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Nuclear Business Unit

JAN 24 2000

LR-N990402
LCR S99-19

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Gentlemen:

**REQUEST FOR AMENDMENT
RADIOACTIVE EFFLUENT TECHNICAL SPECIFICATIONS –
SALEM GENERATING STATION
UNIT NOS. 1 AND 2
DOCKET NOS. 50-272 AND 50-311**

In accordance with the requirements of 10CFR50.90, Public Service Electric & Gas Company (PSE&G) hereby submits a request for amendment to Facility Operating Licenses DPR-70 and DPR-75 for Salem Generating Station Unit Nos. 1 and 2 respectively. Pursuant to the requirements of 10CFR50.91(b)(1), a copy of this request for amendment has been sent to the State of New Jersey. The changes proposed in this submittal consist of revisions to the Radiological Effluent Technical Specifications and Administrative Controls. This submittal is consistent with NRC Generic Letter (GL) 89-01, "Implementation of Programmatic Controls for Radiological Effluent Technical Specifications (RETS) in the Administrative Controls Section of the Technical Specifications and the Relocation of Procedural Details of RETS to the Offsite Dose Calculation Manual or to the Process Control Program." The proposed amendment will incorporate programmatic controls in the Technical Specifications for radioactive effluents and for environmental monitoring conforming to the applicable regulatory requirements. Procedural details associated with solid radioactive wastes will be relocated to the Process Control Program (PCP).

The changes proposed in this submittal have been prepared in accordance with proposed changes to the Administrative Controls section of the Technical Specifications specified in GL 89-01, and NUREG-1301, "Offsite Dose Calculation Manual Guideline: Standard Radiological Effluents Controls for Pressurized Water Reactors" (Generic Letter 89-01, Supplement 1). A complete copy of the revised ODCM is forwarded with this License Change Request (LCR) for reference as specified in GL 89-01.

Additionally, PSE&G, Salem Generating Station, intends to operate within the requirements of the "old" 10 CFR 20 requirements. By letter dated June 30, 1993 from Thomas E. Murley, then Director, Office of Nuclear Reactor Regulation, to Thomas E. Tipton, formally NUMARC, the NRC responded to an industry inquiry on promulgation of a new Part 20. In the letter the NRC stated:

"After careful review of your position and other relevant factors, we have determined that it is acceptable to the staff for licensees to retain their existing

The power is in your hands.

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level of effluent control as implementing the ALARA requirements after January 1, 1994, without submitting individual requests for amending their technical specifications to comply with new 10 CFR 20.1101(b)."

The letter further states "...we are preparing a Generic Letter to provide model Technical Specification wording to ensure conformance with the revised Part 20 requirements." And "The model changes for Technical Specifications that will be in the Generic Letter are intended to eliminate possible confusion or improper implementation of revised Part 20 requirements."

Since then, the NRC has canceled its plan to issue a Generic Letter in order to devote more resources to conversion reviews and reviews of the Improved Standard Technical Specifications (ITS). PSE&G, Salem Generating Station, will continue to comply with the requirements of "old" part 20 and its Appendices, for release of radioactive effluents. The method currently in use for controlling releases to within the "old" 10 CFR 20.106, Appendix B concentration MPC limits based on instantaneous concentration values is still suitable for demonstrating conformance to the requirements of "new" 10 CFR Part 20, Appendix B ECL concentration limits. Controlling radioactive effluents to within the MPC values based on an instantaneous release rate (i.e. no time averaging of effluent concentrations) is considered to be more conservative than the requirements of the "new" 10 CFR Part 20 which have limits stated as effluent concentrations averaged over a year.

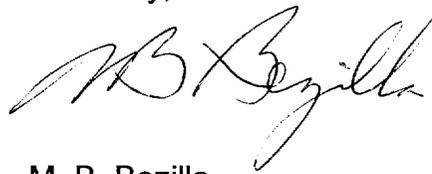
The proposed changes have been evaluated in accordance with 10 CFR 50.91(a)(1), using the criteria in 10 CFR 50.92(c), and a determination has been made that this request involves no significant hazards considerations. The basis for the requested change is provided in Attachment 1 to this letter. A 10 CFR 50.92 evaluation, with a determination of no significant hazards consideration, is provided in Attachment 2. The marked up Technical Specification pages affected by the proposed changes are provided in Attachment 4. The revised ODCM is provided in Attachment 5.

PSE&G has determined that this request meets the criteria of 10 CFR 51.22(c)(9) and 10 CFR 51.22(c)(10) for a categorical exclusion from the requirements for an Environmental Impact Statement (see Attachment 3).

Upon NRC approval of this proposed change, PSE&G requests that the amendment be made effective on the date of issuance, but allow an implementation period of sixty days to provide sufficient time for associated administrative activities.

Should you have any questions regarding this request, please contact Brooke Knieriem, Salem Licensing, at (856) 339-1782.

Sincerely,



M. B. Bezilla
Vice President - Operations

/rbk
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Attachments (5)

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Microfilm Copy
Files No. 1.2.1 (Salem), 2.3 (LCR S99-19), and 5.93

**SALEM GENERATING STATION UNITS 1 AND 2
FACILITY OPERATING LICENSES DPR-70 AND DPR-75
DOCKET NOS. 50-272 AND 50-311
REVISIONS TO THE TECHNICAL SPECIFICATIONS**

I. DESCRIPTION OF THE PROPOSED CHANGE

This License Change Request (LCR) proposes changes to the Salem Generating Station Radiological Effluent Technical Specifications (RETS) and to the Administrative Controls section of the Technical Specifications (TS), as authorized by NRC Generic Letter (GL) 89-01. Specifically, the implementation of programmatic controls for RETS in the Administrative Controls section of the TS and the relocation of procedural details of RETS to the Offsite Dose Calculation Manual (ODCM) or to the Process Control Program (PCP).

The Salem Unit 1 and Unit 2 RETS will be transferred to the Salem ODCM by transferring the current RETS directly to the ODCM without change, except for the substitution of "Controls" for "Limiting Condition for Operations" or "LCO", and with the following changes:

1. ODCM Control 3/4.12.1, Radiological Environmental Monitoring Program, is updated to conform to Radiological Assessment Branch Technical Position, Revision 1, November 1979. The REMP is conducted as one program for both Salem and Hope Creek Generating Stations. The sampling and analysis requirements in ODCM Table 3.12-1 reflect this common program. Therefore, additional requirements than those that exist in the current Technical Specifications will be implemented.
2. TS Administrative Control 6.9.1.8 and ODCM Control 6.9.1.8, Radioactive Effluent Release Report, are revised to require an annual report to be submitted prior to May 1, of each year vice submission of a semiannual report. This change is in accordance with the current requirement in 10CFR50.36a(a)(2) to submit a report annually on the quantities of radioactive effluent discharged to the environment.
3. For instances in which differences between Unit 1 and Unit 2 Technical Specifications exist, each unit's TS requirements are incorporated in the ODCM Control by either applying the more limiting requirement or by identifying the Unit applicability.

The Unit 1 and Unit 2 Technical Specifications are revised or deleted in accordance with the guidance provided in the Generic Letter 89-01 except as follows:

1. GL 89-01 TS Administrative Control 6.8.4.g Item 6), addresses limitations on the operability and use of the liquid and gaseous effluent treatment systems to ensure that "appropriate portions of these systems are used to reduce releases of radioactivity when projected doses in a **31-day period** would exceed **2 percent** of the guidelines for the annual dose or dose commitment conforming to Appendix I to 10 CFR 50". In lieu of the wording provided by GL 89-01, Salem Unit 1 and Unit 2 TS Administrative Control 6.8.4.g Item 6) will require that "appropriate portions of these systems are used to reduce releases of radioactivity when projected doses in a **92-day period** would exceed a **suitable fraction** of the

guidelines for the annual dose or dose commitment conforming to Appendix I to 10 CFR 50". The term "suitable fraction" is as identified in the Bases for the ODCM Control (and current Salem TS) for 3/4.11.1.3 and 3/4.11.2.4. The ODCM Control limits are identical to the current Unit 1 and Unit 2 Technical Specification limits originally approved by the NRC in the Safety Evaluation Report for Unit 1 Technical Specification Amendment 59 and Unit 2 Technical Specification Amendment 28.

II. BACKGROUND FOR THE PROPOSED CHANGE

As a part of its Interim Policy Statement on TS Improvements, NRC staff determined that programmatic controls can be implemented in the Administrative Controls section of the TS to satisfy existing regulatory requirements for RETS. In addition, the NRC staff concluded that the procedural details of the TS on radioactive effluents and radiological environmental monitoring could be relocated to the ODCM, and that the procedural details of the TS on solid radioactive wastes could be relocated to the PCP. This determination and guidance for its implementation was communicated to licensees in NRC GL 89-01. The proposed changes contained in this LCR will implement the TS improvements of NRC GL 89-01 for Salem Generating Station.

III. BASIS FOR THE PROPOSED CHANGE

The proposed LCR will provide programmatic controls for RETS that are consistent with regulatory requirements. In addition, the proposed LCR will allow relocation of procedural detail, consisting of the limiting conditions for operation (LCOs), their applicability, associated remedial actions, surveillance requirements, and the TS Bases for these requirements to the appropriate licensee-controlled documents. Relocation of the procedural details to the appropriate licensee-controlled documents is justified since they no longer meet the criteria of 10 CFR 50.36 for inclusion in TS.

In NRC GL 89-01, the NRC examined the contents of the RETS in relation to the then existing Commission's Interim Policy Statement on Technical Specification improvements. The NRC determined that programmatic controls could be implemented in the Administrative Controls Section of the TS to satisfy regulatory requirements. Additionally, the NRC determined that the procedural details of the current TS on radioactive effluents and radiological environmental monitoring could be relocated to the ODCM, likewise, the procedural details of the current TS on solid radioactive wastes could be relocated to the PCP. These actions simplify the RETS, meet the regulatory requirements for radioactive effluents and radiological monitoring, and are provided as a line-item improvement.

Subsequent to NRC GL 89-01, the NRC revised 10 CFR 50.36 to meet the intent of policy statement, "Final Policy Statement on Technical Specification Improvements for Nuclear Reactors," (58FR39132). This revision provided a specific set of four objective criteria to determine which of the design conditions and associated surveillance should be located in TS as limiting conditions for operation. The NRC recognized that implementation of these criteria may cause some requirements presently in TS to no longer merit inclusion in TS. The proposed RETS to be relocated are candidates for relocation from TS since they do not meet the four objective criteria specified in 10 CFR 50.36. The proposed

changes in NRC GL 89-01 are consistent with the four objective criteria and meet applicable regulatory requirements.

In addition, TS Administrative Control 6.9.1.8 and ODCM Control 6.9.1.8, Radioactive Effluent Release Report, are revised to require an annual report to be submitted prior to May 1, of each year vice submission of a semiannual report. This change is in accordance with the current requirement in 10CFR50.36a(a)(2) to submit a report annually on the quantities of radioactive effluent discharged to the environment.

Future changes to the relocated RETS, in either the ODCM or the PCP, will be governed by the programmatic and administrative controls specified in the Administrative Controls section of TS. Therefore, a comparable level of administrative control will continue to be applied to the design conditions and associated surveillances that are being relocated to the ODCM and the PCP.

The proposed changes transfer procedural requirements for radiological effluent and environmental monitoring from the TS to other licensee-controlled documents, the ODCM, and the PCP, and adds programmatic and administrative controls for these procedural requirements to the Administrative Controls section of the TS. The content of existing technical requirements concerning RETS is not affected by the proposed changes except as noted in Section I of this Attachment. The proposed changes will not reduce the accuracy or reliability of the dose calculation or setpoint determinations performed under the existing ODCM since none of these methods are affected by the proposed changes.

**SALEM GENERATING STATION UNITS 1 AND 2
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REVISIONS TO THE TECHNICAL SPECIFICATIONS**

IV. DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

License Change Request S99-19 proposes changes to the Salem Generating Station's Radiological Effluent Technical Specifications (RETS) and Administrative Controls section of the Technical Specifications (TS), as authorized by NRC Generic Letter (GL) 89-01, "Implementation of Programmatic Controls for Radiological Effluent Technical Specifications (RETS) in the Administrative Controls Section of the Technical Specifications and the Relocation of Procedural Details of RETS to the Offsite Dose Calculation Manual or to the Process Control Program. The proposed amendment has been prepared in accordance with the guidance provided in GL 89-01 to incorporate programmatic controls into the TS for radioactive effluents and for environmental monitoring. These programmatic controls will allow relocation of existing procedural details of the current RETS to the Offsite Dose Calculation Manual (ODCM), and relocation of procedural details associated with solid radioactive wastes to the Process Control Program (PCP).

Public Service Electric & Gas (PSE&G) has concluded that the proposed changes to the Salem Generating Station Technical Specifications do not involve a significant hazards consideration. In support of this determination, an evaluation of each of the three standards set forth in 10 CFR 50.92 is provided below.

1. Will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes do not affect accident initiators or precursors and do not alter the design assumptions, conditions, configuration of the facility or the manner in which the plant is operated. The proposed changes do not alter or prevent the ability of structures, systems, or components to perform their intended function to mitigate the consequences of an initiating event within the acceptance limits assumed in the Updated Final Safety Analysis Report (UFSAR). The proposed changes are administrative in nature and do not change the level of programmatic controls and procedural details relative to radiological effluents.

Implementation of programmatic controls for RETS in TS will assure that the applicable regulatory requirements pertaining to the control of radioactive effluents will continue to be maintained. Since there are no changes to previous accident analyses, the radiological consequences associated with these analyses remain unchanged. Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Will not create the possibility of a new or different kind of accident from any previously evaluated.

The proposed changes do not alter the design assumptions, conditions, or configuration of the facility; nor do the proposed changes change the manner in which the plant is operated. The proposed changes have no impact on component or system interactions. The proposed changes are administrative in

nature and do not change the level of programmatic controls and procedural details relative to radiological effluents. Therefore, these changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Will not involve a significant reduction in a margin of safety.

There is no impact on equipment design or operation and there are no changes being made to the TS required safety limits or safety system settings that would adversely affect plant safety as a result of the proposed changes. The proposed changes are administrative in nature and do not change the level of programmatic controls and procedural details relative to radiological effluents. A comparable level of administrative control will continue to be applied to those design conditions and associated surveillances being relocated to the ODCM or PCP. Therefore, the proposed changes do not involve a significant reduction in a margin to safety.

V. CONCLUSIONS

Based on the above, Public Service Electric & Gas has determined that the proposed changes do not involve a significant hazards consideration.

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ENVIRONMENTAL IMPACT ASSESSMENT

PSE&G has reviewed the proposed License Amendment Request (LCR) against the criteria of 10 CFR 51.22 for environmental considerations. The proposed changes do not involve a significant hazards consideration, nor increase the types and amounts of effluents that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. Based upon the foregoing, PSE&G concludes that the proposed change meets the criteria delineated in 10 CFR 51.22(c)(9) and 10 CFR 51.22(c)(10) for a categorical exclusion from the requirements for an Environmental Impact Statement.

**SALEM GENERATING STATION UNIT 1
FACILITY OPERATING LICENSE DPR-70
DOCKET NOS. 50-272
REVISIONS TO THE TECHNICAL SPECIFICATIONS**

SALEM UNIT 1 TECHNICAL SPECIFICATION PAGES WITH PROPOSED CHANGES

The following Technical Specifications for Facility Operating License No. DPR-70 are affected by this change request:

<u>Technical Specification</u>	<u>Page</u>
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BASES 3/4.11.4	B 3/4 11-7
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↑ OXYGEN

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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DELETE

DEFINITIONS

- b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be PRESSURE BOUNDARY LEAKAGE, or
- c. Reactor coolant system leakage through a steam generator to the secondary system.

MEMBER(S) OF THE PUBLIC

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

OFFSITE DOSE CALCULATION MANUAL (ODCM)

1.17 The OFFSITE DOSE CALCULATION MANUAL shall be that manual which contains the current methodology and parameters used in the calculation of offsite doses due to radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm/trip setpoints, and in the conduct of the environmental radiological monitoring program.

OPERABLE - OPERABILITY

1.18 A system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified function(s), and when all necessary attendant instrumentation, controls, a normal and an emergency electrical power source, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support function(s).

OPERATIONAL MODE - MODE

1.19 An OPERATIONAL MODE (i.e., MODE) shall correspond to any one inclusive combination of core reactivity condition, power level and average reactor coolant temperature specified in Table 1.1.

DEFINITIONS

PHYSICS TESTS

1.20 PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation and 1) described in Chapter 14 of the Updated FSAR, 2) authorized under the provisions of 10CFR50.59, or 3) otherwise by the Commission.

PRESSURE BOUNDARY LEAKAGE

1.21 PRESSURE BOUNDARY LEAKAGE shall be leakage (except steam generator tube leakage) through a non-isolable fault in a Reactor Coolant System component body, pipe wall or vessel wall.

PROCESS CONTROL PROGRAM (PCP)

1.22 The PROCESS CONTROL PROGRAM shall be that program which contains the current formula, sampling, analyses, test, and determinations to be made to ensure that the processing and packaging of solid radioactive wastes, based on demonstrated processing of actual or simulated wet solid wastes, will be accomplished in such a way as to assure compliance with 10 CFR Part 20, 10 CFR Part 71 and Federal and State regulations and other requirements governing the disposal of the radioactive wastes.

Insert 2

PURGE - PURGING

1.23 PURGE or PURGING shall be 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.

QUADRANT POWER TILT RATIO

1.24 QUADRANT POWER TILT RATIO shall be the ratio of the maximum upper excure detector calibrated output to the average of the upper excure detector calibrated outputs, or the ratio of the maximum lower excure detector calibrated output to the average of the lower excure detector calibrated outputs, whichever is greater. With one excure detector inoperable, the remaining three detectors shall be used for computing the average.

RATED THERMAL POWER

1.25 RATED THERMAL POWER shall be a total reactor core heat transfer rate to the reactor coolant of 3411 MWt.

DEFINITIONS

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REACTOR TRIP SYSTEM RESPONSE TIME

1.26 The REACTOR TRIP SYSTEM RESPONSE TIME shall be the time interval from when the monitored parameter exceeds its trip setpoint at the channel sensor until loss of stationary gripper coil voltage.

REPORTABLE EVENT

1.27 A REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 to 10CFR Part 50.

SHUTDOWN MARGIN

1.28 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming all full length rod cluster assemblies (shutdown and control) are fully inserted except for the single rod cluster assembly of highest reactivity worth which is assumed to be FULLY WITHDRAWN.

SITE BOUNDARY

1.29 The SITE BOUNDARY shall be that line beyond which the land is not owned, leased, or otherwise controlled by the licensee, as shown in Figure 5.1-3, and which defines the exclusion area as shown in Figure 5.1-1.

