NUMBER OF INDIVIDUALS REQUIRED TO FILL POSITION	
	CONDITIONS 1, 2, & 3	CONDITIONS 4 & 5
SS	1	1
SRO	1	None
RO	2	1
AO	2	1
STA	1	None

TWO UNITS WITH TWO SEPARATE CONTROL ROOMS (Optional)

WITH UNIT (2) IN CONDITION 1, 2, OR 3		
POSITION	NUMBER OF INDIVIDUALS REQUIRED TO FILL POSITION	
	CONDITIONS 1, 2, & 3	CONDITIONS 4 & 5
SS	1[a]	1[a]
SRO	1	None
RO	2	1
AO	2	1
STA	1[a]	None

WITH UNIT (2) IN CONDITION 4 OR 5 OR DE-FUELED		
POSITION	NUMBER OF INDIVIDUALS REQUIRED TO FILL POSITION	
	CONDITIONS 1, 2, & 3	CONDITIONS 4 & 5
SS	1[a]	1[a]
SRO	1	None
RO	2	1[b]
AO	2	2
STA	1	None

TABLE 6.2.2-1 (Continued)

MINIMUM SHIFT CREW COMPOSITION

TWO UNITS WITH A COMMON CONTROL ROOM (Optional)

WITH UNIT (2) IN CONDITION 1, 2, OR 3		
POSITION	NUMBER OF INDIVIDUALS REQUIRED TO FILL POSITION	
	CONDITIONS 1, 2, & 3	CONDITIONS 4 & 5
SS	1[a]	1[a]
SRO	1[a]	None
RO	2[b]	1
AO	2[b]	1
STA	1[a]	None

WITH UNIT (2) IN CONDITION 4 OR 5 OR DE-FUELED		
POSITION	NUMBER OF INDIVIDUALS REQUIRED TO FILL POSITION	
	CONDITIONS 1, 2, & 3	CONDITIONS 4 & 5
SS	1[a]	1[a]
SRO	1	None
RO	2	1[b]
AO	2	2[b]
STA	1	None

TABLE 6.2.2-1 (Continued)

MINIMUM SHIFT CREW COMPOSITION

TABLE NOTATION

a/ Individual may fill the same position on Unit 2.

b/ One of the two required individuals may fill the same position on Unit 2.

SS - Shift Supervisor with a Senior Reactor Operators License on Unit (1).
SRO - Individual with a Senior Reactor Operators License on Unit (1).
RO - Individual with a Reactor Operators License on Unit (1).
AO - Auxiliary Operator
STA - Shift Technical Advisor

Except for the Shift Supervisor, the Shift Crew Composition may be one less than the minimum requirements of Table 6.2.2-1 for a period of time not to exceed 2 hours in order 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. This provision does not permit any shift crew position to be unmanned upon shift change due to an oncoming shift crewman being late or absent.

The Shift Supervisor shall maintain his normal work station in the Control Room. During any absence of the Shift Supervisor from the Control Room, an individual (other than the Shift Technical Advisor) with a valid SRO license shall be designated as the Shift Supervisor and shall assume the Control Room command function.

Licensed operators shall*:

1. Not work more than 12 hours straight,
2. Have at least a 12-hour break between work periods,
3. Not work more than 72 hours in any 7-day period, and
4. Not work more than 14 consecutive days without having 2 consecutive days off.

*Deviation from these requirements may be authorized by the (Plant Superintendent) in accordance with established procedures and with documentation of the cause.

6.2.3 (NUCLEAR EXPERIENCE REVIEW PANEL)

6.2.3.1 The (Nuclear Experience Review Panel) (NERP) shall be a multidiscipline review group and shall review nuclear industry operational experience.

6.2.3.2 The (NERP) shall inform the Shift Technical Advisor of all such experience that is relevant to operation of the unit.

6.2.4 SHIFT TECHNICAL ADVISOR

6.2.4.1 The Shift Technical Advisor shall serve in an advisory capacity to the Shift Supervisor on matters pertaining to the engineering aspects assuring safe operation of the unit.

