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

April 4, 1980

Docket No. 50-286

Mr. George T. Berry, Executive Director
Power Authority of the State of New York
10 Columbus Circle
New York, New York 10019

Dear Mr. Berry:

By letters dated May 2, 1979 and August 31, 1979, you proposed to amend the existing Technical Specifications of Indian Point, Unit No. 3, for the radiological effluent and environmental monitoring systems, to implement the provisions of Appendix I to 10 CFR Part 50 and the provisions approved by the Regulatory Requirements Review Committee. Our review of the proposed Radiological Effluent Technical Specifications for Pressurized Water Reactors, NUREG-0472, Revision 2, July 1979.

Based on our review thus far, our comments and marked-up copy of your proposed radiological effluent Technical Specifications are attached as Enclosures 1 and 2, respectively. The proposed amendment did not include the required Technical Specifications on solid radioactive waste, liquid sampling, system operability, effluent dose limitations, explosive gas mixtures, curie content in outdoor liquid holdup tanks, and administrative controls.

You have not submitted a Process Control Program (PCP) for solidification of radioactive wastes for Indian Point, Unit No. 3. Although, as you pointed out in your August 31 letter, the burial sites do not require that waste be solidified, they do have requirements on maximum water content in the packages they accept and incoming shipments will be inspected against these requirements. Therefore, a PCP is required to assure that waste leaving the site is acceptable. (The PCP is referenced in your proposed Section 3.11.3.1, submitted by your letter dated May 2, 1979.) We are amenable to discussing your views on solidification. Therefore, provide within 30 days, revised Technical Specifications based on our comments, and a PCP. To clarify our comments on your proposed amendment, a meeting or conference call may be necessary.

Sincerely,

A. Schwencer

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors

Enclosures:
1. ETSB Comments
2. Marked-up Proposed Tech Specs

cc: w/enclosures
See next page

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Enclosure 1

Comments on Indian Point Nuclear Plant, Unit No. 3
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, content, and table format to make them conform to the contents of NUREG-0472, Rev. 2. Specific changes made may require subsequent discussion.

2. In Section 1.0, DEFINITIONS, modify the definitions for SOLIDIFICATION and PROCESS CONTROL PROGRAM and add definitions for PURGE-PURGING, VENTING, and DOSE-EQUIVALENT I-131 as shown in markup.

3. The following specifications, as numbered in the markup, are not required in the RETS: 4.3.3.8.2, 4.3.3.9.2, 4.11.1.1.6, 4.11.1.1, 4.11.1.2, 3.11.1.1 ACTION b, 3.11.2.1 ACTION b, 4.11.2.1.3, 4.11.2.2.2, 4.11.2.3.2, 4.11.3.3.

4. In Table 3.3-11, perform the following:
   a. Indicate capability for monitoring or sampling the Turbine Building (Floor Drains) Sumps Effluent Line, and indicate provisions for termination of releases via this pathway in accordance with NUREG-0472.
   b. Indicate capability for monitoring gross radioactivity in your Service Water System and Component Cooling Water Systems Effluent Lines in accordance with NUREG-0472.
   c. Indicate capability for measuring flow rate in your Discharge Canal in accordance with NUREG-0472.

d. Modify the Table, including the ACTION statements, as snown in markup.

e. In Tables 3.3-11 and 4.3-11 you have listed Radioactivity Recorders and their corresponding requirements, with notation to the effect that these are not applicable unless used to perform an alarm/trip action. If they are not used for this function, but as process instrumentation only, then delete these items from the tables, otherwise delete the qualifying notation.

5. In Table 4.3-11, modify the table as shown in markup (including the Table Notation) and indicate surveillance requirements for the instrumentation discussed in comments 4a, b, and c above, in accordance with NUREG-0472.

6. In Table 3.3-12, perform the following:

a. Indicate capability for monitoring Waste Gas Holdup System effluent releases, and capability for measuring effluent flow rate, in accordance with NUREG-0472. Indicate provisions for alarm and automatic termination of release.

b. Indicate capability for monitoring the Condenser Evacuation System effluent releases in accordance with NUREG-0472.

c. Indicate capability for alarm and automatic termination of releases from the Containment Purge System in accordance with NUREG-0472.

d. Indicate capability for monitoring Steam Generator Blowdown Vent System effluent releases in accordance with NUREG-0472.

e. Modify table, including astericked notation and ACTION statements, as shown in markup.

7. Modify Table 4.3-12 as shown in markup (including Table Notation) and indicate surveillance requirements for the instrumentation discussed in comments 6a, b, c, and d above, in accordance with NUREG-0472.

8. Figure 3.11-1 is unacceptable. Provide maps clearly defining the site boundary and restricted area boundary, and in accordance with instructions for Figures 5.1-3 and 5.1-4 of NUREG-0472.

9. Tables 3.3-12 and 4.3-12 should be made consistent with each other in terms of the instrumentation listed.

10. Modify Specifications 3.3.3.8 and 3.3.3.9, as shown in markup.

11. In Tables 3.3-12 and 4.3-12, indicate which instruments have alarm and/or automatic termination capability in accordance with NUREG-0472.

12. Modify Specification 3.11.1.1 and its corresponding ACTION, SURVEILLANCE REQUIREMENTS, and BASES as shown in markup.

13. Modify Table 4.11-1, including the Table Notation, as shown in markup.

14. Modify Specification 3.11.1.2 and its corresponding ACTION and BASES, as shown in markup.

15. Modify Specification 3.11.1.3 and its corresponding ACTION and BASES, as shown in markup; and add the following: (with a specified time interval)

SURVEILLANCE REQUIREMENTS

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

4.11.1.3.2 The liquid radwaste treatment system shall be demonstrated OPERABLE by operating the liquid radwaste treatment system equipment for at least ____ minutes at least once per 92 days unless the liquid radwaste system has been utilized to process radioactive liquid effluents during the previous 92 days.

16. Modify Specification 3.11.2.1 and its corresponding ACTIONS, SURVEILLANCE REQUIREMENTS, and BASES as shown in markup.

17. Modify Table 4.11-2, including the Table Notation, as shown in markup. Note that the design dose objectives of Specifications 3.11.2.2 and 3.11.2.3 must be reduced if Turbine Building gaseous effluent sampling is not provided.

18. Modify Specifications 3.11.2.2, 3.11.2.3, and 3.11.2.4, and their corresponding ACTIONS, SURVEILLANCE REQUIREMENTS, and BASES as shown in markup.

19. It is the Staff's position that in hydrogen-rich waste gas holdup systems which are not designed to withstand a hydrogen explosion, continuous monitoring (with automatic control features) of both hydrogen and oxygen is desired. We have modified your Specification 3.11.2.6 and Tables 3.3-12 and 4.3-12 of the markup to reflect this position. If you do not intent to comply with this, provide justification.

20. Provide a specification for curie content in outdoor liquid holdup tanks containing potentially radioactive fluids, i.e., Specification 3.11.1.4 of NUREG-0472.

21. Modify Specification 3.11.2.7 as shown in markup.

22. Modify Specification 3.11.3.1 as shown in markup. Note that Specification 6.14 is referenced but has not been submitted for our review.

23. Provide a specification for compliance with 40 CFR 190, i.e., Specification 3.11.4 in markup.

24. In Specification 6.5.1.6 add the following Plant Operating Review Committee responsibilities:

    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 Safety Review Committee.

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

25. In Specification 6.5.2.8 add the audit requirements shown in the markup.

26. In Specification 6.8.1 add the activities shown in the markup.

27. Modify Specifications 6.9.1.6, 6.9.1.7, 6.9.1.11, 6.13, and Table 6.9-2 as shown in markup.

28. Provide specifications for the PROCESS CONTROL PROGRAM and for MAJOR CHANGES TO RADIOACTIVE WASTE TREATMENT SYSTEMS, i.e., Specifications 6.14 and 6.15 in markup.

29. Regarding the ODCM:

    a. The contents of the ODCM are not in accordance with NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants," in that there is too much superfluous information such as your Environmental Technical Specifications (which will be superceded by the Radiological Effluent Technical Specifications), memoranda of understanding between Con Edison and PASNY, and plant procedures.

    b. Insufficient information is presented regarding your methodology and parameters for determining effluent monitor setpoints, i.e., (AP-11):

        1. All effluent pathway monitors must be discussed.

        2. How is MPC_w "obtained"?

        3. How do you assure that once a liquid effluent monitor setpoint has been calculated, predicated on a given dilution flow rate, and release is initiated, that dilution flow won't change in an unconservative manner?

