MEMBER(S) OF THE PUBLIC

1.16 MEMBER(S) OF THE PUBLIC shall include all persons who are not occupationally associated with the plant. This category does not include employees of the licensee, 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

1.17 The OFFSITE DOSE CALCULATION MANUAL (ODCM) shall contain the 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, electrical power, 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 1.2.

PHYSICS TESTS

1.20 PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the core and related instrumentation: (1) described in Chapter 14.0 of the FSAR, or (2) authorized under the provisions of 10 CFR 50.59, or (3) otherwise approved by the Commission.

PRESSURE BOUNDARY LEAKAGE

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

PROCESS CONTROL PROGRAM

INSERT

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

PURGE - PURGING

1.23 PURGE or PURGING shall be any 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 fo computing the average.

RATED THERMAL POWER

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

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 10 CFR 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.

INSERT

Process Control Program (PCP)

1.22 The PROCESS CONTROL PROGRAM is the sampling, tests, analyses, and formulation determination by which SOLIDIFICATION of radioactive wastes from liquid systems is assured.

Definition 1.22

JUSTIFICATION:

The proposed definition is a more concise explaination and does not compromise or alter the intent of the original definition. It is understood the program defined will be formulated to assure compliance with appropriate Title 10 to assure Code of Federal Regulations, General Design Interim and Objectives, Regulatory Guides and industry practices. Adding requirements and reference to basic regulations will not enhance the overall program objectives.

SITE BOUNDARY

1.29 The SITE BOUNDARY shall be that line beyond which the land is neither owned, nor leased, nor otherwise controlled by the licensee.

SLAVE RELAY TEST

1.30 A SLAVE RELAY TEST shall be the energization of each slave relay and verification of OPERABILITY of each relay. The SLAVE RELAY TEST shall include a continuity check, as a minimum, of associated testable actuation devices.

SOLIDIFICATION

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

SOURCE CHECK

1.32 A 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

1.33 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, and

b. The testing of one system, subsystem, train, or other designated component at the beginning of each subinterval.

THERMAL POWER

1.34 THERMAL POWER shall be the total core heat transfer rate to the reactor coolant.

TRIP ACTUATING DEVICE OPERATIONAL TEST

1.35 A TRIP ACTUATING DEVICE OPERATIONAL TEST shall consist of operating the Trip Actuating Device and verifying OPERABILITY of alarm, interlock and/or trip functions. The TRIP ACTUATING DEVICE OPERATIONAL TEST shall include adjustment, as necessary, of the Trip Actuating Device such that it actuates at the required Setpoint within the required accuracy.

UNIDENTIFIED LEAKAGE

1.36 UNIDENTIFIED LEAKAGE shall be all leakage which is not IDENTIFIED LEAKAGE or CONTROLLED LEAKAGE.

UNRESTRICTED AREA

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

VENTILATION EXHAUST TREATMENT SYSTEM

1.38 A VENTILATION EXHAUST TREATMENT SYSTEM shall be any system designed and installed to reduce gaseous radioiodine or radioactive material in particulate form in effluents by passing ventilation or vent exhaust gases through charcoal adsorbers and/or HEPA filters for the purpose of removing iodines or particulates from the gaseous exhaust stream prior to the release to the environment. Such a system is not considered to have any effect on noble gas effluents. Engineered Safety Features (ESF) Atmospheric Cleanup Systems are not considered to be VENTILATION EXHAUST TREATMENT SYSTEM components.

VENTING

1.39 VENTING shall be any controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating condition, in such a manner that replacement air or gas is not provided or required during VENTING. Vent, used in system names, does not imply a VENTING process.

WASTE GAS HOLDUP SYSTEM

1.40 A WASTE GAS HOLDUP SYSTEM shall be any system designed and installed to reduce radioactive gaseous effluents by collecting Reactor Coolant System offgases from the Reactor Coolant System and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

LIQUID RADWASTE TREATMENT SYSTEM

1.41 A Liquid Radwaste Treatment System is any system designed and installed to reduce radioactive materials in liquid effluents by systematic collection, retention and processing through filtration, evaporation, separation and/or ion exchange treatment.

DEFINITION 1.37

JUSTIFICATION:

The definition as modified is consistent with 10CFR20.3a(17), which states:

> "Unrestricted area means any area access to which is not controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials, and any area used for residential quarters."

"Unrestricted area" as defined in 10CFR20 does not state or imply that it includes areas used for industrial, commercial institutional or recreational purposes.

Definition 1.41

JUSTIFICATION

This definition is added to define terminology used in Specification 3.11.1.3 and 4.11.1.3.2 which was previously undefined.