SOLIDIFICATION

Not used

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

SOURCE CHECK

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

STAGGERED TEST BASIS

1.32 A STAGGERED TEST BASIS shall consist of:

- a. A test schedule for (n) systems, subsystems, trains, or other designated components obtained by dividing the specified test interval into (n) equal subintervals.

INSTRUMENTATION

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION
.....

3.3.3.8 The radioactive liquid 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 3.11.1.1 are not exceeded. ~~The alarm/trip setpoints of these channels shall be determined in accordance with the OFFSITE DOSE CALCULATION MANUAL (ODCM).~~

APPLICABILITY: At all times.

ACTION: NOT USED

DELETE

- a. ~~With a radioactive liquid effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above specification, without delay suspend the release of radioactive liquid effluents monitored by the affected channel or declare the channel inoperable or change the setpoint so it is acceptably conservative.~~
- b. With less than the minimum number of radioactive liquid effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-12. Exert best efforts to return the instrument to OPERABLE status within 30 days and, if unsuccessful, explain in the next semi-annual radioactive effluent release report why the inoperability was not corrected in a timely manner.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS
.....

4.3.3.8 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 at the frequencies shown in Table 4.3-12.

TABLE 3.3-12
RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	ACTION
1. GROSS RADIOACTIVITY MONITORS PROVIDING AUTOMATIC TERMINATION OF RELEASE NOT USED		
a. Liquid Radwaste Effluent Line	1	26
b. Steam Generator Blowdown Line	4	27
2. GROSS RADIOACTIVITY MONITORS NOT PROVIDING AUTOMATIC TERMINATION OF RELEASE NOT USED		
a. Containment Fan Coolers Service Water Line Discharge	5	28
3. FLOW RATE MEASUREMENT DEVICES NOT USED		
a. Liquid Radwaste Effluent Line	1	29
b. Steam Generator Blowdown Line	4	29
4. TANK LEVEL INDICATING DEVICES		
a. Temporary Outside Storage Tanks as Required	1	30

TABLE 3.3-12 (Continued)

TABLE NOTATION

NOT USED

ACTION 26 -

~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases may continue provided that prior to initiating a release:~~

- ~~a. At least two independent samples are analyzed in accordance with Specification 4.11.1.1.1, and~~
- ~~b. At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge line valving;~~

~~Otherwise, suspend release of radioactive effluents via this pathway.~~

ACTION 27 -

NOT USED

~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided grab samples are analyzed for gross radioactivity (beta or gamma) at a limit of detection of at least 10^{-7} microcuries/gram:~~

- ~~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 28 -

NOT USED

~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided that:~~

- ~~a. With a Service Water System leak on the Containment Fan Coil Unit associated with the inoperable monitor either:
 - ~~1. Grab samples are to be collected and analyzed for gross radioactivity (beta or gamma) at a limit of detection of at least 10^{-7} uCi/gram at least once per 8 hours, or~~
 - ~~2. Isolate the release pathway.~~~~
- ~~b. With no identified service water leakage on the Containment Fan Coil Unit associated with the inoperable monitor collect grab samples and analyze for gross radioactivity (beta or gamma) at a limit of detection of at least 10^{-7} uCi/gram at least once per 24 hours.~~

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TABLE 3.3-12 Continued

TABLE NOTATION

NOT USED

- ACTION 29 - ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours during actual releases. Flow performance curves may be used to estimate flow.~~
- ACTION 30 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, liquid additions to this tank may continue for up to 30 days provided the tank liquid level is estimated during all liquid additions to the tank.

TABLE 4.3-12
RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. GROSS RADIOACTIVITY MONITORS PROVIDING ALARM AND AUTOMATIC TERMINATION OF RELEASE <i>NOT USED</i>				
a. Liquid Radwaste Effluent Line	D	PH	R(3)	Q(1)
b. Steam Generator Blowdown Line	D	M	R(3)	Q(1)
2. GROSS RADIOACTIVITY MONITORS PROVIDING ALARM BUT NOT PROVIDING AUTOMATIC TERMINATION OF RELEASE <i>NOT USED</i>				
a. Containment Fan Coolers - Service Water Line Discharge	D	M	R(3)	Q(2)
3. FLOW RATE MEASUREMENT DEVICES <i>NOT USED</i>				
a. Liquid Radwaste Effluent Line	D(4)	N.A.	R	N.A.
b. Steam Generator Blowdown Line	D(4)	N.A.	R	N.A.
4. TANK LEVEL INDICATING DEVICES**				
a. Temporary Outside Storage Tanks as Required	D*	N.A.	R	Q

TABLE 4.3-12 (Continued)

TABLE NOTATION

<p>(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:</p> <ol style="list-style-type: none">1. Instrument indicates measured levels at or above the alarm/trip setpoint.2. Circuit failure. (Loss of Power) DELETE3. Instrument indicates a downscale failure. (Indication on instrument drawer in Control Equipment Room only) <p>(2) The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exist:</p> <ol style="list-style-type: none">1. Instrument indicates measured levels at or above the alarm/trip setpoint.2. Circuit failure. (Loss of Power)3. Instrument indicates a downscale failure. (Indication on instrument drawer in Control Equipment Room only)4. Instrument controls not set in operate mode. (On instruments equipped with operate mode switches only) <p>(3) The initial CHANNEL CALIBRATION was performed using appropriate liquid or gaseous calibration sources obtained from reputable suppliers. The activity of the calibration sources were reconfirmed using a multi-channel analyzer which was calibrated using one or more NBS standards.</p> <p>(4) CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once per 24 hours on days on which continuous, periodic, or batch releases are made.</p>

* During liquid additions to the tank.

** If tank level indication is not provided, verification will be done by visual inspection.

~~* The R18 channel is an in-line channel which requires periodic decontamination. Any count rate indication above 10,000 cpm constitutes a CHANNEL CHECK for compliance purposes.~~

INSTRUMENTATION

RADIOACTIVE GASEOUS EFFLUENT ^{oxygen} MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION
.....

3.3.3.9 The radioactive gaseous effluent ^{oxygen} monitoring instrumentation channels shown in Table 3.3-13 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.11.2. ^{oxygen} are not exceeded. ~~The alarm/trip setpoints of these channels shall be determined in accordance with the ODCM.~~

APPLICABILITY: As shown in Table 3.3-13

ACTION:

- a. With a radioactive gaseous effluent ^{oxygen} monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above specification, ~~without delay suspend the release of radioactive gaseous effluents monitored by the affected channel or declare the channel inoperable or change the setpoint so it is acceptably conservative, and take the ACTION shown in Table 3.3-13~~
- b. With less than the minimum number of radioactive gaseous effluent ^{oxygen} monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-13. Exert best efforts to return the instrument to OPERABLE status within 30 days and, if unsuccessful, ~~explain in the next semi-annual radioactive effluent release report why the inoperability was not corrected in a timely manner.~~
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

prepare and submit a Special Report pursuant to Specification 6.9.2 to explain

SURVEILLANCE REQUIREMENTS
.....

4.3.3.9 Each radioactive gaseous effluent ^{oxygen} monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, ~~SO-PCS~~ CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 4.3-13.

TABLE 3.3-13
RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION
OXYGEN

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
1. WASTE GAS HOLDUP SYSTEM <i>NOT USED</i>			
a. Noble Gas Activity Monitor Providing Alarm and Automatic Termination of Release	1	•	31
b. Oxygen Monitor	1	**	35
2. CONTAINMENT PURGE AND PRESSURE VACUUM RELIEF			
a. Noble Gas Activity Monitor Providing Alarm and Automatic Termination of Release	1	•••	34
3. PLANT VENT HEADER SYSTEM#			
a. Noble Gas Activity Monitor	1	•	33
b. Iodine Sampler	1	•	36
c. Particulate Sampler	1	•	36
d. Flow Rate Monitor	1	•	32
e. Sampler Flow Rate Monitor	1	•	32

~~# The following process streams are routed to the plant vent where they are effectively monitored by the instruments described:~~

- ~~(a) Condenser Air Removal System~~
- ~~(b) Auxiliary Building Ventilation System~~
- ~~(c) Fuel Handling Building Ventilation System~~
- ~~(d) Radwaste Area Ventilation System~~
- ~~(e) Containment Purges~~

~~Action item #34 applies to the purging of the containment only.~~

TABLE 3.3-13 (Continued)

TABLE NOTATION

- ACTION 31 - ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, the contents of the tank(s) may be released to the environment provided that prior to initiating the release:~~
- ~~a. At least two independent samples of the tank's contents are analyzed, and~~
- ~~b. At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge valving lineup;~~
- ~~Otherwise, suspend release of radioactive effluents via this pathway.~~
- ACTION 32 - ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours.~~
- ACTION 33 - ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided grab samples are taken at least once per 8 hours and these samples are analyzed for gross activity within 24 hours.~~
- ACTION 34 - ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, immediately suspend PURGING of radioactive effluents via this pathway.~~

NOT USED

~~* At all times, other than when the line is valved out and locked.~~

~~** During waste gas holdup system operation.~~

~~*** During containment purges or containment pressure vacuum reliefs.~~

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TABLE 3.3-13 (Continued)

TABLE NOTATION

ACTION 35 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of the waste gas holdup system may continue provided grab samples are collected at least once per 24 hours and analyzed within the following 4 hours.

ACTION 36 - ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided samples are continuously collected with auxiliary sampling equipment as required in Table A.11-2.~~
NOT USED

TABLE 4.3-13

OXYGEN

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. WASTE GAS HOLDUP SYSTEM					
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release	P	P	R(3)	Q(1)	*
b. Oxygen Monitor	D	N.A.	Q(4)	M	**
2. CONTAINMENT PURGE AND PRESSURE - VACUUM RELIEF					
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release	P	P	R(3)	Q(1)	***
3. PLANT VENT HEADER SYSTEM#					
a. Noble Gas Activity Monitor	D	M	R(3)	Q(2)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Flow Rate Monitor	D	N.A.	R	N.A.	*
e. Sampler Flow Rate Monitor	W	N.A.	R	N.A.	*

The following process streams are routed to the plant vent where they are effectively monitored by the instruments described:

- ~~(a) Condenser Air Removal System~~
- ~~(b) Auxiliary Building Ventilation System~~
- ~~(c) Fuel Handling Building Ventilation System~~
- ~~(d) Radwaste Area Ventilation System~~
- ~~(e) Containment Purges~~

TABLE 4.3-13 (Continued)

TABLE NOTATION

~~NOT USED~~
(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 at or above the alarm/trip setpoint.~~
- ~~2. Circuit failure. (Loss of Power)~~
- ~~3. Instrument indicates a downscale failure. (Alarm Only) (Indication on instrument drawer in Control Equipment Room only for 1-R12A)~~

~~NOT USED~~
(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 at or above the alarm/trip setpoints.~~
- ~~2. Circuit failure. (Loss of Power)~~
- ~~3. Instrument indicates a downscale failure. (Indication on instrument drawer in Control Equipment Room only for 1-R16).~~
- ~~4. Instrument controls not set in operate mode. (Applicable to 1-R16 only)~~

~~NOT USED~~
(3) ~~The initial CHANNEL CALIBRATION was performed using appropriate liquid or gaseous calibration sources obtained from reputable suppliers. The activity of the calibration sources were reconfirmed using a multi-channel analyzer which was calibrated using one or more NBS standards.~~

(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, balance nitrogen.

* ~~At all times~~ NOT USED

** During waste gas holdup system operation.

*** ~~During containment purge or containment pressure vacuum relief.~~

3/4.11 RADIOACTIVE EFFLUENTS

3/4.11.1 LIQUID EFFLUENTS *DELETED*

CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.11.1.1 The concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS (See Figure 5.1-3) 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.

APPLICABILITY: At all times.

ACTION:

With the concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS exceeding the above limits, without delay restore the concentration to within the above limits.

DELETE

SURVEILLANCE REQUIREMENTS

4.11.1.1.1 Radioactive liquid wastes shall be sampled and analyzed according to the sampling and analyses program in Table 4.11-1.

4.11.1.1.2 The results of the radioactivity analyses shall be used in accordance with the ODCM to assure that the concentrations at the point of release are maintained within the limits of Specification 3.11.1.1

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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) ^a (uCi/ml)
A. Batch Waste Release Tanks ^b	P Each Batch	P Each Batch	Principal Gamma Emitters ^c	5x10 ⁻⁷
	P One Batch/M	M	I-131	1x10 ⁻⁵
			Dissolve and Entrained Gases (Gamma Emitters)	1x10 ⁻⁵
	P Each Batch	M Composited	H-3	1x10 ⁻⁵
			Gross Alpha	1x10 ⁻⁷
P Each Batch	Q Composited	Sr-89, Sr-90	5x10 ⁻³	
		Fe-55	1x10 ⁻⁵	
B. Continuous Releases ^e	Weekly	W Composite	Principal Gamma Emitters ^c	5x10 ⁻⁷
			I-131	1x10 ⁻⁵
	M Grab Sample	M	Dissolved and Entrained Gases	1x10 ⁻⁵
			Weekly	M Composite
	Gross Alpha	1x10 ⁻⁷		
	Weekly ^d	Q Composite	Sr-89, Sr-90	5x10 ⁻³
Fe-55			1x10 ⁻⁵	

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TABLE 4.11-1 (Continued)

TABLE NOTATION

- a. The LLD is defined, for purposes of these specifications as the smallest concentration of radioactive material in a sample that will yield a net count (above system background) that will be detected with 98% probability with only 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system (which may include radiochemical separation):

$$LLD = \frac{4.66 s_b}{E \cdot V \cdot 2.22 \times 10^6 \cdot \xi \cdot e^{-\lambda \Delta t}}$$

Where:

LLD is the "a priori" lower limit of detection as defined above (as microcuries 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 disintegration),

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

2.22×10^6 is the number of disintegrations per minute per microcurie,

ξ is the fractional radiochemical yield (when applicable),

λ is the radioactive decay constant for the particular radionuclide, and

Δt for environmental samples is the elapsed time between sample collection (or end of the sample collection period) and time of counting.

Typical values of E , V , ξ , and Δt should be used in the calculation.

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

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TABLE 4.11-1 (Continued)

TABLE NOTATION

- b. 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 to assure representative sampling.
- c. The principal gamma emitters for which the LLD specification applies exclusively are 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 that are measurable and identifiable, together with the above nuclides, shall also be identified and reported.
- d. A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen that is representative of the liquids released.
- e. A continuous release is the discharge of liquid wastes of a nondiscrete volume, e.g., from a volume of a system that has an input flow during the continuous release.

DELETE

* The LLD for Ce-144 shall be 2×10^{-6} uCi/ml.

RADIOACTIVE EFFLUENTS

3/4.11.1.2 DELETED

DOSE

LIMITING CONDITION FOR OPERATION

3.11.1.2 The dose or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released, from each reactor unit, to UNRESTRICTED AREAS (see Figure 5.1-3) shall be limited:

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

APPLICABILITY: At all times.

ACTION:

DELETE

- a. With the calculated dose from the release of radioactive materials in liquid effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions that have been taken to reduce the releases and the proposed corrective actions to be taken to assure that subsequent releases will be in compliance with the above limits.
- b. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.1.2 Cumulative dose contributions from liquid effluents shall be determined in accordance with the ODCM at least once per 31 days.

3/4.11.1.3 DELETED

LIQUID RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION

3.11.1.3 The liquid radwaste treatment system shall be used to reduce the radioactive materials liquid wastes prior to their discharge when the projected cumulative doses due to the liquid effluent from each reactor to UNRESTRICTED AREAS (see Figure 5.1-3) exceed 0.375 mrem to the total body or 1.25 mrem to any organ during any calendar quarter.

APPLICABILITY: At all times.

ACTION:

DELETE

- a. With the radioactive liquid waste being discharged without treatment and in excess of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that includes the following information:
 - 1. Explanation of why liquid radwaste was being discharged without treatment, identification of any inoperable equipment or subsystems, and the reason for the 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 Specification 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

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

RADIOACTIVE EFFLUENTS

3/4.11.2.1 DELETED

3/4.11.2 GASEOUS EFFLUENTS

DOSE RATE

LIMITING CONDITION FOR OPERATION

3.11.2.1 The dose rate due to radioactive materials released in gaseous effluents from the site to areas at and beyond the SITE BOUNDARY (see Figure 5.1-3) shall be limited to the following:

- a. For noble gases: Less than or equal to 500 mrems/yr to the total body and less than or equal to 3000 mrems/yr to the skin, and
- b. For iodine-131, for tritium, and for all radionuclides in particulate form with half lives greater than 8 days: Less than or equal to 1500 mrems/yr to any organ.

APPLICABILITY: At all times.

ACTION:

With the dose rate(s) exceeding the above limits, without delay restore the release rate to within the above limit(s).

DELETE

SURVEILLANCE REQUIREMENTS

4.11.2.1.1 The dose rate due to noble gases in gaseous effluents shall be determined continuously to be within the above limits in accordance with the OOCM.

4.11.2.1.2 The dose rate due to iodine-131, tritium, and all radionuclides in particulate form with half lives greater than 8 days in gaseous effluents shall be determined to be within the above limits in accordance with the OOCM by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in Table 4.11-2.

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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. Waste Gas Storage Tank	P Each Tank Grab Sample	P Each Tank	Principal Gamma Emitters ^B	1x10 ⁻⁴
B. Containment PURGE	P Each PURGE Grab Sample	P Each PURGE	Principal Gamma Emitters ^B	1x10 ⁻⁴
			H-3	1x10 ⁻⁶
C. Plant Vent	MC, ^{d,e} Grab Sample	MC	Principal Gamma Emitters ^B	1x10 ⁻⁴
			H-3	1x10 ⁻⁶
D. All Release Types as Listed in A, B, and C Above	Continuous ^f	W9 Charcoal Sample	I-131	1x10 ⁻¹²
	Continuous ^f	W9 Particulate Sample	DELETE Principal Gamma Emitters ^B (I-131, Others)	1-10 ⁻¹¹
	Continuous ^f	M Composite Particulate Sample	Gross Alpha	1x10 ⁻¹¹
	Continuous ^f	Q Composite Particulate Sample	Sr-89, Sr-90	1x10 ⁻¹¹
	Continuous ^f	Noble Gas Monitor	Noble Gasses Gross Beta or Gamma	1x10 ⁻⁶

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TABLE 4.11-2 (Continued)

TABLE NOTATION

- a. The LLD is defined in Table 4.11.1
- b. The principal gamma emitters for which the LLD specification applies exclusively are the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, 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 that are measurable and identifiable, together with the above nuclides, shall also be identified and reported.
- c. Sampling and analysis shall also be performed following shutdown, startup or a THERMAL POWER change that, within one hour, exceeds 15 percent of RATED THERMAL POWER unless:
- DELETE**
1. Analysis shows that the DOSE EQUIVALENT I-131 concentration in the primary coolant has not increased more than a factor of three.
 2. The noble gas activity monitor shows that effluent activity has not increased by more than a factor of three.
- d. Tritium grab samples shall be taken at least once per 24 hours when the refueling canal is flooded.
- e. 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.
- f. 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.