        4. How are your Permissable Discharge Rates for gaseous effluents established?

        5. Do monitor alarms and trips occur at the same setpoints?

        6. Explain the basis for the first equation on pg. 1-39.

Enclosure 2

ATTACHMENT II

PROPOSED TECHNICAL SPECIFICATION CHANGES

RELATED TO

RADIOLOGICAL EFFLUENTS

POWER AUTHORITY OF THE STATE OF NEW YORK
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
APRIL 30, 1979

1.0 DEFINITIONS

CHANNEL CALIBRATION

1.9 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

1.10 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

1.11 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.

PROCESS CONTROL PROGRAM (PCP)

1.30 The PROCESS CONTROL PROGRAM (PCP) shall contain ~~be the manual or set of operating procedures detailing the program of~~ the sampling, analysis, and ~~the~~ formulation determination ~~evaluation within~~ by which the solidification of radioactive wastes from liquid systems ~~will be~~ assured.

DOSE EQUIVALENT I-131

1.19 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."

SOLIDIFICATION

1.31 SOLIDIFICATION ~~as required by the Technical Specifications~~ shall be the conversion of radioactive wastes from liquid systems to ~~an~~ 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).

OFFSITE DOSE CALCULATION MANUAL (ODCM)

1.32 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.

GASEOUS RADWASTE TREATMENT SYSTEM

1.33 A GASEOUS RADWASTE TREATMENT SYSTEM is a 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

1.34 A VENTILATION EXHAUST TREATMENT SYSTEM is any system designed and installed to reduce gaseous radioiodine or radioactive material in particulate form in effluents by passing ventilation or vent exhaust gases through charcoal adsorbers ~~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 effluent. Engineered Safety Feature (ESF) atmospheric cleanup systems are not considered to be VENTILATION EXHAUST TREATMENT SYSTEM components.

PURGE - PURGING

1.35 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

1.36 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	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 set to ensure that the limits of Specification 3.11.1.1 are not exceeded. The alarm/trip setpoints of these channels shall be determined in accordance with the 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 a value which will ensure that the limits of 3.11.1.1 are met, 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 radioactive liquid effluent monitoring instrumentation channels ~~inoperable~~ OPERABLE, take the ACTION shown in Table 3.3-11.

~~c. With one or more radioactive liquid effluent monitoring instrumentation channels inoperable beyond the continuation period specified in the applicable ACTION statement, prepare and submit to the Commission within 24 hours after the ACTION limit, pursuant to Specification 6.9.2, a Special Report, in lieu of any other report, which identifies the cause(s) for exceeding the limit(s), defines corrective actions to be taken to restore operability, and provides an estimated date for return to OPERABLE status of the instrumentation channel(s). Effluent releases via this pathway may continue beyond the ACTION time limit subject to the analysis and monitoring conditions of the applicable ACTION statement.~~

SURVEILLANCE REQUIREMENTS

~~4.3.3.8.1 The setpoints shall be determined and recorded in accordance with procedures.~~

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

SEE COMMENT #3

4.3.3.8.2 Records - Records shall be maintained, in accordance with 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 of Specification 3.11.1.1 are met.

BASES

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. The alarm/trip setpoints for these instruments shall be calculated in accordance with methods 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 General Design Criteria 60, 63 and 64 of Appendix A to 10 CFR Part 50.

TABLE 3.3-11

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	~~APPLICABILITY~~	ACTION
1. Gross Radioactivity Monitors Providing Automatic Termination of Release			
a. Liquid Radwaste Effluent Line	1	~~(1)~~	18
b. Steam Generator Blowdown Effluent Line	1	~~(1)~~	20

TABLE 3.3-11 (Continued)

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	~~APPLICABILITY~~	ACTION
2. Flow Rate Measurement Indicators & Recorders**			
a. Liquid Radwaste Effluent Line	1	~~(1)~~	21
b. Steam Generator Blowdown Effluent Line	1	~~(1)~~	21
3. Radioactivity Recorders***			
a. Liquid Radwaste Effluent Line	1	~~(1)~~	23
b. Steam Generator Blowdown Effluent Line	1	~~(1)~~	~~23~~ 24
4. Tank Level Indicating Devices (for tanks outside plant buildings)			
a. Refueling Water Storage Tank	1	~~(1)~~	22
b. Primary Water Storage Tank	1	~~(1)~~	22
c. Monitor Tank 31	1	~~(1)~~	22
d. Monitor Tank 32	1	~~(1)~~	22

~~**Pump curves may be utilized to estimate flow or limiting orifice; in such cases, action statement 21 is not required.~~

***Required only if alarm/trip set point is based on recorder-controller.

TABLE 3.3-11
(Continued)

TABLE NOTATION

~~(1) During release by the pathway. CHANNELS shall be OPERABLE and in service during such releases on a continuous, uninterrupted basis, except that outages are permitted, within the time frame of the specified ACTION, for the purpose of maintenance and performance of required tests, checks, and calibrations.~~

ACTION 18 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases may ~~be~~ Continue ~~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.~~b~~ 5, and;
2. At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge valving; line

Otherwise, suspend release of radioactive effluents via this pathway.

ACTION 20 With the numbers of channels OPERABLE less than 30 required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to ~~14~~ 30 days provided ~~that at least once per 24 hours~~ grab samples are ~~collected and~~ analyzed for gross radioactivity (beta or gamma) at a ~~lower~~ limit of detection of at least 10^{-7} ~~uCi/ml.~~ microcuries/gram.

ACTION 21 With the number of channels OPERABLE less than 30 required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to ~~14~~ 30 days provided the flow rate is estimated at least once per 4 hours during actual releases. Pump curves may be used to estimate flow.

ACTION 22 With the numbers of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, liquid additions to this tank may continue for up to ~~28~~ 30 days provided the tank liquid level is estimated during all liquid additions to the tank.

a. At least once per 8 hours when the specific activity of the secondary coolant is greater than 0.01 microcuries/gram DOSE EQUIVALENT I-131.
b. At least once per 24 hours when the specific activity of the secondary coolant is less than or equal to 0.01 microcuries/gram DOSE EQUIVALENT I-131.

ACTION 23 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via the affected pathway may continue for up to 14 days provided the gross radioactivity level is recorded at least once per 4 hours during actual release.

ACTION 24 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via the affected pathway may continue for up to 30 days provided the gross radioactivity level is determined at least once per 4 hours during actual release.

TABLE 4.3-11

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. Gross Beta or Gamma Radioactivity Monitors Providing Alarm and Automatic Isolation				
a. Liquid Radwaste Effluent Line	D	P	R(3)	Q(1)
b. Steam Generator Blowdown	D	M	R(3)	Q(1)
2. Gross Beta or Gamma Radioactivity Monitors Providing Alarm But Not Providing Automatic Isolation (4)				
a. Service Water System Effluent Line	D	M	R(3)	Q(2)

TABLE 4.3-11 (Continued)

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
3. Radioactivity ~~Activity~~ Recorders (5)				
a. Liquid Radwaste Effluent Line	D	N.A.	R ~~N.A.~~	Q ~~N.A.~~
b. Steam Generator Blowdown Effluent Line	D	N.A.	R ~~N.A.~~	Q ~~N.A.~~
4. Tank Level Indicating Devices (for tanks outside the building) (3)				
a. Refueling Water Tank	D**	N.A.	R	Q
b. Primary Water Storage Tank	D**	N.A.	R	Q
c. Monitor Tank 31	D**	N.A.	R	Q
d. Monitor Tank 32	D**	N.A.	R	Q
5. Flow Rate Monitors/Recorders				
a. Liquid Radwaste Effluent Line	D (4)	N.A.	R ~~N.A.~~	Q ~~N.A.~~
b. Steam Generator Blowdown Effluent Line	D (4)	N.A.	R	Q

TABLE 4.3-11
(Continued)

TABLE NOTATION

~~*During releases via this pathway~~

**During liquid additions to the tank.

(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.
3. Instrument indicates a downscale failure.
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 initial CHANNEL CALIBRATION for radioactivity measurement instrumentation shall be performed as recommended in Regulatory Guide 4.15 Revision 1, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment". The ODCM describes the established practice for monitor verification.~~

The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Bureau of Standards or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the intial calibration shall be used. (Operating plants may substitute previously established calibration procedures for this requirement.)

TABLE 4.3-11
(Continued)

~~(4) This requirement is applicable only to systems where the service water system is discharged to an effluent stream.~~

4 (~~5~~) CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once ~~daily~~ per 24 hours on ~~any~~ day[5] on which continuous, periodic, or batch releases are made.

5 (~~6~~) This requirement is applicable only to systems where an alarm/trip action is performed by recorder-controller instrumentation.