Technical Specification 3.3.3.1

Table 3.3-6

Table 4.3-3

Technical Specification 3.3.3.1 and its associated tables have been included as a portion of the Radiological Effluent Technical Specifications (RETS) as opposed to the Safety Technical Specifications (STS) in order to provide consistency with similar instrumentation tables in Technical Specification 3.3.3.10.

3/4.3.3 MONITORING INSTRUMENTATION

RADIATION MONITORING FOR PLANT OPERATIONS

LIMITING CONDITION FOR OPERATION

3.3.3.1 The radiation monitoring instrumentation channels for plant operations shown in Table 3.3-6 shall be OPERABLE with their Alarm/Trip Setpoints within the specified limits.

APPLICABILITY: As shown in Table 3.3-6.

ACTION:

a. With a radiation monitoring channel Alarm/Trip Setpoint for plant operations exceeding the value shown in Table 3.3-6, adjust the Setpoint to within the limit within 4 hours or declare the channel inoperable.

b. With one or more radiation monitoring channels for plant operations inoperable, take the ACTION shown in Table 3.3-6.

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

SURVEILLANCE REQUIREMENTS

4.3.3.1 Each radiation monitoring instrumentation channel for plant operations shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and ANALOG CHANNEL OPERATIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-3.

TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS

FUNCTIONAL UNIT	CHANNELS TO TRIP/ALARM	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	ACTION
1. Containment					
a. Containment Atmosphere Radioactivity-High (GT-RE-31,32)	1	≥1	~~***~~ ~~All~~	~~#~~ ~~≤ 2 mR/h~~	26
~~b. Containment Purge Exhaust Radioactivity-High~~	~~1~~	~~2~~	~~All~~	~~#~~	~~26~~
b. Gaseous Radioactivity-RCS Leakage Detection (GT-RE-31,32)	N.A.	1	1, 2, 3, 4	N.A.	29
c. Particulate Radioactivity-RCS Leakage Detection (GT-RE-31,32)	N.A.	1	1, 2, 3, 4	N.A.	29
2. Fuel Building					
~~a. Spent Fuel Pool~~ Fuel Building Atmosphere Radioactivity-High (GG-RE-27,28)	1	≥1	**	1.0E-4 μci/cc ~~≤ 2 mR/h~~	27
b. Criticality-High Radiation Level (SD-RE-37,38)	1	≥1	*	≤ 15 mR/h	28
3. Control Room					
Air Intake Radioactivity-High (GK-RE-04,05)	1	≥1	All	1.0E-4 μci/cc ~~≤ 2 mR/h~~	27

TABLE 3.3-6 (Continued)

TABLE NOTATIONS

*With fuel in the fuel storage areas or fuel building.
**With irradiated fuel in the fuel storage areas or fuel building.
~~#Must satisfy Specification 3.11.2.1 requirements.~~

ACTION STATEMENTS

ACTION 26 - With less than the Minimum Channels OPERABLE requirement, operation may continue provided the containment purge valves are maintained closed.

ACTION 27 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, within 1 hour isolate the Control Room Emergency Ventilation System and initiate operation of the Control Room Emergency Ventilation System in the recirculation mode.

ACTION 28 - With less than the Minimum Channels OPERABLE requirement, operation may continue for up to 30 days provided an appropriate portable continuous monitor with the same Alarm Setpoint is provided in the fuel area. Restore the inoperable monitors to OPERABLE status within 30 days or suspend all operations involving fuel movement in the Fuel Buildng.

ACTION 29 - Must satisfy the ACTION requirement for Specification 3.4.6.1.

*** 1, 2, 3, 4 and during core alterations

Not applicable when containment shut down and mini purge valves are closed. Otherwise setpoint Must satisfy Specification 3.11.2.1

Technical Specification: Tables 3.3-6

Justification:

(1) The generic standard technical specification table does not reflect the SNUPPS Plant design. The table has been revised to reflect actual site specific design in regard to radiation monitoring instrumentation. Monitor instrument numbers were incorporated to clarify site specific changes.

(2) According to Specification 3.6.1.1 and 3.9.4, containment integrity is not required to be maintained during modes 5 & 6 with the exception of Core Alterations during mode 6. The proposed change deletes operability requirements for item 1.a in modes where initiating signals from these monitors are not required to function or to be operable.

(3) Operability and surveillance requirements for item 1.b, Containment Purge Exhaust Radioactivity-High, are delineated in Table 3.3-13 and 4.3-9. It was, therefore, deleted from Table 3.3-6.