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TABLE 4.11-2 (Continued)

TABLE NOTATION

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- g. 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 shall also be performed at least once per 24 hours for at least 7 days following each shutdown, startup or THERMAL POWER change that, within one hour, exceeds 15 percent of RATED THERMAL POWER and analyses shall be completed within 48 hours of changing. When samples collected for 24 hours are analyzed, the corresponding LLDs may be increased by a factor of 10. This requirement does not apply if (1) analysis shows that the DOSE EQUIVALENT I-131 concentration in the primary coolant has not increased more than a factor of 3; and (2) the noble gas monitor shows that effluent activity has not increased by more than a factor of three.

RADIOACTIVE EFFLUENTS

3/4.11.2.2 DELETED

DOSE - NOBLE GASES

LIMITING CONDITION FOR OPERATION

3.11.2.2 The air dose due to noble gases released in gaseous effluents, from each reactor unit, from the site areas and beyond the SITE BOUNDARY (see Figure 5.1-3) shall be limited to the following:

- a. During any calendar quarter: Less than or equal to 5 mrad for gamma radiation and less than or equal to 10 mrad for beta radiation and,
- b. During any calendar year: Less than or equal to 10 mrad for gamma radiation and less than or equal to 20 mrad for beta radiation.

APPLICABILITY: At all times.

ACTION:

Delete

- a. With the calculated air dose from radioactive noble gases in gaseous effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions that have been taken to reduce the release and the proposed corrective actions to be taken to assure that subsequent releases will be in compliance with the above limits.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.2 Cumulative dose contributions for the current calendar quarter and current calendar year shall be determined in accordance with the ODCM at least once per 31 days.

RADIOACTIVE EFFLUENTS

3/4.11.2.3 Deleted

DOSE - IODINE-131, TRITIUM, AND RADIONUCLIDES IN PARTICULATE FORM

LIMITING CONDITION FOR OPERATION
.....

3.11.2.3 The dose to a MEMBER OF THE PUBLIC from iodine-131, from tritium, and from all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released, from each reactor unit, from the site to areas at and beyond the SITE BOUNDARY (see Figure 5.1-3) shall be limited to the following:

- a. During any calendar quarter: Less than or equal to 7.5 mrems to any organ and,
- b. During any calendar year: Less than or equal to 15 mrems to any organ.

APPLICABILITY: At all times.

ACTION:

DELETED

- a. With the calculated air dose from the release of iodine-131, tritium, and radionuclides in particulate form with half-lives greater than 8 days, in gaseous effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that identifies the cause(s) for exceeding the limit and defines the corrective actions that have been taken to reduce the release and the proposed corrective actions to be taken to assure that subsequent releases will be in compliance with the above limits.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS
.....

4.11.2.3 Cumulative dose contributions for the current calendar quarter and current calendar year for iodine-131, tritium, and radionuclides in particulate form with half-lives greater than 8 days shall be determined in accordance with the ODCM at least once per 31 days.

RADIOACTIVE EFFLUENTS

3/4.11.2.4 DELETED

GASEOUS RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION
.....

3.11.2.4 The GASEOUS RADWASTE TREATMENT SYSTEM and the VENTILATION EXHAUST 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 to areas at and beyond the SITE BOUNDARY (see Figure 5.1-3), exceed 0.625 mrad for gamma radiation and 1.25 mrad for beta radiation in any calendar quarter. 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 each reactor unit, from the site to areas at and beyond the SITE BOUNDARY (see Figure 5.1-3) would exceed 1.875 mrem to any organ in any calendar quarter.

APPLICABILITY: At all times.

ACTION:

DELETE

- a. With gaseous waste being discharged without treatment and in excess of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that includes the following information:
 - 1. Explanation of why gaseous radwaste was being discharged without treatment, identification of any inoperable equipment or subsystems, and the reason for the 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 Doses due to gaseous releases from the site shall be projected at least once per 31 days in accordance with the ODCM.

SOLID RADIOACTIVE WASTE

3/4.11.3 DELETED

LIMITING CONDITION FOR OPERATION

3.11.3. The solid radwaste system shall be used in accordance with a PROCESS CONTROL PROGRAM to process wet radioactive waste to meet shipping and burial ground requirements.

APPLICABILITY: At all times.

ACTION:

- a. With the provisions of the PROCESS CONTROL PROGRAM not satisfied, suspend shipments of defectively processed or defectively packaged solid radioactive wastes from the site.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

DELETE

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

- a. If any test specimen fails to verify SOLIDIFICATION, the SOLIDIFICATION of the batch under test shall be suspended until such time as additional test specimens can be obtained, alternative SOLIDIFICATION parameters can be determined in accordance with the PROCESS CONTROL PROGRAM, and a subsequent test verifies SOLIDIFICATION. SOLIDIFICATION of the batch may then be resumed using the alternative SOLIDIFICATION parameters determined by the PROCESS CONTROL PROGRAM.
- b. If the initial test specimen from a batch of waste fails to verify SOLIDIFICATION, the PROCESS CONTROL PROGRAM shall provide for the collection and testing of representative test specimens from each consecutive batch of the same type of wet waste until at least three consecutive initial test specimens demonstrate SOLIDIFICATION. The PROCESS CONTROL PROGRAM shall be modified as required, as provided in Specification 6.13, to assure SOLIDIFICATION of subsequent batches of waste.

RADIOACTIVE EFFLUENTS

3/4.11.4 TOTAL DOSE DELETED

LIMITING CONDITION FOR OPERATION
.....

3.11.4. The annual (calendar year) 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 mrems to the total body or any organ (except the thyroid, which shall be limited to less than or equal to 75 mrems).

APPLICABILITY: At all times

ACTION:

DELETE

- a. With the calculated doses from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of Specification 3.11.1.2a, 3.11.1.2b, 3.11.2.2a, 3.11.2.2b, 3.11.2.3a, or 3.11.2.3b, calculations should be made including direct radiation contributions from the reactor units and from outside storage tanks to determine whether the limits of this Specification have been exceeded. If such is the case, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that defines the corrective action to be taken to reduce subsequent releases to prevent recurrence of exceeding the above limits and includes the schedule for achieving conformance with the above limits. This Special Report, as defined in 10 CFR Part 20.405c, shall include an analysis that estimates the radiation exposure (dose) to a MEMBER OF THE PUBLIC from uranium fuel cycle sources, including all effluent pathways and direct radiation, for the calendar year that includes the release(s) covered by this report. It shall also describe levels of radiation and concentrations of radioactive material involved, and the cause of the exposure levels or concentrations. If the estimated dose(s) exceeds the above limits, and if the release condition resulting in violation of 40 CFR Part 190 has not already been corrected, the Special Report shall include a request for a variance in accordance with the provisions of 40 CFR Part 190. Submittal of the report is considered a timely request, and a variance is granted until staff action on the request is complete.

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RADIOACTIVE EFFLUENTS

3/4.11.4 TOTAL DOSE

LIMITING CONDITION FOR OPERATION

ACTION: (Cont'd)

DELETE

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

SURVEILLANCE REQUIREMENTS

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

4.11.4.2 Cumulative dose contributions from direct radiation from the reactor units and from radwaste storage shall be determined in accordance with the ODCM.

DELETED

~~3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING~~

~~3/4.12.1 MONITORING PROGRAM~~

~~LIMITING CONDITION FOR OPERATION~~

~~3.12.1. The radiological environmental monitoring program shall be conducted as specified in Table 3.12-1.~~

~~APPLICABILITY: At all times.~~

~~ACTION:~~

DELETE

- ~~a. With the radiological environmental monitoring program not being conducted as specified in Table 3.12-1, prepare and submit to the Commission, in the Annual Radiological Environmental Operating Report required by Specification 6.9.1.7, a description of the reasons for not conducting the program as required and the plans for preventing a recurrence.~~
- ~~b. With the level of radioactivity as the result of plant effluents in an environmental sampling medium at a specified location exceeding the reporting levels of Table 3.12-2 when averaged over any calendar quarter, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions to be taken to reduce radioactive effluents so that the potential annual dose to a MEMBER OF THE PUBLIC is less than the calendar year limits of Specifications 3.11.1.2, 3.11.2.2, and 3.11.2.3. When more than one of the radionuclides in Table 3.12-2 are detected in the sampling medium, this report shall be submitted if:~~

$$\frac{\text{concentration (1)}}{\text{reporting level (1)}} + \frac{\text{concentration (2)}}{\text{reporting level (2)}} + \dots \geq 1.0$$

~~When radionuclides other than those in Table 3.12-2 are detected and are the result of plant effluents, this report shall be submitted if the potential annual dose to a member of the public 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 as described in the Annual Radiological Environmental Operating Report.~~

- ~~c. With milk or fresh leafy vegetable samples unavailable from one or more of the sample locations required by Table 3.12-1, identify locations for obtaining replacement samples and add them to the radiological environmental monitoring program within 30 days. The specific locations from which samples were unavailable may be deleted from the monitoring program.~~

3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING

3/4.12.1 MONITORING PROGRAM

LIMITING CONDITION FOR OPERATION
.....

ACTION: (Cont'd)

Delete

Pursuant to Specification 6.9.1.8, identify the cause of the unavailability of samples and the new location(s) for obtaining replacement samples in the next Semiannual Radioactive Effluent Release Report. Include in the report a revised figure(s) and table for the ODCM reflecting the new location(s).

- d. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS
.....

4.12.1 The radiological environmental monitoring samples shall be collected pursuant to Table 3.12-1 from the locations specified in the ODCM and shall be analyzed pursuant to the requirements of Table 4.12-1.

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TABLE 3.12-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Pathway	Number of Samples and Sample Locations ^a	Sampling and Collection Frequency ^a	Type and frequency of Analysis
1. DIRECT RADIATION ^b	About 40 routine monitoring stations with two or more dosimeters for measuring dose continuously to be placed as follows: 1) an inner ring of stations in the general area of the Site and an outer ring in the 2- to 8-km range from the Site with a station in each sector of each ring. The balance of the stations should be placed in special interest areas such as population centers, nearby residences, schools, and in 2 or 3 areas to serve as control stations.	Monthly, Quarterly, or semi-annually	Gamma dose monthly, quarterly, or semi-annually
2. AIRBORNE	Samples from 5 locations:	Continuous sampler operation with sample collection weekly or as required by dust loading which ever is more frequent ^c	Radiiodine Canister: I-131 analysis weekly.
Radioiodine and Particulates	<ul style="list-style-type: none"> a. 3 samples from close to the Site locations. b. 1 sample from the vicinity of a community. c. 1 sample from a control location 15-30 km distance. 		Particulate Sampler: Gross beta radioactivity analysis following filter change; Gamma isotopic analysis of complete (by location) quarterly.

Delete

TABLE 3.12-1 (Cont'd)

Pathway	Number of Samples and Sample Locations ^a	Sampling and Collection Frequency ^b	Type and frequency of Analysis
3. WATERBORNE			
a. Surface ⁹	a. 1 sample upstreaming and b. 1 sample downstream c. 1 sample outfall d. 1 sample cross-stream	Two gallon grab sample collected monthly.	Gamma isotopic analysis quarterly. Composite for tritium analysis quarterly.
b. Ground	Samples from 1 or 2 sources only if likely to be affected.	Two gallon grab sample collected quarterly.	Gamma isotopic analysis quarterly. Composite for tritium analysis quarterly.
c. Drinking	a. 1 sample of the nearest water supply.	50 ml aliquot taken daily and composited to a monthly sample of two gallons.	I-131 analysis on each composite when the dose calculated for the consumption of the water is greater than 1 mrem per year. Composite for tritium analysis quarterly.
d. Sediment in river	a. 1 sample downstream b. 1 sample cross-stream c. 1 sample outfall	Samples taken semi-annually.	Gamma isotopic analysis semiannually.

Delete

TABLE 3.12-1 (Cont'd)

Pathway	Number of Samples and Sample Locations ^a	Sampling and Collection Frequency ^a	Type and frequency of Analysis
4. INGESTION			
a. Milk	a. Samples from milking animals in 3 locations within 5 km distance having the highest dose potential. If there are none, then, 1 sample from milking animals 5 to 8 km distant where doses are calculated to be greater than 1 urem per yrk.	Semimonthly when animals are on pasture, monthly at other time.	Gamma isotopic and I-131 analysis semi-monthly when animals are on pasture; monthly at other times.
b. Fish and Invertebrates	b. 1 sample from milking animals at a control location. a. 1 sample of each commercially and recreationally important species in vicinity of discharge point.	Sample in season, or semiannual if they are not seasonal	Gamma isotopic analysis on edible portions.
c. Food	a. 1 sample of each principal class of food products from any area that is irrigated by water in which liquid plant wastes have been discharged.	At time of harvest!	Gamma isotopic analysis on edible portion.

Delete

TABLE 3.12.1 (Cont'd)

TABLE NOTATION

- a In the event that it is not possible or practicable to obtain samples of the media of choice at the most desired location or time, suitable alternative media and locations may be chosen for the particular pathway. Actual locations (distance and direction) from the site shall be provided for all sample locations in the OOCM.
- b One or more instruments, such as pressurized ion chamber, for measuring and recording dose rate continuously may be used in place of, or in addition to, integrating dosimeters. For the purposes of this table, a thermoluminescent dosimeter may be considered to be one phosphor, and two or more phosphors in a packet may be considered as two or more dosimeters. Film badges shall not be used for measuring direct radiation. The 40 stations is not an absolute number. This number may be reduced according to geographical limitations; e.g., at an ocean site, some sectors will be over water so that the number of dosimeters may be reduced accordingly. An option open to licensees is to place some of the 40 routine TLD monitoring stations inside the SITE BOUNDARY. Such stations could provide useful information under both routine and accident conditions, and would be particularly valuable for the larger sites. The frequency of analysis or readout will depend upon the characteristics of the specific TLD system used and should be selected to obtain optimum dose information with minimal fading.
- c Canisters for the collection of radiiodine in air shall be checked for channeling before operation in the field to insure complete recovery of iodine.
- d Particulate sample filters shall be analyzed for gross beta radioactivity 24 hours or more after sampling to allow for radon and thoron daughter product decay. If gross beta activity in air or water is greater than ten times the yearly mean of control samples for any medium, gamma isotopic analysis shall be performed on the individual samples.

Delete

TABLE 3.12-1 (Cont'd)

TABLE NOTATION

- e Gamma isotopic analysis means the identification and quantification of gamma-emitting radionuclides that may be attributable to the effluents from the facility.
- f The purpose of this sample is to obtain background information. If it is not practical to establish control locations in accordance with the distance and wind direction criteria, other sites that provide valid background data may be substituted.
- g The "upstream sample" shall be taken at a distance beyond significant influence of the discharge. The "downstream" sample shall be taken in an area beyond but near the mixing zone. "Upstream" samples in an estuary must be taken far enough upstream to be beyond the plant influence.
- h Salt water shall be sampled only when the receiving water is utilized for recreational activities.
- i Composite samples shall be collected with equipment that is capable of collecting an aliquot at time intervals that are very short (e.g., hourly) relative to the compositing period (e.g., monthly) in order to assure obtaining a representative sample.
- j Groundwater samples shall be taken when this source is tapped for drinking or irrigation purposes in areas where the hydraulic gradient or recharge properties are suitable for contamination.
- k The dose shall be calculated for the maximum organ and age group, using the methodology contained in Regulatory Guide 1.109, Rev. 1, October 1977, and the actual parameters particular to the site.
- l If harvest occurs more than once a year, sampling shall be performed during each discrete harvest. If harvest occurs continuously, sampling shall be monthly. Attention shall be paid to including samples of tuberous and root food products.

Delete

TABLE 3.12-2

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES

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

Delete

(a) For drinking water samples. This is a 40 CFR Part 141 value. If no drinking water pathway exists, a value of 3 x 10² pci/l may be used.

(b) For drinking water samples. This is a 40 CFR Part 141 value. If no drinking water pathway exists, a value of 20 pci/l may be used.

TABLE 4.12-1

MAXIMUM VALUES FOR THE LOWER LIMITS OF DETECTION (LLD)^{a,b}

Analysis (pci/l)	Water (pci/l)	Airborne Particulate or Gases (pci/m ³)	Fish (pci/kg, wet)	Milk (pci/l)	Food Products (pci/kg, wet)	Sediment (pci/kg, dry)
gross beta	4	1×10^{-2}				
H-3	2000 ^c		DELETE			
Mn-54	15		130			
Fe-59	30		260			
Co-58,60	15		130			
Zn-65	30		260			
Zr-Nb-95	15					
I-131	1 ^d	7×10^{-2}		1	60	
Cs-134	15	5×10^{-2}		150	60	150
Cs-137	18	6×10^{-2}		150	80	180
Ba-La-140	15			15		

^a Required detection capabilities for thermoluminescent dosimeters used for environmental measurements are given in Regulatory Guide 4.13, Rev. 1, July 1977.

^b The LLD is defined in Table 4.11-1.

^c LLD for drinking water samples. If no drinking water pathway exists, a value of 3000 pci/l may be used.

^d LLD for drinking water samples. If no drinking water pathway exists, a value of 10 pci/l may be used.

Delete

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RADIOLOGICAL ENVIRONMENTAL MONITORING

3/4.12.2 LAND USE CENSUS

LIMITING CONDITION FOR OPERATION

3.12.2. A land use census shall be conducted and shall identify within a distance of 8 km (5 miles) the location in each of the 16 meteorological sectors of the nearest milk animal, the nearest residence and the nearest garden* of greater than 50 m² (500 ft²) producing broad leaf vegetation. (For elevated releases as defined in Regulatory Guide 1.111, Revision 1, July 1977, the land use census shall also identify within a distance of 5 km (3 miles) the locations in each of the 16 meteorological sectors of all milk animals and all gardens of greater than 50 m² producing broad leaf vegetation.

APPLICABILITY: At all times.