~~(7) This requirement is not applicable to tanks which have dikes or retention ponds capable of preventing runoff in the event of a tank overflow and have provisions for sampling collected liquids and routing them to a liquid radwaste treatment system.~~

INSTRUMENTATION

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.9 The radioactive gaseous effluent monitoring instrumentation channels shown in Table 3.3-12 shall be OPERABLE with their alarm/trip setpoints 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 effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above Specification, immediately suspend the release of radioactive gaseous effluents monitored by the affected channel or ~~a value which will ensure 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 effluent monitoring instrumentation channels ~~in~~operable, take the ACTION shown in Table 3.3-12.

~~c. With one or more radioactive gaseous effluent monitoring instrumentation channels inoperable beyond the continuation period specified in the applicable ACTION statement, prepare and submit to the Commission within 24 hours after the ACTION limit, pursuant to Specification 6.9.2, a Special Report, in lieu of any other report, which identifies the cause(s) for exceeding the limits, defines corrective actions to be taken to restore operability, and provides an estimated date for return to OPERABLE status of the instrumentation channel(s). Effluent releases via this pathway may continue beyond the ACTION time limit subject to the analysis and monitoring conditions of the applicable ACTION statement.~~

SURVEILLANCE REQUIREMENTS

~~4.3.3.9.1 The setpoints shall be determined and recorded in accordance with procedures.~~

4.3.3.9.~~1~~1 Each radioactive gaseous effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations ~~during the MODES and~~ at the frequencies shown in Table 4.3-12.

SEE COMMENT #3

4.3.3.9.~~2~~2 Records shall be maintained of the calculations made, in accordance with procedures in the OCDM, of all radioactive effluent monitoring instrumentation alarm/trip setpoints. Setpoints and setpoint calculations shall be available for review to ensure that the limits of Specification 3.11.2.1 are met.

BASES

3/4.3.3.9 RADIOACTIVE GASEOUS EFFLUENT 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. The alarm/trip setpoints for these instruments shall be calculated in accordance with methods in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. This instrumentation also includes provisions for monitoring (and controlling) the concentrations of potentially explosive gas mixtures in the waste gas holdup 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.

TABLE 3.3-12 (SEE COMMENT #9)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	~~PARAMETER~~	ACTION
1. Waste Gas Holdup System Explosive Gas Monitoring System				
a. Oxygen Monitor	~~2~~	**	~~Oxygen~~	30
b. Hydrogen Monitor	2	**		30
2. Plant Vent***				
a. Noble Gas Activity Monitor	1	*	~~Radioactivity Rate Measurement~~	27
b. Iodine Sampler Cartridge	1	*	~~Verify presence of cartridge~~	31
c. Particulate Sampler Filter	1	*	~~Verify presence of filter~~	31
d. Effluent System Flow Rate Measuring Device	1	*	~~System Flow Rate Measurement~~	26
e. Sampler Flow Rate Measuring Device (SEE COMMENT #9)	1	*	~~Sampler Flow Rate Measurement~~	26
3. Containment Monitor System				
a. Noble Gas Monitor (R 12)	1	*	~~Radioactivity Measurement~~	27
b. Particulate Monitor (R 11)	1	*	~~Radioactivity Measurement~~	27

TABLE 3.3-12
(Continued)

TABLE NOTATION

* At all times.
~~*Channels shall be OPERABLE and in service on a continuous, uninterrupted basis during releases via this pathway, except that outages are permitted, within the time frame of the specified ACTION for the purpose of maintenance and performance of required tests, check and calibrations.~~

**During waste gas holdup system operation (treatment for primary system offgases).

~~***This will also monitor releases from the vent header, auxiliary building vents, fuel storage building vents and the radwaste area vents. The condenser evacuation system is monitored continuously only as in this item 3a.~~

ACTION 26 With the number of channels OPERABLE less than 30 required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to ~~28~~ days provided the flow rate is estimated at least once per 4 ~~8~~ hours.

ACTION 27 With the number of channels OPERABLE less than 30 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 28 (Deleted)

ACTION 30 With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, operation of this system may continue for up to 14 days. ~~Manual samples for O_2 once per watch will be acceptable when the process monitors are declared out of service.~~ With two channels inoperable, be in at least HOT STANDBY within 6 hours.

TABLE 3.3-12
(Continued)

TABLE NOTATION

ACTION 31 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 of the end of sample collection.~~ as required in Table 4.11-2.

TABLE 4.3-12 SEE COMMENT #9

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1. Plant Vent					
a. Noble Gas Activity Monitor	D	~~M~~ M	R(3)	Q(1)	*
b. Iodine Sampler Cartridge & Particulate Filter	W	N.A.	~~R~~ N.A.	N.A.	*
SEE COMMENT #9 c. Particulate Activity Monitor	W	D	R(3)	Q(1)	*
d. System Effluent Flow Rate Measuring Device	~~W~~ D	N.A.	R	Q	*
2. Waste Gas Holdup System Explosive Gas Monitoring System					
a. Oxygen Monitor	~~D~~ D ~~N.A.~~	N.A.	~~M~~ Q ~~N.A.~~ (4)	~~M~~ M ~~N.A.~~	**
b. Hydrogen Monitor	D	N.A.	Q(5)	M	**

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TABLE 4.3-12 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
3. Containment Purge Vent System					
a. Noble Gas Activity Monitor	D*	P ~~B*~~	R(3)	Q(1)	*
b. Particulate Activity Monitor	D*	P ~~B*~~	R(3)	Q(1)	*

TABLE 4.3-12
(Continued)

TABLE NOTATION

* At all times.

~~*Channels shall be OPERABLE and in service on a continuous, uninterrupted basis during releases via this pathway, except that outages are permitted, within the time frame of the specified ACTION for the purpose of maintenance and performance of required tests, check and calibrations.~~

**During waste gas holdup system operation (treatment for primary system offgases).

~~***This will also monitor releases from the vent header, auxiliary building vents, fuel storage building vents and the radwaste area vents. The condenser evacuation system is monitored continuously only as in this item 3a.~~

(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.

3. Instrument indicates a downscale failure.

4. Instrument controls not set in operate mode.

(3) The initial CHANNEL CALIBRATION for radioactivity measurement instrumentation shall be performed ~~as recommended in Regulatory Guide 4.15 Revision 1, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment". The ODCM describes the established practice for monitor verification. (Existing plants may substitute previously established calibration procedures for this requirement.)~~

using one or more of the reference standards certified by the National Bureau of Standards or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration shall be used. (Operating plants may substitute previously established calibration procedures for this requirement.)

TABLE 4.3-12
(Continued)

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

1. One volume percent oxygen, balance nitrogen; and
2. Four volume percent oxygen, ~~16%~~ balance nitrogen. ~~20% hydrogen.~~

(5) 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.

3/4.11 RADIOACTIVE EFFLUENTS

3/4.11.1 LIQUID EFFLUENTS

CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.11.1.1 The concentration of radioactive liquid effluent released from the site to unrestricted areas (see Figure 3.11-1) ~~as calculated under 20.106a,~~ 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 2×10^{-4} microcuries / ml total activity.
APPLICABILITY. At all times.

ACTION:

SEE COMMENT #3

a. With the concentration of radioactive material released from the site to unrestricted areas exceeding the above limits, immediately take action to restore the concentration within the above limits.

b. ~~and~~ provide prompt notification to the Commission pursuant to Specification 6.9.1.~~12~~10.

c.

SURVEILLANCE REQUIREMENTS

SEE COMMENT #3

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 liquid effluent continuous monitors having provisions for automatic termination of liquid releases, as listed in T ? 3.3-11, shall be used to limit the concentration of radioactive material released at any time from the site to the values given in Specification 3.11.1.1.

4.11.1.1.3 The radioactivity content of each batch of radioactive liquid waste to be discharged from the site 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~~ maintained within the limits of Specification 3.11.1.1.

4.11.1.1.4 Post-release analyses of samples composited 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 were ~~limited to the values in~~ maintained within the limits of Specification 3.11.1.1.

In the event that Specification 3.11.1.1 and/or ACTION a requirements cannot be satisfied because of circumstances in excess of those addressed in ~~the~~ ACTION a, the facility shall be placed in at least hot shutdown within 6 hours and in cold shutdown within 30 hours, and entry into an operating mode shall not be made unless Specification 3.11.1.1 is met. This provision shall not prevent passage through modes required to comply with ACTION a.

SURVEILLANCE REQUIREMENTS (Continued)

4.11.1.1.5 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 ~~limited to the values in~~ maintained within the limits of Specification 3.11.1.1.