(4) The proposed change in MINIMUM CHANNELS OPERABLE continues to assure operabiltiy of the radiation monitoring instrumentation and ensures appropriate initiating signals which will result in appropriate system actuation levels. This change also reduces redundant specification requirements which must be tracked to assure operabiltiy. In addition, related actuation logic and relays associated with containment purge, fuel building isolation, and control room ventilation, are surveilled per Technical Specification 3.3.2.

Specification 3.9.13 tests the actuation logic associated with high radiation in the spent fuel pool.

Specification 3.7.6 also tests the logic associated with the automatic functions of the control room ventilation.

(5) The function of the Containment Atmosphere Monitors are to detect high airborne radioactivity levels in Containment and initiate the Containment Purge Isolation System (CPIS), thereby controlling the release of radioactivity to the environs. A setpoint to initiate the automatic isolation function is, therefore, applicable only when purge pathways are open. The ALARM/TRIP SETPOINT requirement for item 1.a has been modified to reflect this. When a setpoint is applicable, it shall be determined such that the off-site dose rate limits of Specification 3.11.2.1 are met.

(6) In accordance with SNUPPS FSAR Section 7.3.4.1.1.a, Table 7.3-7 and Table 11.5-3, the ALARM/TRIP SETPOINT for item 2.a and 3.a are specified at 10 times MPC for Kr-85. The proposed setpoint is at a level that will detect accident conditions and initiate necessary engineered safety features and yet preclude spurious initiation of these engineered safety features due to operational airborne radioactive levels.

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES REQUIRING SURVEILLANCE
1. Containment				
a. Containment Atmosphere Radioactivity-High (GT-RE-31,32)	S	R	M	~~All~~ ***
~~b. Containment Purge Exhaust Radioactivity-High~~	~~S~~	~~R~~	~~M~~	~~All~~
b. Gaseous Radioactivity-RCS Leakage Detection (GT-RE-31,32)	S	R	M	1, 2, 3, 4
c. Particulate Radioactivity - RCS Leakage Detection (GT-RE-31,32)	S	R	M	1, 2, 3, 4
2. Fuel Building				
~~a. Spent Fuel Pool~~ Fuel Building Atmosphere Radioactivity-High (GG-RE-27,28)	S	R	M	**
b. Criticality-High Radiation Level (SD-RE-37,38)	S	R	M	*
3. Control Room				
Air Intake Radioactivity-High (GK-RE-04,05)	S	R	M	All

*With fuel in the fuel storage areas or fuel building.

**With irradiated fuel in the fuel storage areas or fuel building.

***1,2,3,4 and during core alterations

Technical Specification: Tables 4.3-3

Justification:

(1) The generic standard technical specification table does not reflect the SNUPPS Plant design. The table has been revised to reflect actual site specific design in regard to radiation monitoring instrumentation. Monitor instrument numbers were incorporated to clarify site specific changes.

(2) According to specification 3.6.1.1, and 3.9.4, containment integrity is not required to be maintained during modes 5 and 6 with the exception of Core Alterations during mode 6. The proposed change deletes surveillance and operabiltiy requirements for item 1.a in modes where initiating signals from these monitors are not required to function or to be operable.

(3) Operability and surveillance requirements for item 1.b, Containment Purge Exhaust Radioactivity High are delineated in Table 3.3-13 and 4.3-9. It was, therefore, deleted from Table 3.3-6.

(4) The proposed change in MINIMUM CHANNELS OPERABLE in combination with the specified surveillance frequencies continues to assure operabiltiy of the radiation monitoring instrumentation and ensures appropriate initiating signals which will result in appropriate system actuation levels. This change also reduces redundant specification requirements which must be tracked to assure operabiltiy. In addition, related actuation logic and relays associated with containment purge, fuel building isolation, and control room ventilation, are surveilled per Technical Specification 3.3.2.

Specification 3.9.13 tests the actuation logic associated with high radiation in the spent fuel pool.

Specification 3.7.6 also tests the logic associated with the automatic functions of the control room ventilation.

INSTRUMENTATION

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

adjusted to the values

3.3.3.10 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 ~~and adjusted~~ in accordance with the methodology and parameters in the OFFSITE DOSE CALCULATION MANUAL (ODCM).

APPLICABILITY: At all times.

ACTION: initiate action to

adjust the setpoint so that it is acceptably conservative,

a. With a radioactive liquid effluent montioring instrumentation channel Alarm/Trip Setpoint less conservative than required by the above specification, immediately suspend the release of radioactive liquid effluents monitored by the affected channel, or declare the channel inoperable.

b. With less than the minimum number of radioactive liquid effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-12. Restore the inoperable instrumentation to OPERABLE status within the time specified in the ACTION, or explain in the next semiannual Radioactive Effluent Release Report, pursuant to Specification 6.9.1.7, why this inoperability was not corrected within the time specified.