ACTION:

Delete

- a. With a land use census identifying a location(s) that yields a calculated dose or dose commitment greater than the values currently being calculated in Specification 4.11.2.3, identify the new location(s) in the next Semiannual Radioactive Effluent Release Report, pursuant to Specification 6.9.1.8.
- b. With a land use census identifying a location(s) that yields a calculated dose or dose commitment (via the same exposure pathway) 20 percent greater than at a location from which samples are currently being obtained in accordance with Specification 3.12.1, add the new location(s) to the radiological environmental monitoring program within 30 days. The sampling location(s), excluding the control station location, having the lowest calculated dose or dose commitment(s) (via the same exposure pathway) may be deleted from this monitoring program after October 31 of the year in which this land use census was conducted. Pursuant to Specification 6.9.1.8, identify the new location(s) in the next Semiannual Radioactive Effluent Release Report and also include in the report a revised figure(s) and table for the ODCM reflecting the new location(s).
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

*Broad leaf vegetation sampling of at least three different kinds of vegetation may be performed at the SITE BOUNDARY in each of two different direction sectors with the highest predicted D/Q in lieu of the garden census. Specifications for broadleaf vegetation sampling in Table 3.12-1.4c shall be followed, including analysis of control samples.

RADIOLOGICAL ENVIRONMENTAL MONITORING

3/4.12.2 LAND USE CENSUS (Cont'd)

Delete

SURVEILLANCE REQUIREMENTS

4.12.2 The land use census shall be conducted during the growing season at least once per 12 months using that information that will provide the best results, such as by a door-to-door survey, aerial survey, or by consulting local agriculture authorities. The results of the land use census shall be included in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.7.

RADIOLOGICAL ENVIRONMENTAL MONITORING

3/4.12.3 INTERLABORATORY COMPARISON PROGRAM

LIMITING CONDITION FOR OPERATION
.....

3.12.3 Analyses shall be performed on radioactive materials supplied as part of an Interlaboratory Comparison Program which has been approved by the Commission.

APPLICABILITY: At all times.

ACTION:

Delete

- a. With analyses not being performed as required above, report the corrective actions taken to prevent a recurrence to the Commission in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.7.
- b. The provisions of Specifications 3.0.3 and 3.0.4. are not applicable.

SURVEILLANCE REQUIREMENTS
.....

4.12.3 A summary of the results obtained as part of the above required Interlaboratory Comparison Program and in accordance with the ODCM shall be included in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.7.

BASES

=====

3/4.3.3.5 REMOTE SHUTDOWN INSTRUMENTATION

The OPERABILITY of the remote shutdown instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of HOT STANDBY of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criteria 19 of 10 CFR 50.

3/4.3.3.6 THIS SECTION DELETED

3/4.3.3.7 ACCIDENT MONITORING INSTRUMENTATION

The OPERABILITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. This capability is consistent with the Recommendations of Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," December 1975.

3/4.3.3.8 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

~~The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases of liquid effluents. The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the procedures in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50. The purpose of tank level indicating devices is to assure the detection and control of leaks that if not controlled could potentially result in the transport of radioactive materials to UNRESTRICTED AREAS.~~

CROSS REFERENCE - TABLES 3.3-12 and 4.3-12

DELETE

T/S Table Item No.	Instrument Description	Acceptable RMS Channels
1a	Liquid Radwaste Effluent Line Gross Activity	1R18
1b	Steam Generator Blowdown Line Gross Activity	1R19A, B, C, and D
2a	Containment Fan Coolers Service Water Line Discharge Gross Activity	1R13 A, B, C, D and E

INSTRUMENTATION
BASES

OXYGEN

3/4.3.3.9 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

OXYGEN monitoring

The radioactive gaseous effluent instrumentation is provided to monitor (and control) as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the procedures in the ODGM 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, ^A 63, and 64 of Appendix A to 10 CFR Part 50.

AND

CROSS REFERENCE - TABLES 3.3-13 and 4.3-13

DELETE

T/S Table Item No.	Instrument Description	Acceptable RMS Channels
1a	Waste Gas Holdup System Noble Gas Activity	1R41A and D ⁽¹⁾⁽²⁾
2a	Containment Purge and Pressure - Vacuum Relief Noble Gas Activity	1R12A or 1R41A and D ⁽¹⁾⁽²⁾
3a	Plant Vent Header System Noble Gas Activity	1R16 or 1R41A and D ⁽¹⁾⁽²⁾
3b	Plant Vent Header System Iodine Sampler ⁽³⁾	1RME 4, 5 (1R41) or 1XT8911 (1R45)
3c	Plant Vent Header System Particular Sampler ⁽³⁾	1RME 4, 5 (1R41) or 1XT8911 (1R45)

(1) The channels listed are required to be operable to meet a single operable channel for the Technical Specification's "Minimum Channels Operable" requirement.

(2) 1R41D is the setpoint channel. 1R41A is the measurement channel.

(3) Laboratory analysis of the sampler filters ensures that the limits of Specification 3.11.2.1 are not exceeded. Alarm/trip setpoints do not apply to these passive components.

3/4.11 RADIOACTIVE EFFLUENTS

BASES.

3/4.11.1 LIQUID EFFLUENTS

~~DELETED~~

3/4.11.1.1 CONCENTRATION

~~The specification is provided to ensure that the concentration of radioactive materials released in liquid waste effluents 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 in UNRESTRICTED AREAS will result in exposures within (1) the Section II.A design objectives of Appendix I, 10 CFR Part 50, to a MEMBER OF THE PUBLIC and (2) the limits of 10 CFR Part 20.106(a) 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.~~

~~The required detection capabilities for radioactive materials in liquid waste samples are tabulated in terms of the lower limits of detection (LLDs)~~

~~DELETE~~

3/4.11.1.2 DOSE - DELETED

~~This specification is provided to implement the requirements of Sections II.A, III.A, and IV.A of Appendix I, 10 CFR Part 50. The Limiting Condition for Operation implements the guides set forth in Section II.A of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section 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." Also, for freshwater sites with drinking water supplies that can be potentially affected by plant operations, there is reasonable assurance that the operation of the facility will not result in radionuclide concentrations in the finished drinking water that are in excess of~~

~~DELETE~~

RADIOACTIVE EFFLUENTS

BASES

the requirements of 40 CFR Part 141. The dose calculations in the ODCM implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data, such that the actual exposure of a MEMBER OF THE PUBLIC through appropriate pathways is unlikely to be substantially underestimated. The equations specified in the ODCM for calculating the doses due to the actual release rates of radioactive materials in liquid effluents are consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Dose 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 Purposes of Implementing Appendix I," April 1977.

The 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.

~~DELETE~~

3/4.11.1.3 LIQUID RADWASTE TREATMENT ~~DELETED~~

~~DELETE~~ The requirement 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.0 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.

3/4.11.1.4 LIQUID HOLDUP TANKS

The tanks listed in this specification include all those outdoor tanks that are not surrounded by liners, dikes, or walls capable of holding the tank contents and that do not have tank overflows and surrounding area drains connected to the liquid radwaste treatment system.

RADIOACTIVE EFFLUENTS

BASES

Restricting the quantity of radioactive material contained in the specified tanks provides assurance that in the event of an uncontrolled release of the tanks' contents, the resulting concentrations would be less than the limits of 10 CFR Part 20, Appendix 8, Table II, Column 2, at the nearest potable water supply and the nearest surface water supply in an UNRESTRICTED AREA.

3/4.11.2 GASEOUS EFFLUENTS

~~DELETED~~

3/4.11.2.1 DOSE RATE

~~This specification is provided to ensure that the dose at any time at and beyond the SITE BOUNDARY from gaseous effluents from all units on the site will be within the annual dose limits of 10 CFR Part 20. The annual dose limits are the doses associated with the concentrations of 10 CFR Part 20, Appendix 8, Table II, Column 1. These limits provide reasonable assurance that radioactive material discharged in gaseous effluents will not result in the exposure of a MEMBER OF THE PUBLIC either within or outside the SITE BOUNDARY, to annual average concentrations exceeding the limits specified in Appendix 8, Table II of 10 CFR Part 20 [13 CFR Part 20.106(b)]. For MEMBERS OF THE PUBLIC who may at times be within the SITE BOUNDARY, the occupancy of the individual will usually be sufficiently low to compensate for any increase in the atmospheric diffusion factor above that for the SITE BOUNDARY. Examples of calculations for such MEMBERS OF THE PUBLIC with the appropriate occupancy factors shall be given in the ODCM. The specified release rate limits restrict, at all times, the corresponding gamma and beta dose rates above background to a MEMBER OF THE PUBLIC at or beyond the SITE BOUNDARY to less than or equal to 500 mrem/year to the skin. These release rate limits also restrict, at all times, the corresponding thyroid dose rate above background to a child via the inhalation pathway to less than or equal to 1500 mrem/year.~~

~~This specification applies to the release of gaseous effluents from all reactors at the site.~~

~~DELETE~~

RADIOACTIVE EFFLUENTS

BASES

3/4.11.2.2 ~~DOSE - NOBLE GASES~~ **DELETED**

This specification is provided to implement the requirements of Section II.3, 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.8 of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive material in gaseous effluents will be kept "as low as is reasonably achievable." The Surveillance Requirements implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data such that the actual exposure of a MEMBER OF THE PUBLIC through 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 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 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 I, July 1977. The ODCM equations provided for determining the air doses at and beyond the SITE BOUNDARY are based upon the historical average atmospheric conditions.

DELETE

DELETED
3/4.11.2.3 ~~DOSE - IODINE 131, TRITIUM, AND RADIONUCLIDES IN PARTICULATE FORM~~

This specification is provided to implement the requirements of Section II.C, III.A and IV.A of Appendix I, 10 CFR Part 50. The limiting condition for operation are the guides set forth in Section II.C of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the

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RADIOACTIVE EFFLUENTS

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releases of radioactive material in gaseous effluents will be kept "as low as is reasonably achievable." The ODCM calculational methods specified in 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 a MEMBER OF THE PUBLIC through appropriate pathways is unlikely to be substantially underestimated. The ODCM calculational methods for calculating the doses due to the actual release rates of the subject materials 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 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. These equations also provide for determining the actual dose based upon the historical average atmospheric conditions. The release rate specifications for iodine-131, tritium, and radionuclides in particulate form with half-life greater than 3 days are dependent on the existing radionuclide pathways to man in the areas at and beyond the SITE BOUNDARY. The pathways that were examined in the development of these calculations were: 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.

3/4.11.2.4 GASEOUS RADWASTE TREATMENT SYSTEM DELETED

DELETED

The requirement that the appropriate portions of this system be used, when specified, provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonable 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 objectives given in Section II.D of Appendix I to 10 CFR Part 50. The specified limits governing the use of appropriate portions of the systems were specified as a suitable fraction of the dose design objectives set forth in Section II.B and II.C of Appendix I, 10 CFR Part 50, for gaseous effluents.

RADIOACTIVE EFFLUENTS

BASES

3/4.11.2.5 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. Maintaining the concentration of hydrogen and oxygen below their flammability limits provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of General Design Criterion 60 of Appendix A to 10 CFR Part 50.

3/4.11.3 SOLID RADIOACTIVE WASTE ~~DELETED~~

~~This specification implements the requirements of 10 CFR Part 50.36a and General Design Criterion 60 of Appendix A to 10 CFR Part 50. The process parameters included in establishing the PROCESS CONTROL PROGRAM may include, but are not limited to waste type, waste pH, waste/liquid/solidification agent/catalyst ratios, waste oil content, waste principal chemical constituents, mixing and curing times.~~

~~DELETE~~

RADIOACTIVE EFFLUENTS

BASES

3/4.11.4 ~~TOTAL DOSE~~ DELETED

This specification is provided to meet the dose limitations of 40 CFR Part 190 that have now been incorporated into 10 CFR Part 10 to 46 Fr 18525. 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 Part 190 if the individual reactors remain within the reporting requirement level. The Special Report will describe a course of action that should result in the limitation of the annual dose to a MEMBER OF THE PUBLIC to within the 40 CFR Part 190 limits. For 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 8 km must be considered. If the dose to any MEMBER OF THE PUBLIC is estimated to exceed the requirements of 40 CFR Part 190, the Special Report with a request for a variance (provided the release conditions resulting in violation of 40 CFR Part 190 have not already been corrected), in accordance with the provisions of 40 CFR Part 190 and 10 CFR Part 20.405c, is considered to be a timely request and fulfills the requirements of 40 CFR Part 190 until NRC staff action is completed. The variance only relates to the limits of 40 CFR Part 190, and does not apply in any way to the other requirements for dose limitation of 10 CFR Part 20, as addressed in Specifications 3.11.1 and 3.11.2. An individual is not considered a MEMBER OF THE PUBLIC during any period in which he/she is engaged in carrying out any operation that is part of the nuclear fuel cycle.

DELETED

RADIOACTIVE EFFLUENTS

BASES

3/4.12

RADIOLOGICAL ENVIRONMENTAL MONITORING

DELETED

3/4.12.1

MONITORING PROGRAM

The radiological environmental monitoring program required by this specification provides measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides that lead to the highest potential radiation exposures of MEMBERS OF THE PUBLIC resulting from the station operation. This monitoring program implements Section IV.8.2 of Appendix I to 10 CFR Part 50 and thereby supplements the radiological effluent monitoring program by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and the modeling of the environmental exposure pathways. The initial specified monitoring program will be effective for at least the first three years of commercial operation. Following this period, program changes may be initiated based on operational experience.

The LLDs required by Table 4.12-1 are considered optimum for routine environmental measurements in industrial laboratories. It should be recognized the the LLD is defined as an a priori (before the fact) limit representing the capability of a measurement system and not as an a posteriori (after the fact) limit for a particular measurement.

3/4.12.2

LAND USE CENSUS

This specification is provided to ensure that changes in the use of areas at and beyond the SITE BOUNDARY are identified and that modifications to the radiological environmental monitoring program are made if required by the results of his census. The best information from the door-to-door survey, aerial survey or consulting with local agricultural authorities shall be used. This census satisfies the requirements of Section IV.8.3 of Appendix-I to 10 CFR Part 50. Restricting the census to gardens of greater than 50m² provides assurance that significant exposure pathways via leafy vegetables will be identified and monitored since a garden of this size is the minimum required to produce the quantity (26 kg/year) of leafy vegetables assumed in Regulatory Guide 1.109 for consumption by a child. To determine this minimum garden size, the following assumptions were made: 1) 20% of the garden was used for growing broad leaf vegetation (i.e., similar to lettuce and cabbage), and 2) yield of 2 kg/m².

DELETE

RADIOACTIVE EFFLUENTS

BASES

3/4.12.3 INTERLABORATORY COMPARISON PROGRAM

DELETE

This requirement for participation in an Interlaboratory Comparison Program is provided to ensure that independent checks on the precision and accuracy of the measurements of radioactive material in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring in order to demonstrate that the results are reasonably valid for the purposes of Section IV.8.2 of Appendix I to 10 CFR Part 50.

ADMINISTRATIVE CONTROLS

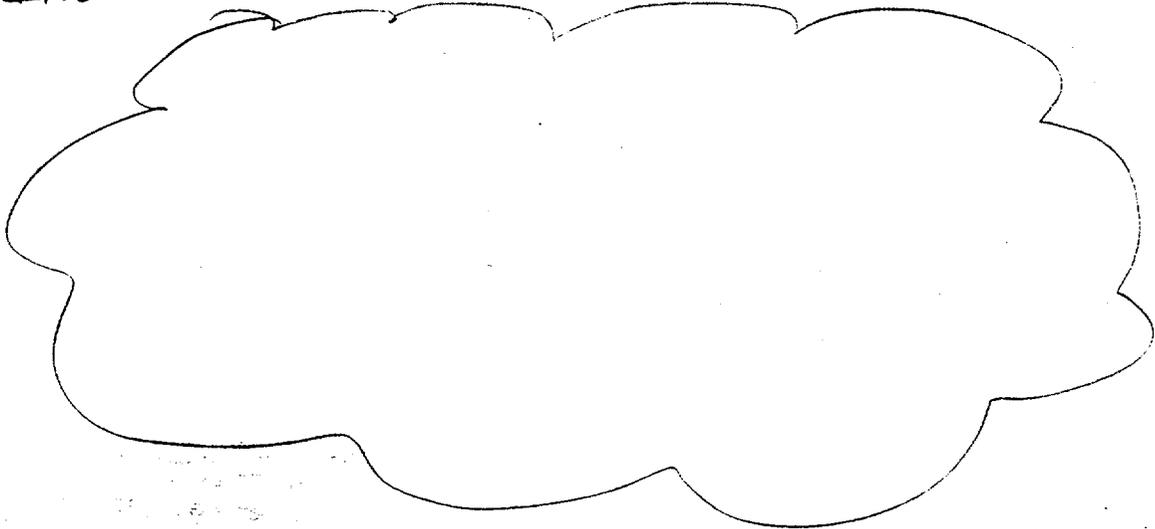
following testing in accordance with this program, the leakage rate acceptance criteria are less than or equal to 0.6 L_s for Type B and Type C tests and less than or equal to 0.75 L_s for Type A tests;

- b. Air lock testing acceptance criteria are:
- 1) Overall air lock leakage rate is less than or equal to 0.05 L_s when tested at greater than or equal to P_s.
 - 2) Seal leakage rate less than or equal to 0.01 L_s per hour when the gap between the door seals is pressurized to 10.0 psig.

Test frequencies and applicable extensions will be controlled by the Primary Containment Leakage Rate Testing Program.

The provisions of Specification 4.0.3 will be applied to the Primary Containment Leakage Rate Testing Program.

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ADMINISTRATIVE CONTROLS

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT*

6.9.1.7 Routine Radiological Environmental Operating Reports covering the operation of the unit during the previous calendar year shall be submitted prior to May 1 of each year.

The Annual Radiological Environmental Operating Reports shall include summaries, interpretations, and an analysis of trends of the results of the radiological environmental surveillance activities for the report period, including a comparison with preoperational studies with operational controls (as appropriate), and with previous environmental surveillance reports, and an assessment of the observed impacts of the plant operation on the environment. The reports shall also include the results of land use censuses required by Specification 3.12.2. The Annual Radiological Environmental Operating Reports shall include the results of analysis of all radiological environmental samples and of all measurements taken during the period pursuant to the Table and Figures in the environmental radiation section of the ODCM; as well as summarized and tabulated results of locations specified in these analyses and measurements in the format of the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979. In the event that some individual 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; at least two legible maps, one covering sampling locations near the SITE BOUNDARY and a second covering the more distant locations, all keyed to a table giving distances and directions from the centerline of one reactor; the results of licensee participation in the Interlaboratory Comparison Program, required by Specification 3.12.1; and discussion of all analyses in which the LLD required by Table 4.12-1 was not achievable.

SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT*

6.9.1.8 Routine Radioactive Effluent Release Reports covering the operation of the unit during the previous six months of operation shall be submitted within 60 days after January 1 and July 1 of each year.

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,

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

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ADMINISTRATIVE CONTROLS

INSERT 5

Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," Revision 1, June 1974, with data summarized on a quarterly basis following the format of Appendix B thereof.