SEE COMMENT #3

4.11.1.1.6 Reports. The semiannual Radioactive Effluent Release Report shall include the information specified in Specification 6.9.1.6.

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, Column 2. 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 dissolved or entrained 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.

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[e]	P Each Batch	P Each Batch	Principal Gamma Emitters[g], Ba-140	5×10^{-7}
(Waste Condensate Tanks)	P Each Batch	W Composite	I-131	1×10^{-6}
	P One Batch/M	M	Dissolved and Entrained Gases (Gamma Emitters)	1×10^{-5}
	P Each Batch	M Composite[c]	H-3	1×10^{-5}
			Gross alpha	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}
B. Plant Continuous Releases[f] (Steam Generator Blowdown)	Continous[d]	W Composite[d]	Principal Gamma Emitters[g]	5×10^{-7}
			I-131	1×10^{-6}
	M Grab Sample	M	Dissolved and Entrained Gases (Gamma Emitters)	1×10^{-5}
	Continous[d]	M Composite[d]	H-3	1×10^{-5}
			Gross alpha	1×10^{-7}
			P-32	1×10^{-6}
	Continuous[d]	Q Composite[d]	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}

TABLE NOTATION

~~*These analyses will be performed for a one-year period, and a decision made by the licensee as to the need to continue these analyses based on a review detailed in the Semi-annual Radioactive Effluent Release Report.~~

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

For a particular measurement system (which may include radio-chemical separation):

$$LLD = \frac{4.66 s_b}{E \cdot V \cdot 2.22 \cdot Y \cdot \exp(-\lambda \Delta t)}$$

where

LLD is the lower limit of detection as defined above (as ~~pCi~~ μCi per unit mass or volume):

s_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute):

E is the counting efficiency (as counts per transformation);

V is the sample size (in units of mass or volume);

2.22 × 10^6 is the number of transformations per minute per ~~picocurie~~ microcurie;

Y is the fractional radiochemical yield (when applicable);

λ is the radioactive decay constant for the particular radionuclide;

Δt is the elapsed time between sample collection and time of counting.

The value of s_b used in the calculation of the LLD for a detection system shall be based on the actual observed variance of the background counting rate or of the counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance. ~~In calculating the LLD for a radionuclide determined by gamma-ray spectrometry, the background shall include the typical contributions of other radionuclides normally present in the samples. For isotopic measurements using gamma spectroscopy, the background count rate is calculated from the background counts that are determined to be within ± one full-width at half-maximum energy band about the energy of the gamma ray peak used for the quantitative analysis for that radionuclide.~~ Typical values of L, V, Y, and Δt ~~should~~ shall be used in the calculation.

~~It should be recognized that the LLD is defined as a priori (before the fact) limit representing the capability of a measurement system and not an a posteriori (after the fact) limit for a particular measurement.~~

~~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).~~

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 liquids released.

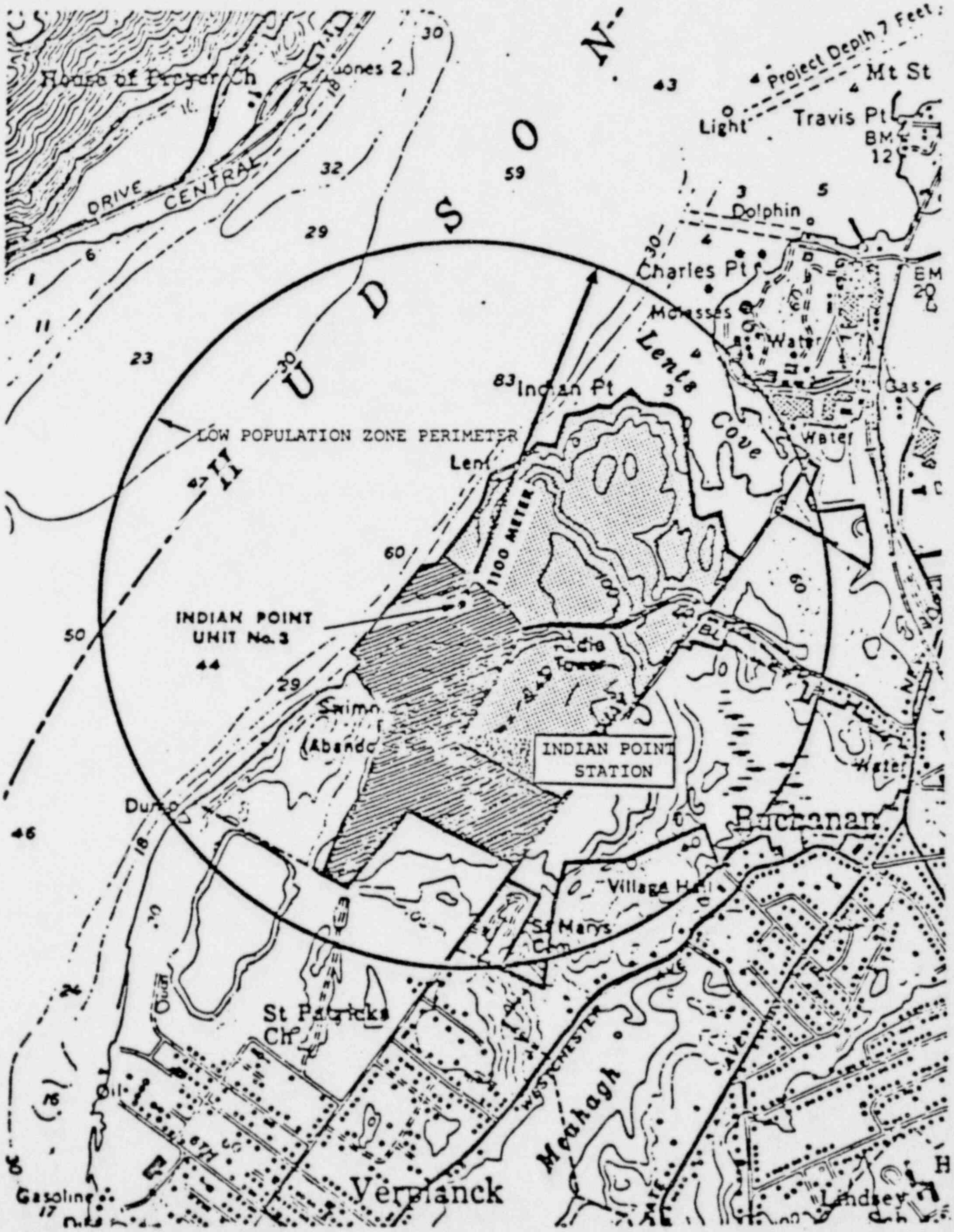
d. To be representative of the quantities and concentrations of radioactive materials in liquid effluents, samples shall be collected continuously in proportion to the rate of flow of the effluent stream. Prior to analyses, all samples taken for the composite shall be thoroughly mixed in order for the composite sample to be representative of the effluent release. Composite samplers must be engineered and backfit and will not be operational until September 1, 1981.

e. 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.

f. A continuous release is the discharge of liquid wastes of a non-discrete volume; e.g., from a volume of system that has an input flow during the continuous release. ~~(i.e. steam generator during a primary to secondary leak)~~

g. The principal gamma emitters are for which the LLD specification ~~will~~ applies ~~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.~~

~~h. When operational or other limitations preclude specific gamma radioiodine analysis in batch releases, the provisions of Regulatory Guide 1.21 (Revision 1) Appendix A Section B.1, may be followed. Refer to R.G. 1.21 Section C.4 and Appendix A, Section B.~~



CON EDISON RESTRICTED AREA (IP-1&2)

POWER AUTHORITY RESTRICTED AREA (IP-3)

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 each unit, ~~to unrestricted areas~~ from the site (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, in lieu of any other report required by Specification 6.9.1, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, 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 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. ~~(This Special Report shall also include (1) the results of radiological analyses of the drinking water source and (2) the radiological impact on finished drinking water supplies with regard to the requirements of 40 CFR 141, Safe Drinking Water Act.*)~~

~~b. The provisions of specifications 3.0.3 and 3.0.4 are not applicable.~~

~~levels set forth as numerical guides for design objectives in Section II, 10CFR50, Appendix I.~~

~~At the same time, the licensee is permitted under 10CFR50, Appendix I, the flexibility of operation, compatible with considerations of health and safety, to assure that the public is provided a dependable source of power even under unusual operating conditions which may temporarily result in releases higher than such numerical guides for design objectives but still within levels that assure that the average population exposure is equivalent to small fractions of doses from natural background radiation. It is expected that in using this operational flexibility under unusual operating conditions, the licensee will exert his best efforts to keep levels of radioactive material in effluents within the numerical guides for design objectives.~~

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.