6.2.4.2 Ths Shift Technical Advisor shall disseminate relevant operational experience identified by the (NERP).

6.3 UNIT STAFF QUALIFICATIONS

Minimum qualifications for members of the unit staff may be specified by use of an overall qualification statement referencing ANSI N18.1-1971 or alternately by specifying individual position qualifications. Generally, the first method is preferable; however, the second method is adaptable to those unit staffs requiring special qualification statements because of a unique organizational structure.

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 (1) the (Radiation Protection Manager) who shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975 and (2) 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 (position title), 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, shall include familiarization with relevant industry operational experience identified by the (NERP), and shall include degraded core training.

6.5 REVIEW AND AUDIT

The method by which independent review and audit of facility operations is accomplished may take one of several forms. The licensee may either assign this function to an organizational unit separate and independent from the group having responsibility for unit operation or may utilize a standing committee composed of individuals from within and outside the licensee's organization.

Irrespective of the method used, the licensee shall specify the details of each functional element provided for the independent review and audit process as illustrated in the following example specifications.

(*As an interim measure until January, 1981, the Shift Technical Advisor function may be performed by an SRO who augments the shift manning i.e. SRO's.)

6.5.1 UNIT REVIEW GROUP (URG)

FUNCTION

6.5.1.1 The (Unit Review Group) shall function to advise the (Plant Superintendent) on all matters related to nuclear safety.

COMPOSITION

6.5.1.2 The (Unit Review Group) shall be composed of the:

Chairman:	(Plant Superintendent)
Member:	(Operations Supervisor)
Member:	(Technical Supervisor)
Member:	(Maintenance Supervisor)
Member:	(Plant Instrument and Control Engineer)
Member:	(Plant Nuclear Engineer)
Member:	(Health Physicist)

ALTERNATES

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

MEETING FREQUENCY

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

QUORUM

6.5.1.5 The minimum quorum of the (URG) necessary for the performance of the (URG) responsibility and authority provisions of these Technical Specifications shall consist of the Chairman or his designated alternate and four members including alternates.

RESPONSIBILITIES

6.5.1.6 The (Unit Review Group) shall be responsible for:

a. Review of (1) all procedures required by Specification 6.8 and changes thereto, and (2) any other proposed procedures or changes thereto as determined by the (Plant Superintendent) 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.

RESPONSIBILITIES (Continued)

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 (Superintendent of Power Plants) and to the (Company Nuclear Review and Audit Group).

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 (Plant Superintendent) or the (Company Nuclear Review and Audit Group).

i. Review of the Security Plan and implementing procedures and shall submit recommended changes to the (Company Nuclear Review and Audit Group).

j. Review of the Emergency Plan and implementing procedures and shall submit recommended changes to the (Company Nuclear Review and Audit Group).

AUTHORITY

6.5.1.7 The (Unit Review Group) shall:

a. Recommend in writing to the (Plant Superintendent) approval or disapproval of items considered under 6.5.1.6(a) through (d) above.

b. Render determinations in writing with regard to whether or not each item considered under 6.5.1.6(a) through (e) above constitutes an unreviewed safety question.

c. Provide written notification within 24 hours to the (Superintendent of Power Plants) and the (Company Nuclear Review and Audit Group) of disagreement between the (URG) and the (Plant Superintendent); however, the (Plant Superintendent) shall have responsibility for resolution of such disagreements pursuant to 6.1.1 above.

RECORDS

6.5.1.8 The (Unit Review Group) shall maintain written minutes of each (URG) meeting that, at a minimum, document the results of all (URG) activities performed under the responsibility and authority provisions of these Technical Specifications. Copies shall be provided to the (Superintendent of Power Plants) and the (Company Nuclear Review and Audit Group).

6.5.2 COMPANY NUCLEAR REVIEW AND AUDIT GROUP (CNRAG)

FUNCTION

6.5.2.1 The (Company Nuclear Review and Audit Group) 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

i. (other appropriate fields associated with the unique characteristics of the nuclear power plant)

COMPOSITION

6.5.2.2 The (CNRAG) shall be composed of the:

Director:	(Position Title)
Member:	(Position Title)
Member:	(Position Title)
Member:	(Position Title)
Member:	(Position Title)

ALTERNATES

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

CONSULTANTS

6.5.2.4 Consultants shall be utilized as determined by the (CNRAG) Director to provide expert advice to the (CNRAG).

MEETING FREQUENCY

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

QUORUM

6.5.2.6 The minimum quorum of the (CNRAG) necessary for the performance of the (CNRAG) review and audit functions of these Technical Specifications shall consist of the Director or his designated alternate and (at least 4 CNRAG) members including alternates. No more than a minority of the quorum shall have line responsibility for operation of the unit.