The Radioactive Effluent Release Report to be submitted within 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 magnetic tape of wind speed, wind direction, atmospheric stability, and precipitation (if measured), or in the form of joint frequency distributions of wind speed, wind direction, and atmospheric stability*. This same report shall include an assessment of the radiation doses due to the radioactive liquid and gaseous effluents released from the unit or station during the previous calendar year. 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) 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.

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 calendar year to show conformance with 40 CFR Part 190, Environmental Radiation Protection Standards for Nuclear Power Operation. Acceptable methods for calculating the dose contribution from liquid and gaseous effluents are given in Regulatory Guide 1.109, Rev. 1, October 1977.

The Radioactive Effluent Release Reports shall include the following information for each class of solid waste (as defined by 10 CFR Part 61) shipped offsite during the report period:

- a. Container volume,
- b. Total curie quantity (specify whether determined by measurement or estimate),
- c. Principal radionuclides (specify whether determined by measurement or estimate),

* In lieu of submission with the first half year Radioactive Effluent Release Report, the licensee has the option of retaining this summary of required meteorological data on site in a file that shall be provided to the NRC upon request.

ADMINISTRATIVE CONTROLS

- INSERT 5
- d. Source of waste and processing employed (e.g., dewatered spent resin, compacted dry waste, evaporator bottoms),
 - e. Type of container (e.g., LSA, Type A, Type B, Large Quantity), and
 - f. Solidification agent or absorbent (e.g., cement, urea formaldehyde).

The Radioactive Effluent Release Reports shall include a list of descriptions of unplanned releases from the site to UNRESTRICTED AREAS of radioactive materials in gaseous and liquid effluents made during the reporting period.

The Radioactive Effluent Release Reports shall include any changes made during the reporting period to the PROCESS CONTROL PROGRAM (PCP) and to the OFFSITE DOSE CALCULATION MANUAL (ODCM), as well as a listing of new locations for dose calculations and/or environmental monitoring identified by the land use census pursuant to Specification 3.12.2.

6.9.1.9 CORE OPERATING LIMITS REPORT (COLR)

- a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:
 1. Moderator Temperature Coefficient Beginning of Life (BOL) and End of Life (EOL) limits and 300 ppm surveillance limit for Specification 3/4.1.1.4,
 2. Control Bank Insertion Limits for Specification 3/4.1.3.5,
 3. Axial Flux Difference Limits and target band for Specification 3/4.2.1,
 4. Heat Flux Hot Channel Factor, F_Q , its variation with core height, $K(z)$, and Power Factor Multiplier PF_H , Specification 3/4.2.2, and
 5. Nuclear Enthalpy Hot Channel Factor, and Power Factor Multiplier, PF_{AH} for Specification 3/4.2.3.
- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:
 1. WCAP-9272-P-A, Westinghouse Reload Safety Evaluation Methodology, July 1985 (W Proprietary), Methodology for Specifications listed in 6.9.1.9.a. Approved by Safety Evaluation dated May 28, 1985.

ADMINISTRATIVE CONTROLS

- *****
- c. Records of radiation exposure for all individuals entering radiation control areas.
 - d. Records of gaseous and liquid radioactive material released to the environs.
 - e. Records of transient or operational cycles for those facility components identified in Table 5.7-1.
 - f. Records of reactor tests and experiments.
 - g. Records of training and qualification 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. DELETED
 - k. Records of SORC meetings and activities of the Nuclear Review Board (and activities of its predecessor, the Offsite Safety Review (OSR) staff.)
 - l. Records for Environmental Qualification which are covered under the provisions of Paragraph 6.16.
 - m. Records of the service lives of all hydraulic and mechanical snubbers including the date at which the service life commences and associated installation and maintenance records.
 - n. Records of secondary water sampling and water quality.
 - o. Records of analyses required by the radiological environmental monitoring program which would permit evaluation of the accuracy of the analysis at a later date. This should include procedures effective at specified times and QA records showing that these procedures were followed.

INSERT 6 →

6.11 RADIATION PROTECTION PROGRAM

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

ADMINISTRATIVE CONTROLS

such that a major portion of the body could receive in one hour a dose in excess of 1000 mrem that are located within large areas, such as PWR containment, where no enclosure exists for purposes of locking, and no enclosure can be reasonably constructed around the individual areas, then that area shall be roped off, conspicuously posted and a flashing light shall be activated as a warning device. In lieu of the stay time specification of the RWP, direct or remote (such as use of closed circuit TV cameras) continuous surveillance may be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities within the area.

6.13 PROCESS CONTROL PROGRAM (PCP)

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

6.13.2 Licensee initiated changes to the PCP:

1. Shall be submitted to the Commission in the Semiannual Radioactive Effluent Release Report for the period in which the change(s) was made. This submittal shall contain:
- Sufficiently detailed information to totally support the rationale for the change without benefit of additional or supplemental information;
 - A determination that the change did not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes; and
 - Documentation of the fact that the change has been reviewed and found acceptable by the SORC.
2. Shall become effective upon review and acceptance by the SORC.

Insert 7

ADMINISTRATIVE CONTROLS

6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

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

6.14.2 Licensee initiated changes to the ODCM:

1. Shall be submitted to the Commission in the Semiannual 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. 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 data 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 determination; and
 - c. Documentation of the fact that the change has been reviewed and found acceptable by the SORC.
2. Shall become effective upon review and acceptance by the SORC.

INSERT 8

6.15 MAJOR CHANGES TO RADIOACTIVE LIQUID, GASEOUS AND SOLID WASTE TREATMENT SYSTEMS

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

1. Shall be reported to the Commission in the UFSAR for the period in which the evaluation was reviewed by (SORC). 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 10CFR50.59;
 - b. Sufficient detailed information to totally support the reason for the change without benefit of additional or supplemental information;

**SALEM GENERATING STATION UNIT 2
FACILITY OPERATING LICENSE DPR-75
DOCKET NO. 50-311
REVISIONS TO THE TECHNICAL SPECIFICATIONS**

TECHNICAL SPECIFICATION PAGES WITH PROPOSED CHANGES

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OXYGEN

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DEFINITIONS

- b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be PRESSURE BOUNDARY LEAKAGE, or
- c. Reactor coolant system leakage through a steam generator to the secondary system.

MEMBER(S) OF THE PUBLIC

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

OFFSITE DOSE CALCULATION MANUAL (OOCM)

1.17 The OFFSITE DOSE CALCULATION MANUAL shall be that manual which contains the current methodology and parameters used in the calculation of offsite doses due to radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm/trip setpoints, and in the conduct of the environmental radiological monitoring program.

OPERABLE - OPERABILITY

1.18 A system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified function(s), and when all necessary attendant instrumentation, controls, a normal and an emergency electrical power source, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support function(s).

OPERATIONAL MODE - MODE

1.19 An OPERATIONAL MODE (i.e., MODE) shall correspond to any one inclusive combination of core reactivity condition, power level and average reactor coolant temperature specified in Table 1.1.

INSERT
1

DEFINITIONS

PHYSICS TESTS

1.20 PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation and 1) described in Chapter 14 of the Updated FSAR, 2) authorized under the provisions of 10CFR50.59, or 3) otherwise by the Commission.

PRESSURE BOUNDARY LEAKAGE

1.21 PRESSURE BOUNDARY LEAKAGE shall be leakage (except steam generator tube leakage) through a non-isolable fault in a Reactor Coolant System component body, pipe wall or vessel wall.

PROCESS CONTROL PROGRAM (PCP)

1.22 The PROCESS CONTROL PROGRAM shall be that program which contains the current formula, sampling, analyses, test, and determinations to be made to ensure that the processing and packaging of solid radioactive wastes, based on demonstrated processing of actual or simulated wet solid wastes, will be accomplished in such a way as to assure compliance with 10 CFR Part 20, 10 CFR Part 71 and Federal and State regulations and other requirements governing the disposal of the radioactive waste.

PURGE - PURGING

1.23 PURGE or PURGING shall be 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.

QUADRANT POWER TILT RATIO

1.24 QUADRANT POWER TILT RATIO shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater. With one excore detector inoperable, the remaining three detectors shall be used for computing the average.

RATED THERMAL POWER

1.25 RATED THERMAL POWER shall be a total reactor core heat transfer rate to the reactor coolant of 3411 Mwt.

INSERT
2

DEFINITIONS

REACTOR TRIP SYSTEM RESPONSE TIME

1.26 The REACTOR TRIP SYSTEM RESPONSE TIME shall be the time interval from when the monitored parameter exceeds its trip setpoint at the channel sensor until loss of stationary gripper coil voltage.

REPORTABLE EVENT

1.27 A REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 to 10CFR Part 50.

SHUTDOWN MARGIN

1.28 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming all full length rod cluster assemblies (shutdown and control) are fully inserted except for the single rod cluster assembly of highest reactivity worth which is assumed to be FULLY WITHDRAWN.

SITE BOUNDARY

1.29 The SITE BOUNDARY shall be that line beyond which the land is not owned, leased, or otherwise controlled by the licensee, as shown in Figure 5.1-3, and which defines the exclusion area as shown in Figure 5.1-1.

SOLIDIFICATION

NOT USED

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

SOURCE CHECK

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

STAGGERED TEST BASIS

1.32 A STAGGERED TEST BASIS shall consist of:

- a. A test schedule for (n) systems, subsystems, trains, or other designated components obtained by dividing the specified test interval into (n) equal subintervals.

INSTRUMENTATION

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.8 The radioactive liquid 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 3.11.1.1 are not exceeded. ~~The alarm/trip setpoints of these channels shall be determined in accordance with the OFFSITE DOSE CALCULATION MANUAL (OCM).~~

APPLICABILITY: At all times.

ACTION:

NOT USED

Delete

- a. ~~With a radioactive liquid effluent monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above specification, without delay suspend the release of radioactive liquid effluents monitored by the affected channel or declare the channel inoperable or change the setpoint so it is acceptably conservative.~~
- b. With less than the minimum number of radioactive liquid effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-12. Exert best efforts to return the instrument to OPERABLE status within 30 days and, if unsuccessful, explain in the next ~~annual~~ annual radioactive effluent release report why the inoperability was not corrected in a timely manner.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.8 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 at the frequencies shown in Table 4.3-12.

TABLE 3.3-12
RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	ACTION
1. GROSS RADIOACTIVITY MONITORS PROVIDING AUTOMATIC TERMINATION OF RELEASE <i>NOT USED</i>		
a. Liquid Radwaste Effluent Line	1	26
b. Steam Generator Blowdown Line	4	27
2. GROSS RADIOACTIVITY MONITORS NOT PROVIDING AUTOMATIC TERMINATION OF RELEASE <i>NOT USED</i>		
a. Containment Fan Coolers - Service Water Line - Discharge	3	28
b. Chemical Waste Basin Line	1	31
3. FLOW RATE MEASUREMENT DEVICES <i>NOT USED</i>		
a. Liquid Radwaste Effluent Line	1	29
b. Steam Generator Blowdown Line	4	29
4. TANK LEVEL INDICATING DEVICES		
a. Temporary Outside Storage Tanks as Required	1	30

TABLE 3.3-12 (Continued)

TABLE NOTATION

NOT USED

ACTION 26 - ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases may continue provided that prior to initiating a release.~~

- ~~a. At least two independent samples are analyzed in accordance with Specification 4.11.1.1.1, and~~
- ~~b. At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge line valving;~~

~~Otherwise, suspend release of radioactive effluents via this pathway.~~

NOT USED

ACTION 27 - ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided grab samples are analyzed for gross radioactivity (beta or gamma) at a limit of detection of at least 10^{-7} microcuries/gram.~~

- ~~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.~~

NOT USED

ACTION 28 - ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided that:~~

- ~~a. At least once per 8 hours, local monitor readouts for the affected channels are verified to be below their alarm setpoints, or~~
- ~~b. With a Service Water System leak on the Containment Fan Coil Unit associated with the inoperable monitor either:
 - ~~1. Grab samples are to be collected and analyzed for gross radioactivity (beta or gamma) at a limit of detection of at least 10^{-7} uCi/gram at least once per 8 hours, or~~
 - ~~2. Isolate the release pathway.~~~~
- ~~c. With no identified service water leakage on the Containment Fan Coil Unit associated with the inoperable monitor collect grab samples and analyze for gross radioactivity (beta or gamma) at a limit of detection of at least 10^{-7} uCi/gram at least once per 24 hours.~~

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TABLE 3.3-12 (Continued)

TABLE NOTATION

NOT USED

ACTION 29 - ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours during actual releases. Pump performance curves may be used to estimate flow.~~

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

NOT USED

ACTION 31 - ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided that sampling is conducted in accordance with the following table:~~

<u>Frequency</u>	<u>Condition</u>
1/week	During normal operation (all MODES)
1/day	During operation with an identified primary to secondary leak on either Salem Unit.

TABLE 4.3-12
RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. GROSS RADIOACTIVITY MONITORS PROVIDING ALARM AND AUTOMATIC TERMINATION OF RELEASE <i>NOT USED</i>				
a. Liquid Radwaste Effluent Line	D	PH	R(3)	Q(1)
b. Steam Generator Blowdown Line	D	M	R(3)	Q(1)
2. GROSS RADIOACTIVITY MONITORS PROVIDING ALARM BUT NOT PROVIDING AUTOMATIC TERMINATION OF RELEASE <i>NOT USED</i>				
a. Containment Fan Coolers Service Water Line Discharge	D	M	R(3)	Q(2)
b. Chemical Waste Basin Line	D	M	R(3)	Q(2)
3. FLOW RATE MEASUREMENT DEVICES				
a. Liquid Radwaste Effluent Line	D(4)	N.A.	R	N.A.
b. Steam Generator Blowdown Line	D(4)	N.A.	R	N.A.
4. TANK LEVEL INDICATING DEVICES**				
a. Temporary Outside Storage Tanks as Required	D*	N.A.	R	Q

TABLE 4.3-12 (Continued)

TABLE NOTATION

<p>(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:</p> <p style="text-align: right;"><i>DELETE</i></p> <ol style="list-style-type: none">1. Instrument indicates measured levels at or above the alarm/trip setpoint.2. Circuit failure. (Loss of Power) (Automatic Isolation only)3. Instrument indicates a downscale failure. <p>(2) The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exist:</p> <ol style="list-style-type: none">1. Instrument indicates measured levels at or above the alarm/trip setpoint.2. Circuit failure. (Loss of Power) (Indication only)3. Instrument indicates a downscale failure.4. Instrument controls not set in operate mode. <p>(3) The initial CHANNEL CALIBRATION was performed using appropriate liquid or gaseous calibration sources obtained from reputable suppliers. The activity of the calibration sources were reconfirmed using a multi-channel analyzer which was calibrated using one or more NBS standards.</p> <p>(4) CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once per 24 hours on days on which continuous, periodic, or batch releases are made.</p>
--

* During liquid additions to the tank.

** If tank level indication is not provided, verification will be done by visual inspection.

~~* The R18 channel is an off-line channel which requires periodic decontamination. Any count rate indication above 10,000 cpm constitutes a CHANNEL CHECK for compliance purposes.~~

INSTRUMENTATION

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION
v oxygen

LIMITING CONDITION FOR OPERATION
.....

3.3.3.9 The radioactive gaseous effluent *v OXYGEN* monitoring instrumentation channels shown in Table 3.3-13 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.11.2.X⁵ are not exceeded. ~~The alarm/trip setpoints of these channels shall be determined in accordance with the CCM.~~

APPLICABILITY: As shown in Table 3.3-13

ACTION:

- a. With a radioactive gaseous effluent *v OXYGEN* monitoring instrumentation channel alarm/trip setpoint less conservative than required by the above specification, ~~without delay suspend the release of radioactive gaseous effluents monitored by the affected channel or declare the channel inoperable or change the setpoint so it is acceptably conservative.~~ *and take the ACTION shown in Table 3.3-*
- b. *oxygen* With less than the minimum number of radioactive gaseous effluent *v* monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-13. Exert best efforts to return the instrument to OPERABLE status within 30 days and, if unsuccessful, ~~explain in the next semi-annual radioactive effluent release report why the inoperability was not corrected in a timely manner.~~
- c. The provisions of Specifications 3.0.3 and 3.0.4, are not applicable.

Prepare AND Submit
a SPECIAL REPORT pursuant
to Specification
6.9.2 to explain

SURVEILLANCE REQUIREMENTS
.....

4.3.3.9 Each radioactive gaseous effluent *v OXYGEN* monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, ~~SOURCE CHECK, CHANNEL CALIBRATION, AND CHANNEL FUNCTIONAL TEST~~ operations at the frequencies shown in Table 4.3-13.

TABLE 3.3-13
 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION
 OXYGEN

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
1. WASTE GAS HOLDUP SYSTEM <i>NOT USED</i>			
a. Noble Gas Activity Monitor Providing Alarm and Automatic Termination of Release	1	*	31
b. Oxygen Monitor	1	**	35
2. CONTAINMENT PURGE AND PRESSURE VACUUM RSHRP			
a. Noble Gas Activity Monitor Providing Alarm and Automatic Termination of Release	1	***	34
3. PLANT VENT HEADER SYSTEM			
a. Noble Gas Activity Monitor	1	*	33
b. Iodine Sampler	1	*	36
c. Particulate Sampler	1	*	36
d. Flow Rate Monitor	1	*	32
e. Sampler Flow Rate Monitor	1	*	32

* The following process streams are routed to the plant vent where they are effectively monitored by the instruments described:

- (a) Condenser Air Removal System
- (b) Auxiliary Building Ventilation System
- (c) Fuel Handling Building Ventilation System
- (d) Radwaste Area Ventilation System
- (e) Containment Purge

Action item #34 applies to the purging of the containment only.

TABLE 3.3-13 (Continued)

TABLE NOTATION

- ~~ACTION 31 -~~ ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, the contents of the tank(s) may be released to the environment provided that prior to initiating the release:~~
- ~~a. At least two independent samples of the tank's contents are analyzed, and~~
- ~~b. At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge valving lineup;~~
- ~~Otherwise, suspend release of radioactive effluents via this pathway.~~
- ~~ACTION 32 -~~ ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours.~~
- ~~ACTION 33 -~~ ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided grab samples are taken at least once per 8 hours and these samples are analyzed for gross activity within 24 hours.~~
- ~~ACTION 34 -~~ ~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, immediately suspend PURGING of radioactive effluents via this pathway.~~

~~NOT USED~~

~~* At all times, other than when the line is valved out and locked.~~

~~** During waste gas holdup system operation.~~

~~*** During containment purges or containment pressure vacuum reliefs.~~

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TABLE 3.3-13 (Continued)

TABLE NOTATION

ACTION 35 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of the waste gas holdup system may continue provided grab samples are collected at least once per 24 hours and analyzed within the following 4 hours.