3/4.11.1.2 DOSE

This specification is provided to implement the requirements of Sections 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 ~~IV.A~~ of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive material in liquid effluents will be kept "as low as is reasonably achievable". The dose calculations in the ODCM 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 appropriate pathways is unlikely to be substantially underestimated. The equations specified in the ODCM for calculating the doses due to the actual release rates of radioactive materials in liquid effluents ~~will be~~ 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 1.113, "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.~~

RADIOACTIVE EFFLUENTS

BASES

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

RADIOACTIVE EFFLUENTS

LIQUID WASTE TREATMENT

LIMITING CONDITION FOR OPERATION

3.11.1.3 The liquid radwaste treatment system ~~in use~~ 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 to unrestricted areas (see Figure 3.11-1) will exceed the limits in 3.11.1.2.~~ from the site (see Figure 3.11-1) when averaged over 31 days, would exceed 0.06 mrem to the total body or 0.2 mrem to any organ.

APPLICABILITY: At all times. ~~during any quarter in which discharges to unrestricted areas of liquid effluents containing plant related effluents containing plant related radioactive materials occur or is expected.~~

ACTION:

a. With ~~radioactive~~ liquid ~~waste~~ being discharged ~~to the unrestricted area~~ without treatment and in excess of the above limits, in lieu of any ~~other report~~ 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 inoperable equipment or subsystems ~~not OPERABLE~~ and the reason for inoperability.

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

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

BASES

3/4.11.1.3 LIQUID WASTE TREATMENT

The OPERABILITY of the liquid radwaste treatment system ~~components specified in the ODCM~~ 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 the design objective given in 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 dose design objectives set forth in Section II.A of Appendix I, 10 CFR Part 50, for liquid effluents.

RADIOACTIVE EFFLUENTS

3/4.11.2 GASEOUS EFFLUENTS

DOSE

LIMITING CONDITION FOR OPERATION

3.11.2.1 The dose in the unrestricted areas (see Figure 3.11-1) due to radioactive materials released in gaseous effluents from the site shall be limited to the following values:

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

b. The dose limit for all radioiodines and for all radioactive materials in particulate form, with half lives greater than 8 days, shall be ≤ 1500 mrem/yr to any organ.

→ And radionuclides (other than noble gases)

APPLICABILITY: At all times.

ACTION:

SEE COMMENT #3

a) With the dose exceeding the above limits, immediately decrease the release rate to comply with the limit(s) give in Specification 3.11.2.1.

b) ~~and~~ provide prompt notification to the Commission pursuant to Specification 6.9.1.12.

c) In the event that Specification 3.11.2.1 and/or ACTION a requirements cannot be satisfied because of circumstances in excess of those addressed in ACTION a, the facility shall be placed in at least hot shutdown within 6 hours and in cold shutdown within 30 hours, and entry into an operating mode shall not be made unless Specification 3.11.2.1 is met. This provision shall not prevent passage through modes required to comply with ACTION a.

SURVEILLANCE REQUIREMENTS

~~4.11.2.1.1 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.a when monitor setpoint values are exceeded.~~

~~4.11.2.1.2 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.~~

4.11.2.1.1 The dose [redacted] 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.

SURVEILLANCE REQUIREMENTS

4.11.2.1.2 The dose in unrestricted areas, due to radioactive materials other than noble gases released in gaseous effluents, shall be determined to be within the required limits ~~by using the results of~~ the sampling and analysis program specified in Table 4.11-2. ~~in performing the calculations of dose in unrestricted areas.~~ in accordance with the methods and procedures of the ODCM by obtaining representative samples and performing analyses in accordance with

SEE COMMENT #3

4.11.2.1.3 Reports The semiannual Radioactive Effluent Release Report shall include the information specified in ~~R.G. 1.21 Rev. 1~~ Specification 6.9.1.6.

BASES

3/4.11.2 GASEOUS EFFLUENTS

3/4.11.2.1 DOSE

This specification is provided to ensure that the dose 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 ~~exclusion area~~ site 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 site ~~exclusion area~~ boundary. The specified release rate limits restrict, at all times, the corresponding gamma and beta dose rates above background to an individual at or beyond the site ~~exclusion area~~ boundary to ≤ (500) mrem/year to the total body or to ≤ (3000) mrem/year to the skin. These release rate limits also restrict, at all times, the corresponding thyroid dose above background to an infant via the cow-milk-infant pathway to ≤ 1500 mrem/year for the nearest cow to the plant.

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

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/ml)[a]
A. Waste Gas Storage Tank	P Each Release Grab Sample	P Each ~~Release~~ Tank	Principal Gamma Emitters[f] ~~H-3~~	1×10^{-4} ~~1×10^{-6}~~
B. Containment Purge Containment Pressure Reliefs (g)	P Each Purge[g] Grab Sample	P Each Purge[g]	Principal Gamma Emitters[f] H-3	1×10^{-4} 1×10^{-6}
C. Plant vent Condenser Air Ejector Steam Generator Blowdown Flash Tank	M[g,h,i] Grab Sample	M[g]	Principal Gamma Emitters[f] H-3	1×10^{-4} 1×10^{-6}
D. Plant Vent (Consisting of: Waste Gas Storage Tank Containment Purge Containment Pressure Reliefs Fuel Storage Building Auxiliary Building Condenser Air Ejector Steam Generator Blowdown Flash Tank	Continuous[e] W[d] Charcoal Sample	W[d]	I-131 I-133	1×10^{-12} 1×10^{-10}
	Continuous[e] W[d] Particulate Sample	W[d]	Principal Gamma Emitters[f] (I-131, Others)	1×10^{-11}
	Continuous[e] M Composite Particulate Sample	M	Gross alpha	1×10^{-11}
	Continuous[e] Q Composite Particulate Sample	Q	Sr-89, Sr-90	1×10^{-11}
	Continuous[e] Noble Gas Monitor	Noble Gas Monitor	Noble Gases Gross Beta & Gamma	1×10^{-6}

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

TABLE 4.11-2 (Continued)

TABLE NOTATION

a. See footnote a. on Table 4.11-1.

~~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., $1 \times 10^{-4}/I$, where I is the photon abundance expressed as a decimal fraction).~~

d. Analyses shall also be performed at least once per 24 hours for at least 7 days following each ~~refueling 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.

e. 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.

f. The principal gamma emitters for which the LLD specification ~~will apply~~ applies 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. The "less than" values shall not be used in the required dose calculations.~~

~~g. The containment noble gas monitor (R-12) may be used to calculate the release rate.~~

~~*In lieu of grab samples, use of ASTM method D3442 "Test for Tritium Content of Air" can be used.~~

g. Analyses shall also be performed following shutdown, startup, or a THERMAL POWER change exceeding 15 percent of the RATED THERMAL POWER within a one hour period.

h. Tritium grab samples shall be taken at least once per 24 hours when the refueling canal is flooded.

i. 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.

shutdown, startup, or THERMAL POWER change exceeding 15 percent of RATED THERMAL POWER within one hour.

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

RADIOACTIVE EFFLUENTS

DOSE, NOBLE GASES

LIMITING CONDITION FOR OPERATION

3.11.2.2 The air dose in unrestricted areas, from each reactor unit, from the site (see Figure 3.11-1) due to noble gases released in gaseous effluents shall be limited to the following:

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

APPLICABILITY: At all times.

ACTION:

a. With the calculated air dose from radioactive noble gases in gaseous effluents exceeding any of the above limits, in lieu of any other report required by Specification 6.9.1, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, 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 cumulative dose during these four calendar quarters is within (10) mrad for gamma radiation and (20) mrad for beta radiation.

~~other report, reporting these actions.~~

~~It is expected that the annual release of radioactive material in effluents from the unit can generally be maintained within the levels set forth as numerical guides for design objectives in Section II, 10CFR50, Appendix I.~~

~~At the same time, the licensee is permitted under 10CFR50, Appendix I, the flexibility of operation, compatible with considerations of health and safety, to assure that the public is provided a dependable source of power even under unusual operating conditions which may temporarily result in releases higher than such numerical guides for design objectives but still within levels that assure that the average population exposure is equivalent to small fractions of doses from natural background radiation. It is expected that in using this operational flexibility under unusual operating conditions, the licensee will exert his best efforts to keep levels of radioactive material in effluents within the numerical guides for design objectives.~~

SURVEILLANCE REQUIREMENTS

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

SEE COMMENT #3

4.11.2.2.2 Reports The semiannual Radioactive Effluent Release Report shall include the information specified in Specification 6.9.1.~~6~~.