REVIEW

6.5.2.7 The (CNRAG) shall review:

a. The safety evaluations for 1) changes to procedures, equipment or systems and 2) 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 which involve an unreviewed safety question as defined in Section 50.59, 10 CFR.

c. Proposed tests or experiments which involve an unreviewed safety question as defined in Section 50.59, 10 CFR.

d. Proposed changes to Appendix A Technical Specifications or this Operating License.

e. Violations of codes, regulations, orders, Technical Specifications, license requirements, or of 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. All 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 meetings minutes of the (Unit Review Group).

AUDITS

6.5.2.8 Audits of unit activities shall be performed under the cognizance of the (CNRAG). These audits shall encompass:

a. The conformance of unit operation to provisions contained within the Appendix A Technical Specifications and applicable license conditions at least once per 12 months.

b. The performance, training and qualifications of the entire unit staff at least once per 12 months.

c. The results of actions taken to correct deficiencies occurring in unit equipment, structures, systems or method of operation that affect nuclear safety at least once per 6 months.

d. The performance of activities required by the Operational Quality Assurance Program to meet the criteria of Appendix "B", 10 CFR 50, at least once per 24 months.

e. The Emergency Plan and implementing procedures at least once per 24 months.

f. The Security Plan and implementing procedures at least once per 24 months.

g. Any other area of unit operation considered appropriate by the (CNRAG) or the (Vice President Operations).

h. The Fire Protection Program and implementing procedures at least once per 24 months.

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.

AUTHORITY

6.5.2.9 The (CNRAG) shall report to and advise the (Vice President Operations) on those areas of responsibility specified in Sections 6.5.2.7 and 6.5.2.8.

RECORDS

6.5.2.10 Records of (CNRAG) activities shall be prepared, approved and distributed as indicated below:

a. Minutes of each (CNRAG) meeting shall be prepared, approved and forwarded to the (Vice President-Operations) within 14 days following each meeting.

b. Reports of reviews encompassed by Section 6.5.2.7 above, shall be prepared, approved and forwarded to the (Vice President-Operations) within 14 days following completion of the review.

c. Audit reports encompassed by Section 6.5.2.8 above, shall be forwarded to the (Vice President-Operations) and to the management positions responsible for the areas audited within 30 days after completion of the audit.

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 (URG) and submitted to the (CNRAG) and the (Superintendent of Power Plants).

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 two hours.

b. The NRC Operations Center shall be notified by telephone as soon as possible and in all cases within one hour. The (Superintendent of Power Plants) and the (CNRAG) shall be notified within 24 hours.

c. A Safety Limit Violation Report shall be prepared. The report shall be reviewed by the (URG). This report shall describe (1) applicable circumstances preceding the violation, (2) effects of the violation upon unit components, systems or structures, and (3) corrective action taken to prevent recurrence.

d. The Safety Limit Violation Report shall be submitted to the Commission, the (CNRAG) and the (Superintendent of Power Plants) 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.

c. Surveillance and test activities of safety related equipment.

d. Security Plan implementation.

e. Emergency Plan implementation.

f. Fire Protection Program implementation.

6.8.2 Each procedure of 6.8.1 above, and changes thereto, shall be reviewed by the (URG) and approved by the (Plant Superintendent) prior to implementation and reviewed periodically as set forth in administrative procedures.

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

a. The intent of the original procedure is not altered.

b. The change is approved by two members of the unit management staff, at least one of whom holds a Senior Reactor Operator's License on the unit affected.

c. The change is documented, reviewed by the (URG) and approved by the (Plant Superintendent) within 14 days of implementation.

6.9 REPORTING REQUIREMENTS

ROUTINE REPORTS AND REPORTABLE OCCURRENCES

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

STARTUP REPORT

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the unit.