ACTION 36 - *NOT USED*
~~With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided samples are continuously collected with auxiliary sampling equipment as required in Table 4.11-2.~~

OXYGEN
 TABLE 4.3-13
RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1. WASTE GAS HOLDUP SYSTEM <i>Not Used</i>					
a. Noble Gas Activity Monitor Providing Alarm and Automatic Termination of Release	P	P	R(3)	Q(1)	*
b. Oxygen Monitor	D	N.A.	Q(4)	M	**
2. CONTAINMENT PURGE AND PRESSURE VACUUM RELIEF					
a. Noble Gas Activity Monitor Providing Alarm and Automatic Termination of Release	P	P	R(3)	Q(1)	***
3. PLANT VENT HEADER SYSTEM#					
a. Noble Gas Activity Monitor	D	M	R(3)	Q(2)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Flow Rate Monitor	D	N.A.	R	N.A.	*
e. Sampler Flow Rate Monitor	W	N.A.	R	N.A.	*

~~The following process streams are routed to the plant vent where they are effectively monitored by the instruments described:~~

- ~~(a) Condenser Air Removal System~~
- ~~(b) Auxiliary Building Ventilation System~~
- ~~(c) Fuel Handling Building Ventilation System~~
- ~~(d) Radwaste Area Ventilation System~~
- ~~(e) Containment Purges~~

TABLE 4.3-13 (Continued)

TABLE NOTATION

NOT USED

- (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. (Loss of Power)~~
- ~~3. Instrument indicates a downscale failure. (Alarm Only)~~

NOT USED

- (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. (Loss of Power)~~
- ~~3. Instrument indicates a downscale failure.~~
- ~~4. Instrument controls not set in operate mode.~~

NOT USED

- (3) ~~The initial CHANNEL CALIBRATION was performed using appropriate liquid or gaseous calibration sources obtained from reputable suppliers. The activity of the calibration sources were reconfirmed using a multi-channel analyzer which was calibrated using one or more NBS standards.~~

- (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, balance nitrogen.

* ~~At all times~~ *NOT USED*

** During waste gas holdup system operation.

*** ~~During containment purge or containment pressure vacuum reliefs.~~

3/4.11 RADIOACTIVE EFFLUENTS

3/4.11.1 LIQUID EFFLUENTS ~~3/4.11.1.1 DELETED~~

CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.11.1.1 The concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS (See Figure 5.1-3) 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.

APPLICABILITY: At all times.

ACTION:

With the concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS exceeding the above limits, without delay restore the concentration to within the above limits.

DELETE

SURVEILLANCE REQUIREMENTS

4.11.1.1.1 Radioactive liquid wastes shall be sampled and analyzed according to the sampling and analyses program in Table 4.11-1.

4.11.1.1.2 The results of the radioactivity analyses shall be used in accordance with in the ODCM to assure that the concentrations at the point of release are maintained within the limits of Specification 3.11.1.1

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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) ^a (uCi/ml)
A. Batch Waste Release Tanks ^b	Each Batch ^P	Each Batch ^P	Principal Gamma Emitters ^c	5x10 ⁻⁷
			I-131	1x10 ⁻⁶
	One Batch/M ^P	M ^M	Dissolve and Entrained Gases (Gamma Emitters)	1x10 ⁻⁵
			H-3	1x10 ⁻⁵
	Each Batch ^P	M ^M Compositd	Gross Alpha	1x10 ⁻⁷
			Sr-89, Sr-90	5x10 ⁻⁸
		Fe-55	1x10 ⁻⁶	
B. Continuous Releases ^e	Weekly	W ^M Composite	Principal Gamma Emitters ^c	5x10 ⁻⁷
			I-131	1x10 ⁻⁶
	Grab Sample ^M	M ^M	Dissolved and Entrained Gases	1x10 ⁻⁵
			H-3	1x10 ⁻⁵
	Weekly	M ^M Composite	Gross Alpha	1x10 ⁻⁷
			Sr-89, Sr-90	5x10 ⁻⁸
	Weekly ^d	Q ^M Composite	Fe-55	1x10 ⁻⁶

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TABLE 4.11-1 (Continued)

TABLE NOTATION

- a. The LLD is defined, for purposes of these specifications as the smallest concentration of radioactive material in a sample that will yield a net count (above system background) that will be detected with 95% probability with only 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system (which may include radiochemical separation):

$$LLD = \frac{4.66 s_b}{E \cdot V \cdot 2.22 \times 10^6 \cdot \xi \cdot e^{-\lambda \Delta t}}$$

Where:

LLD is the "a priori" lower limit of detection as defined above (as microcuries 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 disintegration),

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

2.22×10^6 is the number of disintegrations per minute per microcurie,

ξ is the fractional radiochemical yield (when applicable),

λ is the radioactive decay constant for the particular radionuclide, and

Δt for environmental samples is the elapsed time between sample collection (or end of the sample collection period) and time of counting.

Typical values of E, V, ξ , and Δt should be used in the calculation.

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

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TABLE 4.11-1 (Continued)

TABLE NOTATION

- b. 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 to assure representative sampling.
- c. The principal gamma emitters for which the LLD specification applies exclusively are 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 that are measurable and identifiable, together with the above nuclides, shall also be identified and reported.
- d. A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen that is representative of the liquids released.
- e. A continuous release is the discharge of liquid wastes of a nondiscrete volume, e.g., from a volume of a system that has an input flow during the continuous release.

DELETE

* The LLD for Ce-144 shall be 2×10^{-6} uCi/ml.

← 3/4 11.1.2 DELETED

DOSE

LIMITING CONDITION FOR OPERATION

3.11.1.2 The dose or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released, from each reactor unit, to UNRESTRICTED AREAS (see Figure 5.1-3) shall be limited:

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

APPLICABILITY: At all times.

ACTION:

DELETE

- a. With the calculated dose from the release of radioactive materials in liquid effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions that have been taken to reduce the releases and the proposed corrective actions to be taken to assure that subsequent releases will be in compliance with the above limits.
- b. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.1.2 Cumulative dose contributions from liquid effluents shall be determined in accordance with the ODCM at least once per 31 days.

RADIOACTIVE EFFLUENTS

← 3/11.1.3 DELETED

LIQUID RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION

3.11.1.3 The liquid radwaste treatment system shall be used to reduce the radioactive materials liquid wastes prior to their discharge when the projected cumulative doses due to the liquid effluent from each reactor to UNRESTRICTED AREAS (see Figure 5.1-3) exceed 0.375 mrem to the total body or 1.25 mrem to any organ during any calendar quarter.

APPLICABILITY: At all times.

ACTION:

DELETE

- a. With the radioactive liquid waste being discharged without treatment and in excess of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that includes the following information:
 - 1. Explanation of why liquid radwaste was being discharged without treatment, identification of any inoperable equipment or subsystems, and the reason for the 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 Specification 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

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

RADIOACTIVE EFFLUENTS

3/11.2.1 DELETED

3/4.11.2 GASEOUS EFFLUENTS

DOSE RATE

LIMITING CONDITION FOR OPERATION

3.11.2.1 The dose rate due to radioactive materials released in gaseous effluents from the site to areas at and beyond the SITE BOUNDARY (see Figure 5.1-3) shall be limited to the following:

- a. For noble gases: Less than or equal to 500 mrem/yr to the total body and less than or equal to 3000 mrem/yr to the skin, and
- b. For iodine-131, for tritium, and for all radionuclides in particulate form with half lives greater than 8 days: Less than or equal to 1500 mrem/yr to any organ.

APPLICABILITY: At all times.

ACTION:

With the dose rate(s) exceeding the above limits, without delay restore the release rate to within the above limit(s).

DELETE

SURVEILLANCE REQUIREMENTS

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

4.11.2.1.2 The dose rate due to iodine-131, tritium, and all radionuclides in particulate form with half lives greater than 8 days in gaseous effluents shall be determined to be within the above limits in accordance with the ODCM by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in Table 4.11-2.

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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. Waste Gas Storage Tank	P Each Tank Grab Sample	P Each Tank	Principal Gamma Emitters ^b	1x10 ⁻⁴
B. Containment PURGE	P Each PURGE Grab Sample	P Each PURGE	Principal Gamma Emitters ^b	1x10 ⁻⁴
			H-3	1x10 ⁻⁶
C. Plant Vent	MC, d, e Grab Sample	MC	Principal Gamma Emitter ^b	1x10 ⁻⁴
			H-3	1x10 ⁻⁶
D. All Release Types as Listed in A, B, and C Above	Continuous ^f	W9 Charcoal Sample	I-131	1x10 ⁻¹²
	Continuous ^f	W9 Particulate Sample	<i>DELETE</i> Principal Gamma Emitters ^b (I-131, Others)	1-10 ⁻¹¹
	Continuous ^f	M Composite Particulate Sample	Gross Alpha	1x10 ⁻¹¹
	Continuous ^f	Q Composite Particulate Sample	Sr-89, Sr-90	1x10 ⁻¹¹
	Continuous ^f	Noble Gas Monitor	Noble Gasses Gross Beta or Gamma	1x10 ⁻⁶

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TABLE 4.11-2 (Continued)

TABLE NOTATION

- a. The LLD is defined in Table 4.11.1
- b. The principal gamma emitters for which the LLD specification applies exclusively are the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, 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 that are measurable and identifiable, together with the above nuclides, shall also be identified and reported.
- c. Sampling and analysis shall also be performed following shutdown, startup or a THERMAL POWER change that, within one hour, exceeds 15 percent of RATED THERMAL POWER unless:
- DELETE*
1. Analysis shows that the DOSE EQUIVALENT I-131 concentration in the primary coolant has not increased more than a factor of three.
 2. The noble gas activity monitor shows that effluent activity has not increased by more than a factor of three.
- d. Tritium grab samples shall be taken at least once per 24 hours when the refueling canal is flooded.
- e. 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.
- f. 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.

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TABLE 4.11-2 (Continued)

TABLE NOTATION

DELETED

- g. 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 shall also be performed at least once per 24 hours for at least 7 days following each shutdown, startup or THERMAL POWER change that, within one hour, exceeds 15 percent of RATED THERMAL POWER and analyses shall be completed within 48 hours of changing. When samples collected for 24 hours are analyzed, the corresponding LLDs may be increased by a factor of 10. This requirement does not apply if (1) analysis shows that the DOSE EQUIVALENT I-131 concentration in the primary coolant has not increased more than a factor of 3; and (2) the noble gas monitor shows that effluent activity has not increased by more than a factor of three.

RADIOACTIVE EFFLUENTS

← 3/11.2.2 DELETED

DOSE - NOBLE GASES

LIMITING CONDITION FOR OPERATION

3.11.2.2 The air dose due to noble gases released in gaseous effluents, from each reactor unit, from the site areas at and beyond the SITE BOUNDARY (see Figure 5.1-3) shall be limited to the following:

- a. During any calendar quarter: Less than or equal to 5 mrad for gamma radiation and less than or equal to 10 mrad for beta radiation and,
- b. During any calendar year: Less than or equal to 10 mrad for gamma radiation and less than or equal to 20 mrad for beta radiation.

APPLICABILITY: At all times

DELETE

ACTION:

- a. With the calculated air dose from radioactive noble gases in gaseous effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions that have been taken to reduce the release and the proposed corrective actions to be taken to assure that subsequent releases will be in compliance with the above limits.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.2 Cumulative dose contributions for the current calendar quarter and current calendar year shall be determined in accordance with the ODCM at least once per 31 days.

RADIOACTIVE EFFLUENTS

3/11. 2. 3 DELETED

DOSE - IODINE-131, TRITIUM, AND RADIONUCLIDES IN PARTICULATE FORM

LIMITING CONDITION FOR OPERATION

3.11.2.3 The dose to a MEMBER OF THE PUBLIC from iodine-131, from tritium, and from all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released, from each reactor unit, from the site to areas at and beyond the SITE BOUNDARY (see Figure 5.1-3) shall be limited to the following:

- a. During any calendar quarter: Less than or equal to 7.5 mrems to any organ and,
- b. During any calendar year: Less than or equal to 15 mrems to any organ.

APPLICABILITY: At all times.

ACTION:

- a. With the calculated air dose from the release of iodine-131, tritium, and radionuclides in particulate form with half-lives greater than 8 days, in gaseous effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that identifies the cause(s) for exceeding the limit and defines the corrective actions that have been taken to reduce the release and the proposed corrective actions to be taken to assure that subsequent releases will be in compliance with the above limits.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

DELETED

SURVEILLANCE REQUIREMENTS

4.11.2.3 Cumulative dose contributions for the current calendar quarter and current calendar year for iodine-131, tritium, and radionuclides in particulate form with half-lives greater than 8 days shall be determined in accordance with the ODCM at least once per 31 days.

RADIOACTIVE EFFLUENTS

3/11.2.4 DELETED

GASEOUS RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION

3.11.2.4 The GASEOUS RADWASTE TREATMENT SYSTEM and the VENTILATION EXHAUST 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 to areas at and beyond the SITE BOUNDARY (see Figure 5.1-3), exceed 0.625 mrad for gamma radiation and 1.25 mrad for beta radiation in any calendar quarter. 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 each reactor unit, from the site to areas at and beyond the SITE BOUNDARY (see Figure 5.1-3) would exceed 1.875 mrem to any organ in any calendar quarter.

APPLICABILITY: At all times.

ACTION:

DELETE

- a. With gaseous waste being discharged without treatment and in excess of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that includes the following information:
 1. Explanation of why gaseous radwaste was being discharged without treatment, identification of any inoperable equipment or subsystems, and the reason for the 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 Doses due to gaseous releases from the site shall be projected at least once per 31 days in accordance with the ODCM.

RADIOACTIVE EFFLUENTS

~~DELETED~~

3/4.11.3 SOLID RADIOACTIVE WASTE

LIMITING CONDITION FOR OPERATION

3.11.3. The solid radwaste system shall be used in accordance with a PROCESS CONTROL PROGRAM to process wet radioactive waste to meet shipping and burial ground requirements.

APPLICABILITY: At all times.

ACTION:

- ~~DELETE~~
- a. With the provisions of the PROCESS CONTROL PROGRAM not satisfied, suspend shipments of defectively processed or defectively packaged solid radioactive wastes from the site.
 - b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

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

- a. If any test specimen fails to verify SOLIDIFICATION, the SOLIDIFICATION of the batch under test shall be suspended until such time as additional test specimens can be obtained, alternative SOLIDIFICATION parameters can be determined in accordance with the PROCESS CONTROL PROGRAM, and a subsequent test verifies SOLIDIFICATION. SOLIDIFICATION of the batch may then be resumed using the alternative SOLIDIFICATION parameters determined by the PROCESS CONTROL PROGRAM.
- b. If the initial test specimen from a batch of waste fails to verify SOLIDIFICATION, the PROCESS CONTROL PROGRAM shall provide for the collection and testing of representative test specimens from each consecutive batch of the same type of wet waste until at least three consecutive initial test specimens demonstrate SOLIDIFICATION. The PROCESS CONTROL PROGRAM shall be modified as required, as provided in Specification 6.13, to assure SOLIDIFICATION of subsequent batches of waste.

RADIOACTIVE EFFLUENTS

3/4.11.4 TOTAL DOSE DELETED

LIMITING CONDITION FOR OPERATION

3.11.4. The annual (calendar year) 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).

APPLICABILITY: At all times

ACTION:

- DELETE*
- a. With the calculated doses from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of Specification 3.11.1.2a, 3.11.1.2b, 3.11.2.2a, 3.11.2.2b, 3.11.2.3a, or 3.11.2.3b, calculations should be made including direct radiation contributions from the reactor units and from outside storage tanks to determine whether the limits of this Specification have been exceeded. If such is the case, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that defines the corrective action to be taken to reduce subsequent releases to prevent recurrence of exceeding the above limits and includes the schedule for achieving conformance with the above limits. This Special Report, as defined in 10 CFR Part 20.405c, shall include an analysis that estimates the radiation exposure (dose) to a MEMBER OF THE PUBLIC from uranium fuel cycle sources, including all effluent pathways and direct radiation, for the calendar year that includes the release(s) covered by this report. It shall also describe levels of radiation and concentrations of radioactive material involved, and the cause of the exposure levels or concentrations. If the estimated dose(s) exceeds the above limits, and if the release condition resulting in violation of 40 CFR Part 190 has not already been corrected, the Special Report shall include a request for a variance in accordance with the provisions of 40 CFR Part 190. Submittal of the report is considered a timely request, and a variance is granted until staff action on the request is complete.

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RADIOACTIVE EFFLUENTS

3/4.11.4 TOTAL DOSE

LIMITING CONDITION FOR OPERATION

ACTION: (Cont'd)

DELETE

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

SURVEILLANCE REQUIREMENTS

4.11.4.1 Cumulative dose contributions from liquid and gaseous effluents shall be determined in accordance with Specifications 4.11.1.2, 4.11.2.2, 4.11.2.3, and in accordance with the OOCM.

4.11.4.2 Cumulative dose contributions from direct radiation from the reactor units and from radwaste storage shall be determined in accordance with the OOCM.

DELETED

~~3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING~~

~~3/4.12.1 MONITORING PROGRAM~~

~~LIMITING CONDITION FOR OPERATION~~

~~3.12.1. The radiological environmental monitoring program shall be conducted as specified in Table 3.12-1.~~

~~APPLICABILITY: At all times.~~

~~ACTION:~~

DELETE

- ~~a. With the radiological environmental monitoring program not being conducted as specified in Table 3.12-1, prepare and submit to the Commission, in the Annual Radiological Environmental Operating Report required by Specification 6.9.1.7, a description of the reasons for not conducting the program as required and the plans for preventing a recurrence.~~
- ~~b. With the level of radioactivity as the result of plant effluents in an environmental sampling medium at a specified location exceeding the reporting levels of Table 3.12-2 when averaged over any calendar quarter, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions to be taken to reduce radioactive effluents so that the potential annual dose to a MEMBER OF THE PUBLIC is less than the calendar year limits of Specifications 3.11.1.2, 3.11.2.2, and 3.11.2.3. When more than one of the radionuclides in Table 3.12-2 are detected in the sampling medium, this report shall be submitted if:~~

$$\frac{\text{concentration (1)}}{\text{reporting level (1)}} + \frac{\text{concentration (2)}}{\text{reporting level (2)}} + \dots \geq 1.0$$

~~When radionuclides other than those in Table 3.12-2 are detected and are the result of plant effluents, this report shall be submitted if the potential annual dose to a member of the public is equal to or~~

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3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING

3/4.12.1 MONITORING PROGRAM

LIMITING CONDITION FOR OPERATION
.....

ACTION: (Cont'd)

DELETE

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.