BASES

3/4.11.2.2 DOSE, NOBLE GASES

This specification is provided to implement the requirements of Sections III.A and IV.A of Appendix I, 10 CFR Part 50. The Limiting Condition for Operation implements the guides set forth in Section ~~IV.A~~ of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I 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 ~~conform~~ with the guides of Appendix I ~~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 ~~unrestricted area~~ site boundary ~~will be~~ are based upon the historical average atmospheric conditions.

RADIOACTIVE EFFLUENTS

DOSE, RADIOIODINES AND 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 ~~and~~, radioactive materials in particulate form, and with half-lives greater than 8 days, in gaseous effluents released ~~to unrestricted areas~~ (see Figure 3.11-1) shall be limited to the following:

a. During any calendar quarter to ≤ 7.5 mrem to any organ and,

b. During any calendar year to ≤ 15 mrem to any organ.

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, in lieu of any other report required by Specification 6.9.1, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, 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 and radioactive materials in particulate form, and radionuclides (other than nobles 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 dose or dose commitment to an individual from such releases during these four calendar quarters is within (15) mrem to any organ.

~~levels set forth as numerical guides for design objectives in Section II, 10CFR50, Appendix I.~~

~~At the same time, the licensee is permitted under 10CFR50, Appendix I, the flexibility of operation, compatible with considerations of health and safety, to assure that the public is provided a dependable source of power even under unusual operating conditions which may temporarily result in releases higher than such numerical guides for design objectives but still within levels that assure that the average population exposure is equivalent to small fractions of doses from natural background radiation. It is expected that in using this operational flexibility under unusual operating conditions, the licensee will exert his best efforts to keep levels of radioactive material in effluents within the numerical guides for design objectives.~~

SURVEILLANCE REQUIREMENTS

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

SEE COMMENT #3

4.11.2.3.2 Reports The semiannual Radioactive Effluent Release Report shall include the information specified in Specification 6.9.1.~~6~~.

BASES

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 ~~IV.A~~ of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive 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 in 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, ~~and~~ 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 meat producing animals graze with consumption of the milk and meat by man, and 4) deposition on the ground with subsequent exposure of man.

RADIOACTIVE EFFLUENTS

GASEOUS RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION

3.11.2.4 The GASEOUS RADWASTE TREATMENT SYSTEM and the VENTILATION EXHAUST TREATMENT SYSTEM shall be OPERABLE. The appropriate portions of the GASEOUS RADWASTE TREATMENT SYSTEM shall be used to reduce radioactive materials in gaseous waste prior to their discharge when the projected gaseous effluent air doses due to gaseous effluent releases from the site (see Figure 5.1-3), when averaged over 31 days, would exceed 0.2 mrad for gamma radiation and 0.4 mrad for beta radiation. The appropriate portions of the VENTILATION EXHAUST TREATMENT SYSTEM shall be used to reduce radioactive materials in gaseous waste prior to their discharge when the projected doses due to gaseous effluent releases from the site (see Figure ~~5.1-3~~) when averaged over 31 days would exceed 0.3 mrem to any organ. → 3.11-1

APPLICABILITY: At all times.

ACTION:

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

   1. Identification of the inoperable equipment or subsystems and the reason for inoperability,

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

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

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

SURVEILLANCE REQUIREMENTS

4.11.2.4.1 Doses due to gaseous releases from the site shall be projected at least once per 31 days, in accordance with the ODCM.

4.11.2.4.2 The GASEOUS RADWASTE TREATMENT SYSTEM and VENTILATION EXHAUST TREATMENT SYSTEM shall be demonstrated OPERABLE by operating the GASEOUS RADWASTE TREATMENT SYSTEM equipment and VENTILATION EXHAUST TREATMENT SYSTEM equipment for at least ___ minutes, at least once per 92 days unless the appropriate system has been utilized to process radioactive gaseous effluents during the previous 92 days.

BASES

3/4.11.2.4 GASEOUS WASTE TREATMENT

The OPERABILITY of the GASEOUS RADWASTE TREATMENT SYSTEM and the VENTILATION EXHAUST TREATMENT SYSTEMS ensures that the systems will be available for use whenever gaseous effluents require treatment prior to release to the environment. The requirement that the appropriate portions of these systems be used when specified provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "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 10CFR Part 50. The specified limits governing the use of appropriate portions of the ~~guide~~ dose design objectives 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.

RADIOACTIVE EFFLUENTS

EXPLOSIVE GAS MIXTURE ~~(Hydrogen rich systems not designed to withstand a hydrogen explosion)~~

LIMITING CONDITION FOR OPERATION

3.11.2.~~6~~6 The concentration of oxygen in the waste gas holdup system shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration exceeds 4% by volume.

APPLICABILITY: At all times.

ACTION:

a. With the concentration of oxygen in the waste gas holdup system greater than 2% by volume but less than or equal 4% by volume, reduce the oxygen concentration to the above limits within 48 hours.

b. With the concentration of oxygen in the waste gas holdup system greater than 4% by volume and the hydrogen concentration greater than 2% by volume, immediately suspend all additions of waste gases to the system and reduce the concentration of oxygen to less than or equal to 2% by volume within one hour.

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

SURVEILLANCE REQUIREMENTS

4.11.2.~~8~~6 The concentrations of hydrogen and oxygen in the waste gas holdup system shall be determined to be within the above limits by continuously monitoring the waste gases in the waste gas holdup system with the hydrogen and oxygen monitors required OPERABLE by Table 3.3-~~13~~12 of Specification 3.3.3.~~10~~9.

BASES

3/4.11.2.~~6~~6 EXPLOSIVE GAS MIXTURE

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

RADIOACTIVE EFFLUENTS

GAS STORAGE TANKS

LIMITING CONDITION FOR OPERATION

3.11.2.7 The quantity of radioactivity contained in each gas storage tank shall be limited to < 6000 curies noble gases (considered as Xe-133).

APPLICABILITY: At all times

ACTION:

a. With the quantity of radioactive material in any gas storage tank exceeding the above limit, suspend all additions of radioactive material to the tank and within 48 hours ~~either~~ reduce the tank contents to within the limit, ~~or provide prompt notification to the Commission pursuant to Specification 6.9.1.12. The written followup report shall include a description of activities planned and/or taken to reduce the tank contents to within the above limit.~~

SURVEILLANCE REQUIREMENTS

4.11.2.7 The quantity of radioactive material contained in each ~~isolated~~ gas storage tank shall be determined to be within the above limit at least once per 24 hours when radioactive materials are being added to the tank.

BASES

3/4.11.2.7 GAS STORAGE TANKS

Restricting the quantity of radioactivity contained in each gas storage tank provides assurance that in the event of an uncontrolled release of the tanks contents, the resulting total body exposure to an individual at the nearest exclusion area boundary will not exceed 0.5 rem. This is consistent with Standard Review Plan 15.7.1, "Waste Gas System Failure."

RADIOACTIVE EFFLUENTS

3/4.11.3 SOLID RADIOACTIVE WASTE → in accordance with a PROCESS CONTROL PROGRAM

LIMITING CONDITION FOR OPERATION

3.11.3.1 The solid radwaste system as described in the PROCESS CONTROL PROGRAM shall be OPERABLE and used ~~to provide~~ for the SOLIDIFICATION and packaging of radioactive wastes to ensure meeting the requirements of 10CFR Part 20 and of 10CFR Part 71 prior to shipment of radioactive waste from the site.

APPLICABILITY: At all times.

ACTION: → 10 CFR Part 20 and/or 10 CFR Part 71

a. With the packaging requirements of ~~the PROCESS CONTROL PROGRAM of Specification 6.14~~ not satisfied, suspend defectively packaged shipments of solid radioactive wastes from the site.

b. With the solid radwaste system inoperable for more than 31 days, in lieu of any other report required by Specification 6.9.1, prepare and submit to the Commission within 30 days pursuant to Specification 6.9.2 a Special Report which includes the following information:

1. Identification of the inoperable equipment or subsystems and the reason for inoperability,
2. Action(s) taken to restore the inoperable equipment to OPERABLE status,
3. A description of the alternative used for SOLIDIFICATION and packaging of radioactive wastes, and
4. Summary description of action(s) taken to prevent a recurrence.

SURVEILLANCE REQUIREMENTS

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

SURVEILLANCE REQUIREMENTS (Continued)

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

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

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

4.11.3.2 The PROCESS CONTROL PROGRAM ~~of Specification 6.14~~ shall be used to verify the SOLIDIFICATION of at least one representative test specimen from at least every ~~hundredth~~ batch of each type of wet radioactive waste (e.g., filter sludges, spent resins, evaporator bottoms, boric acid solutions, sodium sulfate solutions, and filter media). The test specimens shall be processed in the radiochemical or waste processing laboratory in accordance with procedures of the PROCESS CONTROL PROGRAM.