STARTUP REPORT (Continued)

6.9.1.2 The startup report shall address each of the tests identified in the FSAR 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 (1) 90 days following completion of the startup test program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 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, and resumption or commencement of commercial operation, supplementary reports shall be submitted at least every three months until all three events have been completed.

ANNUAL REPORTS[1/]

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. The initial report shall be submitted prior to March 1 of the year following initial criticality.

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, receiving exposures greater than 100 mrem/yr and their associated manrem exposure according to work and job functions,[2/] e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance (describe maintenance), waste processing, and refueling. The dose assignments to various duty functions may be estimated based on pocket dosimeter, TLD, or film badge measurements. Small exposures totalling 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 should be assigned to specific major work functions.

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

MONTHLY OPERATING REPORT

6.9.1.6 Routine reports of operating statistics and shutdown experience, including documentation of all challenges to (safety valves or) safety/relief valves, 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.

1/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.

2/This tabulation supplements the requirements of §20.407 of 10 CFR Part 20.

REPORTABLE OCCURRENCES

6.9.1.7 The REPORTABLE OCCURRENCES of Specifications 6.9.1.8 and 6.9.1.9 below, 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

6.9.1.8 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 designate 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 the licensee event report form shall be supplemented, as needed, by additional narrative material to provide 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 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% 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% delta k/k; or occurrence of any unplanned criticality.

e. Failure or malfunction of one or more components which prevents or could prevent, by itself, the fulfillment of the functional requirements of system(s) used to cope with accidents analyzed in the SAR.

f. Personnel error or procedural inadequacy which prevents or could prevent, by itself, the fulfillment of the functional requirements of systems required to cope with accidents analyzed in the SAR.

PROMPT NOTIFICATION WITH WRITTEN FOLLOWUP (Continued)

g. Conditions arising from natural or man-made events that, as a direct result of the event, require unit shutdown, operation of safety systems, or other protective measures required by 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 bases for the technical specifications that have or could have permitted reactor operation in a manner less conservative than assumed in the analyses.

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 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

6.9.1.9 The types of events listed below shall be the subject of written reports to the Director of the Regional Office within thirty days of 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 licensee event report form shall be supplemented, as needed, by additional narrative material to provide complete explanation of the circumstances surrounding the event.

a. Reactor protection system or engineered safety feature instrument settings which are found to be less conservative than those established by the technical specifications but which do not prevent 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 which 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 6.9.1.8.c above designed to contain radioactive material resulting from the fission process.

SPECIAL REPORTS

Special reports may be required covering inspections, test and maintenance activities. These special reports are determined on an individual basis for each unit and their preparation and submittal are designated in the Technical Specifications.

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

6.10 RECORD RETENTION

In addition to the applicable record retention requirements of Title 10, Code of Federal Regulations, 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 five years:

a. Records and logs of unit operation covering 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.

RECORD RETENTION (Continued)

d. Records of gaseous and liquid radioactive material released to the environs.

e. Records of transient or operational cycles for those unit components identified in Table 5.7.1-1.

f. Records of reactor tests and experiments.

g. Records of training and qualification for current members of the unit staff.

h. Records of in-service inspections performed pursuant to these Technical Specifications.

i. Records of Quality Assurance activities required by the Operational Quality Assurance Manual.

j. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59.

k. Records of meetings of the (URG) and the (CNRAG).

l. Records of the service lives of all hydraulic and mechanical snubbers listed on Tables 3.7.5-1 and 3.7.5-2 including the date at which the service life commences and associated installation and maintenance records.

6.11 RADIATION PROTECTION PROGRAM

6.11.1 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/hr but less than 1000 mrem/hr 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*. 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.

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

HIGH RADIATION AREA (OPTIONAL) (Continued)

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.

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 unit Health Physicist in the Radiation Work Permit.

6.12.2 The requirements of 6.12.1, above, shall also apply to each high radiation area in which the intensity of radiation is greater than 1000 mrem/hr. 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 Foreman on duty and/or the unit Health Physicist.

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SECTION 6.0

ADMINISTRATIVE CONTROLS

[These are administrative controls related to radiological effluent technical specifications which are to be enfolded within Section 6.0 of the General Electric Standard Technical Specifications (NUREG-0123).]