- c. With milk or fresh leafy vegetable samples unavailable from one or more of the sample locations required by Table 3.12-1, identify locations for obtaining replacement samples and add them to the radiological environmental monitoring program within 30 days. The specific locations from which samples were unavailable may then be deleted from the monitoring program.

Pursuant to Specification 6.9.1.8, identify the cause of the unavailability of samples and the new location(s) for obtaining replacement samples in the next Semiannual Radioactive Effluent Release Report. Include in the report a revised figure(s) and table for the ODCM reflecting the new location(s).

- d. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS
.....

4.12.1 The radiological environmental monitoring samples shall be collected pursuant to Table 3.12-1 from the locations specified in the ODCM and shall be analyzed pursuant to the requirements of Table 4.12-1.

Pages 3/4 12-3 through 3/4 12-13 Deleted

TABLE 3.12-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Pathway	Number of Samples and Sample Locations ^a	Sampling and Collection Frequency ^a	Type and frequency of Analysis
1. DIRECT RADIATION^b	About 40 routine monitoring stations with two or more dosimeters for measuring dose continuously to be placed as follows: 1) an inner ring of stations in the general area of the Site and an outer ring in the 2- to 8-km range from the Site with a station in each sector of each ring. The balance of the stations should be placed in special interest areas such as population centers, nearby residences, schools, and in 2 or 3 areas to serve as control stations.	Monthly, Quarterly or semi-annually	Gamma dose monthly, quarterly, or semi-annually
2. AIRBORNE Radiiodine and Particulates	Samples from 5 locations: a. 3 samples from close to the Site locations. b. 1 sample from the vicinity of a community. c. 1 sample from a control location 15-30 km distance.	Continuous sampler operation with sample collection weekly or as required by dust loading which ever is more frequent ^c	<u>Radiiodine Canister:</u> I-131 analysis weekly. <u>Particulate Sampler</u> Gross beta radioactivity analysis following filter change; Gamma isotopic analysis of complete (by location) quarterly.

DELETE

TABLE 3.12-1 (Cont'd)

Pathway	Number of Samples and Sample Locations ^a	Sampling and Collection Frequency ^a	Type and Frequency of Analysis
3. WATERBORNE			
a. Surface ^b	a. 1 sample upstreaming and b. 1 sample downstream c. 1 sample outfall d. 1 sample cross-stream	Two gallon grab sample collected monthly.	Gamma isotopic analysis quarterly. Composite for tritium analysis quarterly.
b. Ground	Samples from 1 or 2 sources only if likely to be affected.	Two gallon grab sample collected quarterly.	Gamma isotopic analysis quarterly. Composite for tritium analysis quarterly.
c. Drinking	a. 1 sample of the nearest water supply.	50 ml aliquot taken daily and composited to a monthly sample of two gallons.	I-131 analysis on each composite when the dose calculated for the consumption of the water is greater than 1 mrem per year. Composite for gross beta and gamma isotopic analyses monthly. Composite for tritium analysis quarterly.
d. Sediment in river	a. 1 sample downstream b. 1 sample cross-stream c. 1 sample outfall	Samples taken semi-annually.	Gamma isotopic analysis semiannually.

DELETE

TABLE 3.12-1 (Cont'd)

Pathway	Number of Samples and Sample Locations ^a	Sampling and Collection Frequency ^a	Type and frequency of Analysis
4. INGESTION			
a. Milk	<p>a. Samples from milking animals in 3 locations within 5 km distance having the highest dose potential. If there are none, then, 1 sample from milking animals 5 to 8 km distant where doses are calculated to be greater than 1 mrem per yr^b.</p> <p>b. 1 sample from milking animals at a control location.</p>	<p>Semi-monthly when animals are on pasture, monthly at other time.</p>	<p>Gamma isotopic and I-131 analysis semi-monthly when animals are on pasture; monthly at other times.</p>
b. Fish and Invertebrates	<p>a. 1 sample of each commercially and recreationally important species in vicinity of discharge point.</p>	<p>Sample in season, or semiannual if they are not seasonal</p>	<p>Gamma isotopic analysis on edible portions.</p>
c. Food	<p>a. 1 sample of each principal class of food products from any area that is irrigated by water in which liquid plant wastes have been discharged.</p>	<p>At time of harvest¹</p>	<p>Gamma isotopic analysis on edible portion.</p>

DELETE

TABLE 3.12.1 (Cont'd)

TABLE NOTATION

DELETE

- a In the event that it is not possible or practicable to obtain samples of the media of choice at the most desired location or time, suitable alternative media and locations may be chosen for the particular pathway. Actual locations (distance and direction) from the site shall be provided for all sample locations in the ODCM.
- b One or more instruments, such as pressurized ion chamber, for measuring and recording dose rate continuously may be used in place of, or in addition to, integrating dosimeters. For the purposes of this table, a thermoluminescent dosimeter may be considered to be one phosphor, and two or more phosphors in a packet may be considered as two or more dosimeters. Film badges shall not be used for measuring direct radiation. (The 40 stations is not an absolute number. This number may be reduced according to geographical limitations; e.g., at an ocean site, some sectors will be over water so that the number of dosimeters may be reduced accordingly. An option open to licensees is to place some of the 40 routine TLD monitoring stations inside the SITE BOUNDARY. Such stations could provide useful information under both routine and accident conditions, and would be particularly valuable for the larger sites. The frequency of analysis or readout will depend upon the characteristics of the specific TLD system used and should be selected to obtain optimum dose information with minimal fading.)
- c Canisters for the collection of radioiodine in air shall be checked for channeling before operation in the field to insure complete recovery of iodine.
- d Particulate sample filters shall be analyzed for gross beta radioactivity 24 hours or more after sampling to allow for radon and thoron daughter product decay. If gross beta activity in air or water is greater than ten times the yearly mean of control samples for any medium, gamma isotopic analysis shall be performed on the individual samples.

TABLE 3.12-1 (Cont'd)

TABLE NOTATION

DELETE

- e Gamma isotopic analysis means the identification and quantification of gamma-emitting radionuclides that may be attributable to the effluents from the facility.
- f The purpose of this sample is to obtain background information. If it is not practical to establish control locations in accordance with the distance and wind direction criteria, other sites that provide valid background data may be substituted.
- g The "upstream sample" shall be taken at a distance beyond significant influence of the discharge. The "downstream" sample shall be taken in an area beyond but near the mixing zone. "Upstream" samples in an estuary must be taken far enough upstream to be beyond the plant influence.
- h Salt water shall be sampled only when the receiving water is utilized for recreational activities.
- i Composite samples shall be collected with equipment that is capable of collecting an aliquot at time intervals that are very short (e.g., hourly) relative to the compositing period (e.g., monthly) in order to assure obtaining a representative sample.
- j Groundwater samples shall be taken when this source is tapped for drinking or irrigation purposes in areas where the hydraulic gradient or recharge properties are suitable for contamination.
- k The dose shall be calculated for the maximum organ and age group, using the methodology contained in Regulatory Guide 1.109, Rev. 1, October 1977, and the actual parameters particular to the site.
- l If harvest occurs more than once a year, sampling shall be performed during each discrete harvest. If harvest occurs continuously, sampling shall be monthly. Attention shall be paid to including samples of tuberos and root food products.

TABLE 3.12-2

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)	Food Products (pCi/Kg, wet)
H-3	2 x 10 ^{4(a)}	DELETE			
Mn-54	1 x 10 ³	DELETE			
Fe-59	4 x 10 ²	DELETE			
Co-58	1 x 10 ³	DELETE			
Co-60	3 x 10 ²	DELETE			
Zn-65	3 x 10 ²	DELETE			
Zr-Nb-95	4 x 10 ²	DELETE			
I-131	2 ^(b)	0.9		3	1 x 10 ²
Cs-134	30	10	1 x 10 ³	60	1 x 10 ³
Cs-137	50	20	2 x 10 ³	70	2 x 10 ³
Ba-La-140	2 x 10 ²			3 x 10 ²	

(a) For drinking water samples. This is a 40 CFR Part 141 value. If no drinking water pathway exists, a value of 3 x 10⁴ pCi/l may be used.

(b) For drinking water samples. This is a 40 CFR Part 141 value. If no drinking water pathway exists, a value of 20 pCi/l may be used.

TABLE 4.12-1

MAXIMUM VALUES FOR THE LOWER LIMITS OF DETECTION (LLD)^{a,b}

Analysis (pci/l)	Water (pci/l)	Airborne Particulate or Gases (pci/m ³)	Fish (pci/kg, wet)	Milk (pci/l)	Food Products (pci/kg, wet)	Sediment (pci/kg, dry)
gross beta	4	1×10^{-2}				
H-3	2000 ^c					
Mn-54	15		130			
Fe-59	30		260			
Co-58, 60	15		130			
Zn-65	30		260			
Zr-Nb-95	15					
I-131	1 ^d	7×10^{-2}			60	
Cs-134	15	5×10^{-2}	130	15	60	150
Cs-137	18	6×10^{-2}	150	18	80	180
Ba-La-140	15			15		

DELETE

- a Required detection capabilities for thermoluminescent dosimeters used for environmental measurements are given in Regulatory Guide 4.13, Rev. 1, July 1977.
- b The LLD is defined in Table 4.11-1.
- c LLD for drinking water samples. If no drinking water pathway exists, a value of 3000 pci/l may be used.
- d LLD for drinking water samples. If no drinking water pathway exists, a value of 10 pci/l may be used.

Delete

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RADIOLOGICAL ENVIRONMENTAL MONITORING

3/4.12.2 LAND USE CENSUS

LIMITING CONDITION FOR OPERATION

3.12.2. A land use census shall be conducted and shall identify within a distance of 8 km (5 miles) the location in each of the 16 meteorological sectors of the nearest milk animal, the nearest residence and the nearest garden* of greater than 50 m² (500 ft²) producing broad leaf vegetation. (For elevated releases as defined in Regulatory Guide 1.111, Revision 1, July 1977, the land use census shall also identify within a distance of 5 km (3 miles) the locations in each of the 16 meteorological sectors of all milk animals and all gardens of greater than 50 m² producing broad leaf vegetation.

APPLICABILITY: At all times.

ACTION:

- DELETED
- a. With a land use census identifying a location(s) that yields a calculated dose or dose commitment greater than the values currently being calculated in Specification 4.11.2.3, identify the new location(s) in the next Semiannual Radioactive Effluent Release Report, pursuant to Specification 6.9.1.8.
 - b. With a land use census identifying a location(s) that yields a calculated dose or dose commitment (via the same exposure pathway) 20 percent greater than at a location from which samples are currently being obtained in accordance with Specification 3.12.1, add the new location(s) to the radiological environmental monitoring program within 30 days. The sampling location(s), excluding the control station location, having the lowest calculated dose or dose commitment(s) (via the same exposure pathway) may be deleted from this monitoring program after October 31 of the year in which this land use census was conducted. Pursuant to Specification 6.9.1.8, identify the new location(s) in the next Semiannual Radioactive Effluent Release Report and also include in the report a revised figure(s) and table for the ODCM reflecting the new location(s).
 - c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

*Broad leaf vegetation sampling of at least three different kinds of vegetation may be performed at the SITE BOUNDARY in each of two different direction sectors with the highest predicted D/Q in lieu of the garden census. Specifications for broadleaf vegetation sampling in Table 3.12-1.4c shall be followed, including analysis of control samples.

RADIOLOGICAL ENVIRONMENTAL MONITORING

3/4.12.2 LAND USE CENSUS (Cont'd)

DELETE

SURVEILLANCE REQUIREMENTS

4.12.2 The land use census shall be conducted during the growing season at least once per 12 months using that information that will provide the best results, such as by a door-to-door survey, aerial survey, or by consulting local agriculture authorities. The results of the land use census shall be included in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.7.

RADIOLOGICAL ENVIRONMENTAL MONITORING

3/4.12.3. INTERLABORATORY COMPARISON PROGRAM

LIMITING CONDITION FOR OPERATION
.....

3.12.3 Analyses shall be performed on radioactive materials supplied as part of an Interlaboratory Comparison Program which has been approved by the Commission.

APPLICABILITY: At all times.

ACTION:

DELETE

- a. With analyses not being performed as required above, report the corrective actions taken to prevent a recurrence to the Commission in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.7.
- b. The provisions of Specifications 3.0.3 and 3.0.4. are not applicable.

SURVEILLANCE REQUIREMENTS
.....

4.12.3 A summary of the results obtained as part of the above required Interlaboratory Comparison Program and in accordance with the ODCM shall be included in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.7.

INSTRUMENTATION
BASES

3/4.3.3.8 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

~~The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases of liquid effluents. The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the procedures in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50. The purpose of tank level indicating devices is to assure the detection and control of leaks that if not controlled could potentially result in the transport of radioactive materials to UNRESTRICTED AREAS.~~

CROSS REFERENCE - TABLES 3.3-12 and 4.3-12

DELETE

T/S Table Item No.	Instrument Description	Acceptable RMS Channels
1a	Liquid Radwaste Effluent Line Gross Activity	2R19
1b	Steam Generator Blowdown Line Gross Activity	2R19A, B, C, and D ⁽¹⁾
2a	Containment Fan Coolers - Service Water Line Discharge Gross Activity	2R13A, B and C ⁽¹⁾
2b	Chemical Waste Basin Line Gross Activity	R17

(1) The channels listed are required to be operable to meet a single operable channel for the Technical Specification's "Minimum Channels Operable" requirement.

3/4.3.3.9 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

OXYGEN
OXYGEN MONITORING

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the procedures 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.

AND

INSTRUMENTATION
BASES

CROSS REFERENCE - TABLES 3.3-13 and 4.3-13

DELETE

T/S Table Item No.	Instrument Description	Acceptable RMS Channels
1a	Waste Gas Holdup System Noble Gas Activity	2R41A, B and D ⁽¹⁾⁽²⁾
2a	Containment Purge and Pressure - Vacuum Relief Noble Gas Activity	2R12A or 2R41A, B and D ⁽¹⁾⁽²⁾
3a	Plant Vent Header System Noble Gas Activity	2R16 or 2R41A, B and D ⁽¹⁾⁽²⁾

- (1) The channels listed are required to be operable to meet a single operable channel for the Technical Specification's "Minimum Channels Operable" requirement.
- (2) 2R41D is the setpoint channel. 2R41A and 2R41B are the measurement channels.

3/4.3.4 DELETED

3/4.11 RADIOACTIVE EFFLUENTS

BASES

3/4.11.1 LIQUID EFFLUENTS

3/4.11.1.1 CONCENTRATION DELETED

The specification is provided to ensure that the concentration of radioactive materials released in liquid waste effluents 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 in UNRESTRICTED AREAS will result in exposures within (1) the Section II.A design objectives of Appendix I, 10 CFR Part 50, to a MEMBER OF THE PUBLIC and (2) the limits of 10 CFR Part 20.106(a) to the population. The concentration limit for dissolved or entrained noble gases is based upon the assumption that Xe-138 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.

The required detection capabilities for radioactive materials in liquid waste samples are tabulated in terms of the lower limits of detection (LLDs)

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3/4.11.1.2 DOSE DELETED

This specification is provided to implement the requirements of Sections II.A, III.A, and IV.A of Appendix I, 10 CFR Part 50. The Limiting Condition for Operation implements the guides set forth in Section II.A of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section 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." Also, for freshwater sites with drinking water supplies that can be potentially affected by plant operations, there is reasonable assurance that the operation of the facility will not result in radionuclide concentrations in the finished drinking water that are in excess of

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RADIOACTIVE EFFLUENTS

BASES

~~the requirements of 40 CFR Part 141. The dose calculations in the ODCM implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data, such that the actual exposure of a MEMBER OF THE PUBLIC through appropriate pathways is unlikely to be substantially underestimated. The equations specified in the ODCM for calculating the doses due to the actual release rates of radioactive materials in liquid effluents are consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual doses to Man from Routine 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 Purposes of Implementing Appendix I," April 1977.~~

~~The 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.~~

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3/4.11.1.3 LIQUID RADWASTE TREATMENT DELETED

DELETED → The requirement 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.0 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 the Section II.A of Appendix I, 10 CFR Part 50, for liquid effluents.

3/4.11.1.4 LIQUID HOLDUP TANKS

The tanks listed in this specification include all those outdoor tanks that are not surrounded by liners, dikes, or walls capable of holding the tank contents and that do not have tank overflows and surrounding area drains connected to the liquid radwaste treatment system.

RADIOACTIVE EFFLUENTS

BASES

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

3/4.11.2 GASEOUS EFFLUENTS

3/4.11.2.1 DOSE RATE DELETED

This specification is provided to ensure that the dose at any time at and beyond the SITE BOUNDARY from gaseous effluents from all units on the site will be within the annual dose limits of 10 CFR Part 20. 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 a MEMBER OF THE PUBLIC either within or outside the SITE BOUNDARY, to annual average concentrations exceeding the limits specified in Appendix B, Table II of 10 CFR Part 20 [13 CFR Part 20.106(b)]. For MEMBERS OF THE PUBLIC who may at times be within the SITE BOUNDARY, the occupancy of the individual will usually be sufficiently low to compensate for any increase in the atmospheric diffusion factor above that for the SITE BOUNDARY. Examples of calculations for such MEMBERS OF THE PUBLIC with the appropriate occupancy factors shall be given in the ODCM. The specified release rate limits restrict, at all times, the corresponding gamma and beta dose rates above background to a MEMBER OF THE PUBLIC at or beyond the SITE BOUNDARY to less than or equal to 500 mrems/year to the skin. These release rate limits also restrict, at all times, the corresponding thyroid dose rate above background to a child via the inhalation pathway to less than or equal to 1500 mrems/year.

This specification applies to the release of gaseous effluents from all reactors at the site.

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RADIOACTIVE EFFLUENTS

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3/4.11.2.2 GASE - NOBLE GASES

This specification is provided to implement the requirements of Section II.B, III.A and IV.A of Appendix I, 10 CFR Part 50. The limiting condition for operation implements the guides set forth in Section II.B of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive material in gaseous effluents will be kept "as low as is reasonably achievable." The Surveillance Requirements implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data such that the actual exposure of a MEMBER OF THE PUBLIC through 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 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 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 and beyond the SITE BOUNDARY are based upon the historical average atmospheric conditions.

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3/4.11.2.3 GASE - IODINE-131, TRITIUM, AND RADIONUCLIDES IN PARTICULATE FORM

DELETED

This specification is provided to implement the requirements of Section II.C, III.A and IV.A of Appendix I, 10 CFR Part 50. The limiting condition for operation are the guides set forth in Section II.C of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the

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RADIOACTIVE EFFLUENTS

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releases of radioactive material in gaseous effluents will be kept "as low as is reasonably achievable." The ODCM calculational methods specified in 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 a MEMBER OF THE PUBLIC through appropriate pathways is unlikely to be substantially underestimated. The ODCM calculational methods for calculating the doses due to the actual release rates of the subject materials 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 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. These equations also provide for determining the actual dose based upon the historical average atmospheric conditions. The release rate specifications for iodine-131, tritium, and radionuclides in particulate form with half-life greater than 8 days are dependent on the existing radionuclide pathways to man in the areas at and beyond the SITE BOUNDARY. The pathways that were examined in the development of these calculations were: 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.