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 3 consecutive initial test specimens demonstrate SOLIDIFICATION. The PROCESS CONTROL PROGRAM shall be modified as required, as provided in Specification 6.14, to assure SOLIDIFICATION of subsequent batches of waste.

4.11.3.3 Reports - The semiannual Radioactive Effluent Release Report shall include the following information for each type of solid waste shipped offsite during the report period:

SEE COMMENT #3

a. container volume,

b. total curie quantity (determined by measurement or estimate),

SURVEILLANCE REQUIREMENTS (Continued)

SEG COMMENT #3

c. principal radionuclides (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).

BASES

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 Criteria 60 of Appendix A to 10 CFR Part 50. The process parameters used in establishing the PROCESS CONTROL PROGRAM may include, but are not limited to waste type, waste pH, waste/liquid/solidification agent/catalyst ratios, waste oil content, waste principal chemical constituents, mixing and curing times.

RADIOACTIVE EFFLUENTS

3/4.11.4 TOTAL DOSE

LIMITING CONDITION FOR OPERATION

3.11.4 The dose or dose commitment to any member of the public, due to releases of radioactivity and radiation, from uranium fuel cycle sources shall be limited to less than or equal to 25 mrem to the total body or any organ (except the thyroid, which shall be limited to less than or equal to 75 mrem) over 12 consecutive months.

APPLICABILITY: At all times.

ACTION:

a. With the calculated doses from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of Specification 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, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the 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 3.11.4. This Special Report shall include an analysis which estimates the radiation exposure (dose) to a member of the public from uranium fuel cycle sources (including all effluent pathways and direct radiation) for a 12 consecutive month period that includes the release(s) covered by this report. If the estimated dose(s) exceeds the limits of Specification 3.11.4, 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.

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

SURVEILLANCE REQUIREMENTS

4.11.4 Dose Calculations Cumulative dose contributions from liquid and gaseous effluents shall be determined in accordance with Specifications 4.11.1.2, 4.11.2.2, and 4.11.2.3, and in accordance with the ODCM.

BASES

3/4.11.4 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.

REVIEW

6.5.2.7 The SRC 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, 10CFR, 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 experiements which involve an unreviewed safety question as defined in Section 50.59, 10 CFR.

d. Proposed changes to Technical Specifications of 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 plant 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 safety related structures, systems, or components.

i. Reports and meetings minutes of the Plant Operating Review Committee.

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

n. 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.

AUDITS

6.5.2.8 Audits of facility activities shall be performed under the cognizance of the SRC. These audits shall encompass:

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

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

c. The results of actions taken to correct deficiencies occurring in facility 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 Facility Emergency Plan and implementing procedures at least once per 24 months.

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

g. Any other area of facility operation considered appropriate by the SRC or the Executive Director.

h. The Facility Fire Protection Program and implementing procedures at least once per two years.

i. A 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.

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

l. The Offsite Dose Calculation Manual and implementing procedures at least once per 24 months.

AUTHORITY

6.5.2.9 The SRC shall report to and advise the Executive Director on those areas of responsibility specified in Sections 6.5.2.7 and 6.5.2.8.

RECORDS

6.5.2.10 Records will be maintained in accordance with ANSI 18.7-1972. The following shall be prepared, approved and distributed as indicated below:

a. Minutes of each SRC meeting shall be prepared, approved and forwarded to the Executive Director within 14 days after the date of the meeting.

b. Reports of reviews encompassed by Section 6.5.2.7 above, shall be prepared, approved and forwarded to the Executive Director within 14 days following completion of the review.

c. Audit reports encompassed by Section 6.5.2.8 above, shall be forwarded to the Executive Director and to the management positions responsible for the areas audited within 30 days after completion of the audit.

CHARTER

6.5.2.11 Conduct of the committee will be in accordance with a charter, approved by the Executive Director, setting forth the mechanism for implementation of the committee's responsibilities and authority.

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 PORC and a report submitted by the Resident Manager to the Chairman of the SRC and Manager-Nuclear Operations.

6.7 SAFETY LIMIT VIOLATION

6.7.1 The following actions shall be taken in the event a Safety Limit is violated:

a. The reactor shall be shut down and reactor operation shall only be resumed in accordance with the provisions of 10 CFR 50.36(c)(1)(i).

b. The Safety Limit violation shall be reported immediately to the Commission. The Chairman of the SRC and Manager-Nuclear Operations will be notified within 24 hours.

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

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

d. The Safety Limit Violation Report shall be submitted to the Commission, the Chairman of the SRC and the Manager-Nuclear Operations by the Resident Manager.

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, November, 1972.

b. The radiological environmental monitoring program.

c. Refueling operations.

d. Surveillance and test activities of safety related equipment.

e. Security Plan implementation.

f. Emergency Plan implementation.

g. Fire Protection Program implementation.

h. Offsite Dose Calculation Manual implementation.

6.8.2 Temporary changes to procedures above may be made provided:

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

b. The change is approved by two members of the plant 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 PORC and approved by the Resident Manager within 14 days of implementation.

6.8.3 Each procedure of 6.8.1 above, and changes thereto, shall be reviewed by the PORC and approved by the Resident Manager prior to implementation and reviewed periodically as set forth in administrative procedures.

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.

START-UP REPORT

6.9.1.1 A summary report of appropriate plant testing shall be submitted following (1) an amendment to the license invclving a planned increase in power level, (2) installation of fuel that has a different design and (3) modifications that may have significantly altered the nuclear, thermal, or hydraulic performances of the plant. The report shall address each of the tests identified in the FSAR and shall in general include a description of the measured values of the operating conditions or characteristics obtained during the testing and a comparison of these values with acceptance criteria. 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.

6.9.1.2 Start-up reports shall be submitted within (1) 90 days following completion of the start-up 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 Start-up Report does not cover all three events (i.e., initial criticality, completion of start-up program, and resumption or commencement of commercial power operation), supplementary reports shall be submitted at least every three months until all three events have been completed.

ANNUAL RADIATION EXPOSURE REPORTS

6.9.1.3 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 man rem exposures according to work and job functions, 1/ e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance, waste processing, and refueling. The dose assignment to various duty functions may be estimates based on pocket dosimeter, TLD, or film badge measurements. Small exposures totalling less than 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole body dose received from external sources shall be assigned to specific major work functions.

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

6.9.1.4 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.

6.9.1.5 The annual radiological environmental operating reports shall include summaries, interpretations, and statistical evaluation 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 the milk animal census 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.

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

The annual radiological environmental operating reports shall include summarized and tabulated results in the format of Table 6.9-1 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 including sample methods for each sample type, size and physical characteristics of each sample type, sample preparation methods, analytical methods, and measuring equipment used; a map of all sampling locations keyed to a table giving distances and directions from the plant; the result of milk animal census required by the Specification 3.12.2 and the results of licensee participation in the Interlaboratory Comparison Program required by Specification 3.12.3.

SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

~~6.9.1.6 Routine radioactive effluent release report 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.

a. 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", with data summarized on a quarterly basis following the format of Appendix B thereof.

b. The radioactive effluent release reports shall include a summary of the meteorological conditions concurrent with the release of gaseous effluents during each quarter as outlined in Regulatory Guide 1.21, with data summarized on a quarterly basis following the format of Appendix B thereof.

c. The radioactive effluent release reports shall include the following information for all unplanned releases to unrestricted areas of radioactive materials in gaseous and liquid effluents:

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.

SEE ATTACHED

6.9.1.6 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.

a. 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.

b. 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 (Figure ~~5.1-3 and 5.1-4~~ 3.11-1) 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).

c. 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.

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

Container volume,

1. Total curie quantity (specifiy whether determined by measurement or estimate),

2. Principal radionuclides (specify whether determined by measurement or estimate),

3. Type of waste (e.g., spent resin, compacted dry waste, evaporator bottoms),

4. Type of container (e.g., LSA, Type A, Type B, Large Quantity), and

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

e. 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.

f. The radioactive effluent release reports shall include any changes to the PROCESS CONTROL PROGRAM (PCP) made during the reporting period.