6.5.1 UNIT REVIEW GROUP (URG)

RESPONSIBILITIES

6.5.1.6 The URG shall be responsible for:

k. Review of every unplanned onsite release of radioactive material to the environs including the preparation and forwarding of reports covering evaluation, recommendations and disposition of the corrective action to prevent recurrence to the (Superintendent of Power Plants) and to the (Company Nuclear Review and Audit Group).

l. Review of changes to the PROCESS CONTROL PROGRAM, OFFSITE DOSE CALCULATION MANUAL, and radwaste treatment systems.

6.5.2 COMPANY NUCLEAR REVIEW AND AUDIT GROUP (CNPAG)

AUDITS

6.5.2.8 Audits of unit activities shall be performed under the cognizance of the (CNRAG). These audits shall encompass:

l. The radiological environmental monitoring program and the results thereof at least once per 12 months.

m. The OFFSITE DOSE CALCULATION MANUAL and implementing procedures at least once per 24 months.

n. The PROCESS CONTROL PROGRAM and implementing procedures for solidification of radioactive wastes at least once per 24 months.

o. The performance of activities required by the Quality Assurance Program to meet the criteria of Regulatory Guide 4.15, December 1977 at least once per 12 months.

6.8 PROCEDURES

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

g. PROCESS CONTROL PROGRAM implementation.

h. OFFSITE DOSE CALCULATION MANUAL implementation.

i. Quality Assurance Program for effluent and environmental monitoring, using the guidance in Regulatory Guide 4.15, December 1977.

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT[3/]

6.9.1.6 Routine radiological environmental operating reports covering the operation of the unit during the previous calendar year shall be submitted prior to May 1 of each year. The initial report shall be submitted prior to May 1 of the year following initial criticality.

6.9.1.7 The annual radiological environmental operating reports shall include summaries, interpretations, and an analysis of trends of the results of the radiological environmental surveillance activities for the report period, including a comparison with preoperational studies, operational controls (as appropriate), and previous environmental surveillance reports and an assessment of the observed impacts of the plant operation on the environment. The reports shall also include the results of land use censuses required by Specification 3.12.2. If harmful effects or evidence of irreversible damage are detected by the monitoring, the report shall provide an analysis of the problem and a planned course of action to alleviate the problem.

The annual radiological environmental operating reports shall include summarized and tabulated results in the format of Regulatory Guide 4.8, December 1975 of all radiological environmental samples taken during the report period. 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 possible in a supplementary report.

The reports shall also include the following: a summary description of the radiological environmental monitoring program; a map of all sampling locations keyed to a table giving distances and directions from one reactor; and the results of licensee participation in the Interlaboratory Comparison Program, required by Specification 3.12.3.

SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT[3/]

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. The period of the first report shall begin with the date of initial criticality.

3/ 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, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material from each unit.

6.9.1.9 The radioactive effluent release reports 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 hourly 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, and 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 gaeous effluents released from the unit or station during the previous calendar year. This same report shall also include an assessment of the radiation doses from radioactive liquid and gaseous effluents to members of the public due to their activities inside the site boundary (Figures 5.1-3 and 5.1-4) during the report period. All assumptions used in making these assessments (i.e., specific activity, exposure time and location) shall be included in these reports. The 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 effluent release report to be submitted 60 days after January 1 of each year shall also include an assessment of radiation doses to the likely most exposed member of the public from reactor releases and other nearby uranium fuel cycle sources (including doses from primary effluent pathways and direct radiation) for the previous 12 consecutive months to show conformance with 40 CFR 190, Environmental Radiation Protection Standards for Nuclear Power Operatin. Acceptable methods for calculating the dose contribution from liquid and gaseous effluents are given in Regulatory Guide 1.109, Rev. 1.

The radioactive effluents release shall include the following information for each type of solid waste shipped offsite during the report period:

a. Container volume,

b. Total curie quantity (specifiy 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), and

f. Solidification agent (e.g., cement, urea formaldehyde).

The radioactive effluent release reports shall include unplanned releases from the site to unrestricted areas of radioactive materials in gaseous and liquid effluents on a quarterly basis.

The radioactive effluent release reports shall include any changes to the PROCESS CONTROL PROGRAM (PCP) 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.