3/4.11.2.4 GASEOUS RADWASTE TREATMENT SYSTEM DELETED

DELETED

The requirement that the appropriate portions of this system be used, when specified, provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonable achievable." This specification implements the requirements of 10 CFR Part 50.36a, General Design Criterion 50 of Appendix A to 10 CFR Part 50 and the design objectives given in Section II.0 of Appendix I to 10 CFR Part 50. The specified limits governing the use of appropriate portions of the systems were specified as a suitable fraction of the dose design objectives set forth in Section II.B and II.C of Appendix I, 10 CFR Part 50, for gaseous effluents.

RADIOACTIVE EFFLUENTS

BASES

3/4.11.2.5 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. Maintaining the concentration of hydrogen and oxygen below their flammability limits provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of General Design Criterion 60 of Appendix A to 10 CFR Part 50.

3/4.11.3 SOLID RADIOACTIVE WASTE DELETED

~~This specification implements the requirements of 10 CFR Part 50.36a and General Design Criterion 60 of Appendix A to 10 CFR Part 50. The process parameters included in establishing the PROCESS CONTROL PROGRAM may include, but are not limited to waste type, waste pH, waste/liquid/solidification agent/catalyst ratios, waste oil content, waste principal chemical constituents, mixing and curing times.~~

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RADIOACTIVE EFFLUENTS

BASES

3/4.11.4 TOTAL DOSE DELETED

This specification is provided to meet the dose limitations of 40 CFR Part 190 that have now been incorporated into 10 CFR Part 10 to 46 Fr 18529. 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 Part 190 if the individual reactors remain within the reporting requirement level. The Special Report will describe a course of action that should result in the limitation of the annual dose to a MEMBER OF THE PUBLIC to within the 40 CFR Part 190 limits. For 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 8 km must be considered. If the dose to any MEMBER OF THE PUBLIC is estimated to exceed the requirements of 40 CFR Part 190, the Special Report with a request for a variance (provided the release conditions resulting in violation of 40 CFR Part 190 have not already been corrected), in accordance with the provisions of 40 CFR Part 190 and 10 CFR Part 20.405c, is considered to be a timely request and fulfills the requirements of 40 CFR Part 190 until NRC staff action is completed. The variance only relates to the limits of 40 CFR Part 190, and does not apply in any way to the other requirements for dose limitation of 10 CFR Part 20, as addressed in Specifications 3.11.1 and 3.11.2. An individual is not considered a MEMBER OF THE PUBLIC during any period in which he/she is engaged in carrying out any operation that is part of the nuclear fuel cycle.

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RADIOACTIVE EFFLUENTS

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3/4.12

RADIOLOGICAL ENVIRONMENTAL MONITORING DELETED

3/4.12.1

MONITORING PROGRAM

The radiological environmental monitoring program required by this specification provides measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides that lead to the highest potential radiation exposures of MEMBERS OF THE PUBLIC resulting from the station operation. This monitoring program implements Section IV.8.2 of Appendix I to 10 CFR Part 50 and thereby supplements the radiological effluent monitoring program by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and the modeling of the environmental exposure pathways. The initial specified monitoring program will be effective for at least the first three years of commercial operation. Following this period, program changes may be initiated based on operational experience.

The LLDs required by Table 4.12-1 are considered optimum for routine environmental measurements in industrial laboratories. It should be recognized the the LLD-is defined as an a priori (before the fact) limit representing the capability of a measurement system and not as an a posteriori (after the fact) limit for a particular measurement.

3/4.12.2

LAND USE CENSUS

This specification is provided to ensure that changes in the use of areas at and beyond the SITE BOUNDARY are identified and that modifications to the radiological environmental monitoring program are made if required by the results of his census. The best information from the door-to-door survey, aerial survey or consulting with local agricultural authorities shall be used. This census satisfies the requirements of Section IV.8.3 of Appendix I to 10 CFR Part 50. Restricting the census to gardens of greater than 50m² provides assurance that significant exposure pathways via leafy vegetables will be identified and monitored since a garden of this size is the minimum required to produce the quantity (26 kg/year) of leafy vegetables assumed in Regulatory Guide 1.109 for consumption by a child. To determine this minimum garden size, the following assumptions were made: 1) 20% of the garden was used for growing broad leaf vegetation (i.e., similar to lettuce and cabbage), and 2) yield of 2 kg/m².

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RADIOACTIVE EFFLUENTS

BASES

3/4.12.3 INTERLABORATORY COMPARISON PROGRAM

~~This requirement for participation in an Interlaboratory Comparison Program is provided to ensure that independent checks on the precision and accuracy of the measurements of radioactive material in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring in order to demonstrate that the results are reasonably valid for the purposes of Section IV.8.2 of Appendix I to 10 CFR Part 50.~~

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ADMINISTRATIVE CONTROLS

acceptance criteria are less than or equal to 0.6 L_a for Type B and Type C tests and less than or equal to 0.75 L_a for Type A tests;

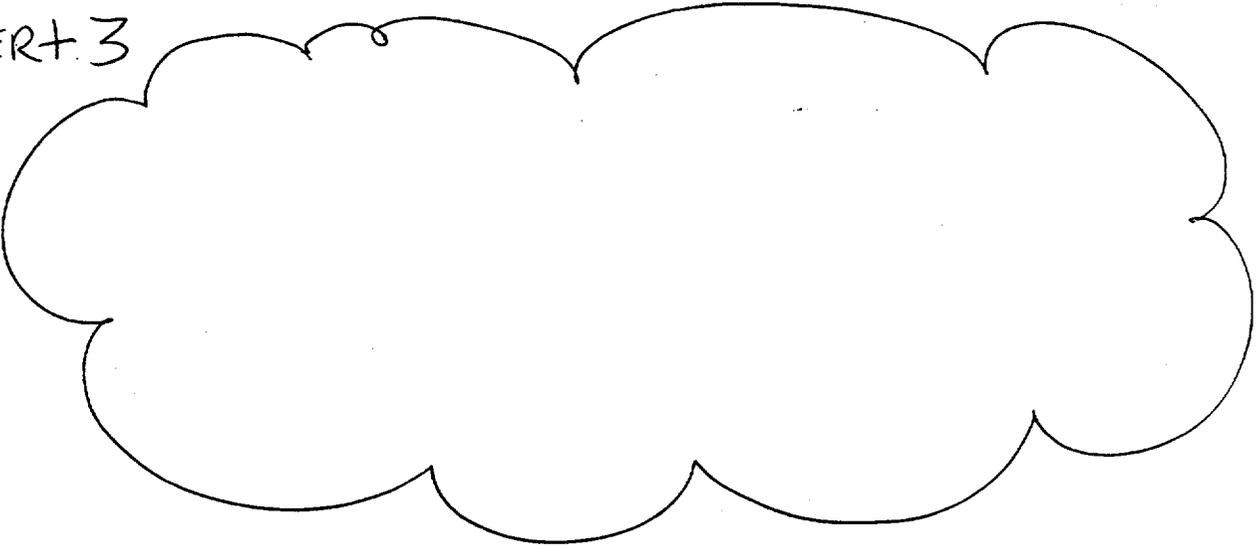
b. Air lock testing acceptance criteria are:

- 1) Overall air lock leakage rate is less than or equal to 0.05 L_a when tested at greater than or equal to P_a,
- 2) Seal leakage rate less than or equal to 0.01 L_a per hour when the gap between the door seals is pressurized to 10.0 psig.

Test frequencies and applicable extensions will be controlled by the Primary Containment Leakage Rate Testing Program.

The provisions of Specification 4.0.3 will be applied to the Primary Containment Leakage Rate Testing Program.

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ADMINISTRATIVE CONTROLS

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT*

6.9.1.7 Routine Radiological Environmental Operating Reports covering the operation of the unit during the previous calendar year shall be submitted prior to May 1 of each year.

The Annual Radiological Environmental Operating Reports shall include summaries, interpretations, and an analysis of trends of the results of the radiological environmental surveillance activities for the report period, including a comparison with preoperational studies with operational controls (as appropriate), and with previous environmental surveillance reports, and an assessment of the observed impacts of the plant operation on the environment. The reports shall also include the results of land use censuses required by Specification 3.12.2. The Annual Radiological Environmental Operating Reports shall include the results of analysis of all radiological environmental samples and of all measurements taken during the period pursuant to the Table and Figures in the environmental radiation section of the ODCM; as well as summarized and tabulated results of locations specified in these analyses and measurements in the format of the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979. In the event that some individual 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; at least two legible maps, one covering sampling locations near the SITE BOUNDARY and a second covering the more distant locations, all keyed to a table giving distances and directions from the centerline of one reactor; the results of licensee participation in the Interlaboratory Comparison Program, required by Specification 3.12.1; and discussion of all analyses in which the LLD required by Table 4.12-1 was not achievable.

SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT*

6.9.1.8 Routine Radioactive Effluent Release Reports covering the operation of the unit during the previous six months of operation shall be submitted within 60 days after January 1 and July 1 of each year.

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,

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

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Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," Revision 1, June 1974, with data summarized on a quarterly basis following the format of Appendix B thereof.

The Radioactive Effluent Release Report to be submitted within 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 magnetic tape of wind speed, wind direction, atmospheric stability, and precipitation (if measured), or in the form of joint frequency distributions of wind speed, wind direction, and atmospheric stability*. This same report shall include an assessment of the radiation doses due to the radioactive liquid and gaseous effluents released from the unit or station during the previous calendar year. 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) 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.

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 calendar year to show conformance with 40 CFR Part 190, Environmental Radiation Protection Standards for Nuclear Power Operation. Acceptable methods for calculating the dose contribution from liquid and gaseous effluents are given in Regulatory Guide 1.109, Rev. 1, October 1977.

The Radioactive Effluent Release Reports shall include the following information for each class of solid waste (as defined by 10 CFR Part 61) shipped offsite during the report period:

- a. Container volume,
- b. Total curie quantity (specify whether determined by measurement or estimate),
- c. Principal radionuclides (specify whether determined by measurement or estimate),

* In lieu of submission with the first half year Radioactive Effluent Release Report, the licensee has the option of retaining this summary of required meteorological data on site in a file that shall be provided to the NRC upon request.

ADMINISTRATIVE CONTROLS

Insert 5

- d. Source of waste and processing employed (e.g., devatered spent resin, compacted dry waste, evaporator bottoms),
- e. Type of container (e.g., ISA, Type A, Type B, large quantity), and
- f. Solidification agent or absorbent (e.g., cement, urea formaldehyde).

The Radioactive Effluent Release Reports shall include a list of descriptions of unplanned releases from the site to UNRESTRICTED AREAS of radioactive materials in gaseous and liquid effluents made during the reporting period.

The Radioactive Effluent Release Reports shall include any changes made during the reporting period to the PROCESS CONTROL PROGRAM (PCP) and to the OFFSITE DOSE CALCULATION MANUAL (ODCM), as well as a listing of new locations for dose calculations and/or environmental monitoring identified by the land use census pursuant to Specification 3.12.2.

6.9.1.9 CORE OPERATING LIMITS REPORT (CORL)

- a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the CORL for the following:
 1. Moderator Temperature Coefficient Beginning of Life (BOL) and End of Life (EOL) limits and 300 ppm surveillance limit for Specification 3/4.1.1.3,
 2. Control Bank Insertion limits for Specification 3/4.1.3.5,
 3. Axial Flux Difference limits and target band for Specification 3/4.2.1,
 4. Heat Flux Hot Channel Factor, F_q , its variation with core height, $K(s)$, and Power Factor Multiplier PF_{Fq} , Specification 3/4.2.2, and
 5. Nuclear Enthalpy Hot Channel Factor, and Power Factor Multiplier, PF_{NE} for Specification 3/4.2.3.
- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:
 1. WCAP-9272-P-A, Westinghouse Reactor Safety Evaluation Methodology, July 1985 (N Proprietary), Methodology for Specifications listed in 6.9.1.9.a. Approved by Safety Evaluation dated May 28, 1985.

ADMINISTRATIVE CONTROLS

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- c. Records of radiation exposure for all individuals entering radiation control areas.
- d. Records of gaseous and liquid radioactive material released to the environs.
- e. Records of transient or operational cycles for those facility components identified in Table 5.7-1.
- f. Records of reactor tests and experiments.
- g. Records of training and qualification 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. DELETED
- k. Records of SORC meetings and activities of the Nuclear Review Board (and activities of its predecessor, the Offsite Safety Review (OSR) staff).
- l. Records for Environmental Qualification which are covered under the provisions of Paragraph 2.C(7) and 2.C(8) of Facility Operating License DPR-75.
- m. Records of the service lives of all hydraulic and mechanical snubbers including the date at which the service life commences and associated installation and maintenance records.
- n. Records of secondary water sampling and water quality.
- o. Records of analyses required by the radiological environmental monitoring program which would permit evaluation of the accuracy of the analysis at a later date. This should include procedures effective at specified times and QA records showing that these procedures were followed.

Insert 6

6.11 RADIATION PROTECTION PROGRAM

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

ADMINISTRATIVE CONTROLS

such that a major portion of the body could receive in one hour a dose in excess of 1000 mrem that are located within large areas, such as FWR containment, where no enclosure exists for purposes of locking, and no enclosure can be reasonably constructed around the individual areas, then that area shall be roped off, conspicuously posted and a flashing light shall be activated as a warning device. In lieu of the stay time specification of the FWP, direct or remote (such as use of closed circuit TV cameras) continuous surveillance may be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities within the area.

6.13 PROCESS CONTROL PROGRAM (PCP)

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

6.13.2 Licensee initiated changes to the PCP:

1. Shall be submitted to the Commission in the Semiannual 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 SORC.
2. Shall become effective upon review and acceptance by the SORC.

Insert 7

ADMINISTRATIVE CONTROLS

6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

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

6.14.2 Licensee initiated changes to the ODCM:

1. Shall be submitted to the Commission in the Semiannual 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. 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 determination; and
 - c. Documentation of the fact that the change has been reviewed and found acceptable by the SORC.
2. Shall become effective upon review and acceptance by the SORC.

Insert 8

6.15 MAJOR CHANGES TO RADIOACTIVE LIQUID, GASEOUS AND SOLID WASTE TREATMENT SYSTEMS

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

1. Shall be reported to the Commission in the UFSAR for the period in which the evaluation was reviewed by (SORC). 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 10CFR50.59;
 - b. Sufficient detailed information to totally support the reason for the change without benefit of additional or supplemental information;

**SALEM GENERATING STATION UNITS 1 AND 2
FACILITY OPERATING LICENSES DPR-70 AND DPR-75
DOCKET NOS. 50-272 AND 50-311
REVISIONS TO THE TECHNICAL SPECIFICATIONS
INSERTS AND MARKED UP PAGES LCR 99-019**

INSERT 1

The OFFSITE DOSE CALCULATION MANUAL (ODCM) shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring Alarm/Trip Setpoints, and in the conduct of the Environmental Radiological Monitoring Program. The ODCM shall also contain (1) the Radioactive Effluent controls and Radiological Environmental Monitoring programs required by Section 6.8.4 and (2) descriptions of the information that should be included in the Annual Radiological Environmental Operating and Annual Radioactive Effluent Release Reports required by Specifications 6.9.1.7 and 6.9.1.8 respectively.

INSERT 2

The PROCESS CONTROL PROGRAM (PCP) shall contain the current formulas, sampling, analyses, test, and determinations to be made to ensure that processing and packaging of solid radioactive wastes based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to assure compliance with 10 CFR Parts 20, 61, and 71, State regulations, burial ground requirements, and other requirements governing the disposal of radioactive waste.

INSERT 3

6.8.4.g Radioactive Effluent Controls Program

A program shall be provided conforming with 10 CFR 50.36a for the control of radioactive effluents and for maintaining the doses to the MEMBERS OF THE PUBLIC from radioactive effluents as low as reasonable achievable. The program (1) shall be contained in the ODCM, (2) shall be implemented by operating procedures, and (3) shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

- 1) Limitations on the operability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM,
- 2) Limitations on the concentrations of radioactive material released in liquid effluents to UNRESTRICTED AREAS conforming to 10 CFR 20, Appendix B, Table II, Column 2,
- 3) Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.106 and with the methodology and parameters in the ODCM,

- 4) Limitations on the annual and quarterly doses or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released from each unit to UNRESTRICTED AREAS conforming to Appendix I to 10 CFR Part 50,
- 5) Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days.
- 6) Limitations on the operability and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a 92-day period would exceed a suitable fraction of the guidelines for the annual dose or dose commitment conforming to Appendix I to 10 CFR Part 50,
- 7) Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the SITE BOUNDARY conforming to the doses associated with 10 CFR Part 20, Appendix B, Table II, Column 1,
- 8) Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50,
- 9) Limitations on the annual and quarterly doses to a MEMBER OF THE PUBLIC from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50,
- 10) Limitations on the annual dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.

6.8.4.h Radiological Environmental Monitoring Program

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

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

INSERT 4

6.9.1.7 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT*

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted before May 1 of each year. The report shall include summaries, interpretations, and analysis of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in (1) the ODCM and (2) Sections IV.B.2, IV.B.3, and IV.C of Appendix I to 10 CFR 50.

INSERT 5

6.9.1.8 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT*

The Annual Radioactive Effluent Release Report covering the operation of the unit during the previous 12 months of operation shall be submitted before May 1 of each year. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be (1) consistent with the objective outlined in the ODCM and PCP and (2) in conformance with 10 CFR 50.36a and Section IV.B.1 of Appendix I to 10 CFR 50.

INSERT 6

p. Records of reviews performed for changes made to the OFFSITE DOSE CALCULATION MANUAL and the PROCESS CONTROL PROGRAM.

INSERT 7

Changes to the PCP:

1. Shall be documented and records of review performed shall be retained as required by Specification 6.10.3p. This documentation shall contain:
 - a) Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and
 - b) A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.
2. Shall become effective after review and acceptance by the SORC and the approval of the Plant Manager.

INSERT 8

Changes to the ODCM:

1. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.3p. This documentation shall contain:

- a) Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and
 - b) A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.
2. Shall become effective after review and acceptance by the SORC and the approval of the Plant Manager.
 3. Shall be submitted to the Commission in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Annual Radioactive Effluent Release Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g. month/year) the change was implemented.

Salem Offsite Dose Calculation Manual