TABLE 6.9-1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM SUMMARY

Name of Facility _____ Docket No. _____

Location of Facility _____ Reporting Period _____
(County, State)

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (1)[b] Range[b]	Location with Highest Annual Mean		Control Locations Mean (1)[b] Range[b]	Number of REPORTABLE OCCURRENCES
				Name Distance and Direction	Mean (1)[b] Range[b]		
Example Data Presentation[d]							

[a]Nominal Lower Limit of Detection (LLD) as defined in table notation a. of Table 4.11-3 of Specification 4.11.A.

[b]Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (1).

[d]Note: The example data are provided for illustrative purposes only.

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).~~ Plant Operating Review Committee.

e. The radioactive effluent release reports shall include any changes to the Offsite Dose Calculation Manual (ODCM) made during the reporting period.

MONTHLY OPERATING REPORT

6.9.1.7 Routine reports of operating statistics, operating and shutdown experience and safety-related maintenance shall be submitted on a monthly basis to the Director, Office of Management ~~Information~~ and Program ~~Control,~~ Analysis, ~~with 40 copies to the Office of Inspection and Enforcement,~~ U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, no later than ~~15 days~~ the 15th of each month following the calendar month covered by the report.

with a copy to the Regional Office of Inspection and Enforcement.

6.9.1.8 Each monthly operating report shall include:

a. A tabulation of plant operating data and statistics.

b. A narrative summary of operating experience during the report period relating to safe operation of the facility, including safety-related maintenance not covered in 6.9.1.8.c.5. below. 2/

c. For each outage or forced reduction in power 3/ of over twenty percent of RATED POWER where the reduction extends for greater than four hours:

1. The proximate cause and the system and major component involved (if the outage or forced reduction in power involved equipment malfunction);

2. A brief discussion of (or reference to reports of) any reportable occurrences pertaining to the outage or power reduction;

2/ Any safety-related maintenance information not available for inclusion in the monthly operating report for a report period shall be included in a subsequent monthly operating report not later than 6 months following completion of such maintenance.

3/ The term "forced reduction in power" is defined as the occurrence of a component failure or other condition which requires that the load on the unit be reduced for corrective action immediately or up to and including the very next weekend. Note that routine preventive maintenance, surveillance and calibration activities requiring power reductions are not covered by this section.

3. Corrective action taken to reduce the probability of recurrence, if appropriate;

4. Operating time lost as a result of the outage or power reduction (for scheduled or forced outages, 4/ use the generator off-line hours; for forced reductions in power, use the approximate duration of operation at reduced power);

5. A description of major safety-related corrective maintenance performed during the outage or power reduction, including the system and component involved and identification of the critical path activity dictating the length of the outage or power reduction; and

6. A report of any single release of radioactivity or radiation exposure specifically associated with the outage which accounts for more than 10% of the allowable annual values.

REPORTABLE OCCURRENCES

6.9.1.9 The REPORTABLE OCCURRENCES of Specifications 6.9.1.10 and 6.9.1.11 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 FOLLOW-UP

6.9.1.10 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 follow-up report within two weeks. The written follow-up 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.

4/ The term "forced outage" is defined as the occurrence of a component failure or other condition which requires that the unit be removed from service for corrective action immediately or up to and including the very next weekend.

b. Operation of the unit or affected system 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.5/

d. Reactivity anomalies involving disagreement with the predicted value of reactivity balance under steady conditions during power operation greater than or equal to 1% Δk/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% Δk/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.

g. Conditions arising from natural or man-made events that, as a direct result of the event require plant 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 plant life of conditions not specifically considered in the safety analysis

5/ Leakage of packing, gaskets, mechanical joints and seal welds within the limits for identified leakage set forth in technical specifications need not be reported under this item. Steam generator tube degradation need not be reported under this item except where leakage exceeds the limits of specification 3.1.F.

k. 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.

report or technical specifications that require remedial action or corrective measures to prevent the existence or development of an unsafe condition.

see comment #20

j. Exceeding the limits in Specification ~~3.11.1.4~~ or 3.11.2.7 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

6.9.1.11 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.6/

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.6/

c. Observed inadequacies in the implementation of administrative or procedural controls which threaten to cause reduction of degree of redundance provided in reactor protection systems or engineered safety feature systems.

d. Abnormal degradation of systems other than those specified in 6.9.1.10.c above designed to contain radioactive material resulting from the fission process.7/

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.

6/ Routine surveillance testing, instrument calibration, or preventive maintenance which require system configurations as described need not be reported except where test results themselves reveal a degraded mode as described.

7/ Sealed sources of calibration sources are not included under this item. Leakage of packing, gaskets, mechanical joints and seal welds within the limits for identified leakage set forth in technical specifications need not be reported under this item.

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.

~~[illegible] are detected in the sampling medium, this report shall be submitted if:~~

6.9-2

~~$\frac{\text{concentration (1)}}{\text{reporting level (1)}} + \frac{\text{Concentration (2)}}{\text{reporting level (2)}} + \ldots \geq 1$~~

When radionuclides other than those in Table 6.9-2 are detected and are the results of plant effluents, this report shall be submitted if the potential annual dose to an individual is equal to or greater than the calendar year limits of Specifications 3.11.1.2, 3.11.2.2 and 3.11.2.3. This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event, the condition shall be reported and described in the Annual Radiological Environmental Operating Report.

SPECIAL REPORTS

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. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

a. Sealed source leakage on excess of limits (Specification 3.9)

b. Inoperable Seismic Monitoring Instrumentation (Specification 4.10)

c. Primary coolant activity in excess of limits (Specification 3.1.D)

d. Seismic event analysis (Specification 4.10)

e. Inoperable fire protection and detection equipment (Specification 3.14)

f. Operation of Overpressure Protection System (Specification 3.1.A.3)

g. Radioactive effluents (Specification 3/4.11)

h. Radiological environmental monitoring (Specification 3/4.12)

i. Meteorological monitoring instrumentation (Specification 3.15)

j. Radioactive Liquid Effluent Instrumentation (Specification 3.3.3.8)

k. Radioactive Gaseous Effluent Instrumentation (Specification 3.3.3.9)

TABLE 6.9-2

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES

Reporting Levels

Analysis	Water (pCi/l)	Airborne Particulate or Gases (pCi/m^3)	Fish (pCi/Kg, wet)	Milk (pCi/l)	Vegetables (pCi/Kg, wet)
H-3	2×10^4 (a)				
Mn-54	1×10^3		3×10^4		
Fe-59	4×10^2		1×10^4		
Co-58	1×10^3		3×10^4		
Co-60	3×10^2		1×10^4		
Zn-65	3×10^2		2×10^4		
Zr-Nb-95	4×10^2				
I-131	2	0.9		3	1×10^2
Cs-134	30	10	1×10^3	60	1×10^3
Cs-137	50	20	2×10^3	70	2×10^3
Ba-La-140	2×10^2			3×10^2	

(a) For drinking water samples

6.10 RECORD RETENTION

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

a. Records and logs of facility 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 Operating Procedures.

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 source material of record.

i. Records of reactor tests and experiments.

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

a. Records of any drawing changes reflecting facility 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 facility radiation and contamination surveys.

d. Records of radiation exposure for all individuals entering radiation control areas.

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

f. Records of transient or operational cycles for those facility components designed for a limited number of transient cycles.

g. Records of training and qualifications for current members of the plant staff.

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

i. Records of Quality Assurance activities required by the QA 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 PORC and the SRC.
l. Records of analyses required by the radiological environmental monitoring program.

6.11 RADIATION AND RESPIRATORY 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 as to maintain exposures as far below the limits specified in 10 CFR Part 20 as reasonable achievable. A respiratory protection program as described in Regulatory Guide 8.15, Revision 0, will be developed and implemented for respiratory equipment, as required in 10 CFR 20.103 (f).

6.12 HIGH RADIATION AREA

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 1000 mrem/hr or less and 100 mrem/hr or greater 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 or accompanied by one or more of the following:

a. A radiation monitoring device which continuously indicates the radiation dose rate in the area.

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

* Health Physics Personnel shall be exempt from the RWP issuance requirements for entries into high radiation areas during the performances of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas.

c. An individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device. This individual shall be responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the facility Health Physicist in the 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 Supervisor on duty and/or the plant Radiological and Environmental Superintendent or his designee.

6.13 OFFSITE DOSE CALCULATION MANUAL (ODCM)

6.~~14~~13.1 The ODCM shall be approved by the Commission prior to implementation.

6.~~14~~13.2 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)~~ PORC.

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

6.~~13~~ 14 PROCESS CONTROL PROGRAM (PCP)

6.~~13~~ 14.1 The PCP shall be approved by the Commission prior to implementation.

6.~~13~~ 14.2 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)~~. PORC.

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

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)~~. Plant Operating Review Committee. 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;

6.15 (Cont.)

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).~~ PORC.

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