Any changes to the OFFSITE DOSE CALCULATION MANUAL shall be submitted with the Monthly Operating Report within 90 days 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 (Unit Review Group).

PROMPT NOTIFICATION WITH WRITTEN FOLLOWUP

6.9.1.12

j. Offsite releases of radioactive materials in liquid and gaseous effluents which exceed the limits of Specification 3.11.1.1 or 3.11.2.1.

k. Exceeding the limits in Specification 3.11.1.4 or 3.11.2.6 for the storage of radioactive materials in the listed tanks. The written follow-up report shall include a schedule and a description of activities planned and/or taken to reduce the contents to within the specified limits.

THIRTY DAY WRITTEN REPORTS

6.9.1.13

e. An unplanned offsite release of 1) more than 1 curie of radioactive material in liquid effluents, 2) more than 150 curies of noble gas in gaseous effluents, or 3) more than 0.05 curies of radioiodine in gaseous effluents. The report of an unplanned offsite release of radioactive material shall include the following information:

1. A description of the event and equipment involved.

2. Cause(s) for the unplanned release.

3. Actions taken to prevent recurrence.

4. Consequences of the unplanned release.

f. Measured levels of radioactivity in an environmental sampling medium determined to exceed the reporting level values of Table 3.12-2 when averaged over any calendar quarter sampling period.

6.10 RECORD RETENTION

6.10.2

1. Records of analyses required by the radiological environmental monitoring program.

6.13 PROCESS CONTROL PROGRAM (PCP)

6.13.1 The PCP shall be approved by the Commission prior to implementation.

6.13.2 Licensee initiated changes to the PCP:

1. Shall be submitted to the Commission in the semi-annual Radioactive Effluent Release Report for the period in which the change(s) was made. This submittal shall contain:

   a. Sufficiently detailed information to totally support the rationale for the change without benefit of additional or supplemental information;

   b. A determination that the change did not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes; and

   c. Documentation of the fact that the change has been reviewed and found acceptable by the (URG).

2. Shall become effective upon review and acceptance by the (URG).

6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

6.14.1 The ODCM shall be approved by the Commission prior to implementation.

6.14.2 Licensee initiated changes to the ODCM:

1. Shall be submitted to the Commission in the Monthly Operating Report within 90 days of the date the change(s) was made effective. This submittal shall contain:

   a. Sufficiently detailed information to totally support the rationale for the change without benefit of additional or supplemental information. Information submitted should consist of a package of those pages of the ODCM to be changed with each page numbered and provided with an approval and date box, together with appropriate analyses or evaluations justifying the change(s);

   b. A determination that the change will not reduce the accuracy or reliability of dose calculations or setpoint determinations; and

   c. Documentation of the fact that the change has been reviewed and found acceptable by the (URG).

2. Shall become effective upon review and acceptance by the (URG).

6.15 MAJOR CHANGES TO RADIOACTIVE WASTE TREATMENT SYSTEMS (Liquid, Gaseous and solid)

6.15.1 Licensee initiated major changes to the radioactive waste systems (liquid, gaseous and solid):

1. Shall be reported to the Commission in the Monthly Operating Report for the period in which the evaluation was reviewed by the (Unit Review Group). The discussion of each change shall contain:

   a. A summary of the evaluation that led to the determination that the change could be made in accordance with 10 CFR 50.59;

   b. Sufficient detailed information to totally support the reason for the change without benefit of additional or supplemental information;

   c. A detailed description of the equipment, components and processes involved and the interfaces with other plant systems;

   d. An evaluation of the change which shows the predicted releases of radioactive materials in liquid and gaseous effluents and/or quantity of solid waste that differ from those previously predicted in the license application and amendments thereto;

   e. An evaluation of the change which shows the expected maximum exposures to individual in the unrestricted area and to the general population that differ from those previously estimated in the license application and amendments thereto;

   f. A comparison of the predicted releases of radioactive materials, in liquid and gaseous effluents and in solid waste, to the actual releases for the period prior to when the changes are to be made;

   g. An estimate of the exposure to plant operating personnel as a result of the change; and

   h. Documentation of the fact that the change was reviewed and found acceptable by the (URG).

2. Shall become effective upon review and acceptance by the (URG).