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

SURVEILLANCE REQUIREMENTS

4.3.3.10 Each radioactive liquid effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION and ANALOG CHANNEL OPERATIONAL TEST operations at the frequencies shown in Table 4.3-8.

SPECIFICATION 3.3.3.10

JUSTIFICATION:

(1) The specification has been modified to clarify the requirement for adjustment of setpoints.

(2) Operational considerations preclude instantaneously accomplishing the required action. The proposed wording (initiate action to) clarifies the intended action and ensures that steps to rectify the condition are immediately started and corrective action is completed as soon as possible.

(3) The proposed wording in regard to changing the setpoint is justified since it is an action that can reasonably be accomplished and if implemented would result in a condition that is in compliance with the specification.

TABLE 3.3-12

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

	INSTRUMENT	MINIMUM CHANNELS OPERABLE	ACTION
1.	Radioactivity Monitors Providing Alarm and Automatic Termination of Release		
a.	Liquid Radwaste Discharge Monitor (HB-RE-18)	1	31
b.	Steam Generator Blowdown Discharge Monitor (BM-RE-52)	1	32
c.	Turbine Building Drain Monitor (LE-RE-59)	1	32
d.	Secondary Liquid Waste System Monitor (HF-RE-45)	1	33
2.	Flow Rate Measurement Devices		
a.	Liquid Radwaste Discharge Line		
	1) Waste Monitor Tank A Discharge Line	1	34
	2) Waste Monitor Tank B Discharge Line	1	34
b.	Steam Generator Blowdown Discharge Line	1	34
c.	Secondary Liquid Waste System Discharge Line	1	34
d.	Cooling Tower Blowdown Line	1	34

Table 3.3-12 (Continued)

ACTION STATEMENTS

ACTION 31 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 14 days 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.

Principal gamma emitters and I-131.

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 grab samples are analyzed for ~~radioactivity~~ for up to 30 days at a lower limit of detection ~~of no more than 10^{-7} microCurie/ml.~~ as specified in Table 4.11-1.

a. At least once per 12 hours when the specific activity of the secondary coolant is greater than 0.01 microCurie/gram DOSE EQUIVALENT I-131, or

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

ACTION 33 - With the number of channels OPERABLE Less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided that, ~~at least once per 12 hours, grab samples are collected and analyzed for radioactivity at a lower limit of detection of no more than 10^{-7} microCurie/ml.~~

ACTION 34 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided the flow rate is estimated at least once per 4 hours during actual releases. Pump performance curves generated in place may be used to estimate flow.

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.

Table 3.3-12

Justification:

(1) System designators have been added to the monitor identification numbers to ensure each monitor identifier is unique and consistent with the plant equipment identification scheme.

(2) Action 33 as modified is appropriate since the Secondary Liquid Waste System Monitor is for batch type releases vice a continuous release.

(3) Action 32:

The inserted wording was added to clarify radioactive analysis requirements for grab samples collected when the effluent monitors are inoperable.

As previously worded, the action statement was vague in regard to which analyses are required. The specified analyses and LLD reference provides consistency with the requirements of Table 4.11-1, Radioactive Liquid Waste Sampling and Analysis Program.

TABLE 4.3-8

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST
1. Radioactivity Monitors Providing Alarm and Automatic Termination of Release				
a. Liquid Radwaste Discharge Monitor (HB-RE-18)	D	P	R(2)	Q(1)
b. Steam Generator Blowdown Discharge Monitor (BM-RE-52)	D	M	R(2)	Q(1)
c. Turbine Building Drain Monitor (LE-RE-59)	D	M	R(2)	Q(1)
d. Secondary Liquid Waste System Monitor (HF-RE-45)	D	M/P	R(2)	Q(1)
2. Flow Rate Measurement Devices				
a. Liquid Radwaste Discharge Line	D(3)	N.A.	R	Q
b. Steam Generator Blowdown Discharge Line	D(3)	N.A.	R	Q
c. Secondary Liquid Waste System Discharge Line	D(3)	N.A.	R	Q
d. Cooling Tower Blowdown Line	D(3)	N.A.	R	Q

TABLE 4.3-8 (Continued)

TABLE NOTATIONS

(1) The ANALOG CHANNEL OPERATIONAL TEST shall also demonstrate that automatic isolation of this pathway and/or control room alarm annunciation occur, if any of the following conditions exists: as appropriate

a. Instrument indicates measured levels above the Alarm/Trip Setpoint, or

b. Circuit failure, or (alarm only) (isolation and alarm)

c. Instrument indicates a downscale failure, or (alarm only)

d. Instrument controls not set in operate mode (alarm only).

~~(2) The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Bureau of Standards (NBS) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration shall be used.~~

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

(2) CHANNEL CALIBRATION shall be performed using:

a. One or more standards traceable to the National Bureau of Standards, or

b. Standards obtained from suppliers that participate in measurement assurance activities with the National Bureau of standards, or

c. Standards related to previous calibrations performed using (a) or (b) above.

Table 4.3-8

Justification:

(1) The source check frequency for the Secondary Liquid Waste System Monitor has been changed to a "prior to release" frequency notation since the Secondary Liquid Waste System is a batch release system vice continuous release.

(2) The changes to notation (1) were made to reflect the designed capabilities and characteristics of the SNUPPS effluent monitoring system. Although the monitors will provide an alarm indication when each of the 4 specified conditions exist, alarm and isolation will occur only when the Alarm/Trip setpoint is exceeded.

(3) In reference to Table notation (2), these monitors are calibrated by the manufacturer using NBS traceable standards for principal radionuclide energies and concentrations. (Calibration of these monitors is addressed in FSAR Section 11.5.2.1.5.) In view of this fact, the alternate wording is proposed to clarify CHANNEL CLAIBRATION reference standard requirements and is directed towards calibrations to be performed concurrent with and subsequent to initial plant startup. The proposed wording is consistent with Reg. Guide 4.15, Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment and the intent of the original footnote.

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.11 The radioactive gaseous effluent 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 3.11.2.1 and 3.11.2.5 are not exceeded. The Alarm/Trip Setpoints of these channels shall be determined ~~and adjusted~~ adjusted to the values in accordance with the methodology and parameters in the ODCM.

APPLICABILITY: As shown in Table 3.3-13.

ACTION:

a. With a radioactive gaseous effluent montioring instrumentation channel Alarm/Trip Setpoint less conservative than required by the above specification, immediately initiate action to suspend the release of radioactive gaseous effluents monitored by the affected channel, or declare the channel inoperable. adjust the setpoint so that it is acceptably conservative,

b. With less than the minimum number of radioactive gaseous effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-13. Restore the inoperable instrumentation to OPERABLE status within the time specified in the ACTION, or explain in the next semiannual Radioactive Effluent Release Report, pursuant to Specification 6.9.1.7, why this inoperability was not corrected within the time specified.

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

SURVEILLANCE REQUIREMENTS

4.3.3.11 Each radioactive gaseous effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION and ANALOG CHANNEL OPERATIONAL TEST operations at the frequencies shown in Table 4.3-9.

SPECIFICATION 3.3.3.11

JUSTIFICATION:

(1) The specification has been modified to clarify the requirement for adjustment of setpoints.

(2) Operational considerations preclude instantaneously accomplishing the required action. The proposed wording (initiate action to) clarifies the intended action and ensures that steps to rectify the condition are immediately started and corrective action is completed as soon as possible.

(3) The proposed wording in regard to changing the setpoint is justified since it is an action that can reasonably be accomplished and if implemented would result in a condition that is in compliance with the specification.

TABLE 3.3-13

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
1. WASTE GAS HOLDUP SYSTEM Explosive Gas Monitoring System			
a. Hydrogen Monitors	1/recombiner	**	45 ~~42, 44~~
b. Oxygen Monitor	2/recombiner	**	42, 44
2. Unit Vent System			
a. Noble Gas Activity Monitor- Providing Alarm (RE-21) GT-	1	*	40
b. Iodine Sampler	1	*	43
c. Particulate Sampler	1	*	43
~~d. Flow Rate Monitor~~	~~1~~	~~*~~	~~39~~
d. Sampler Flow Rate Monitor	1	*	39
3. Containment Purge system			
Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release (RE-22, RE-33, RE-31, RE-32) GT- GT- GT- GT-	1	***	41

TABLE 3.3-13 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

	INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
4.	Radwaste Building Vent System			
a.	Noble Gas Activity Monitor Providing Alarm and Automation Termination of Release (RE-10)	1	*	38, 40
b.	Iodine Sampler GH-	1	*	43
c.	Particulate Sampler	1	*	43
~~d.~~	~~Flow Rate Monitor~~	~~1~~	~~*~~	~~39~~
d. e.	Sampler Flow Rate Monitor	1	*	39

TABLE 3.3-13 (Continued)

TABLE NOTATIONS

* At all times.

** During WASTE GAS HOLD UP SYSTEM operation.

*** 1,2,3,4 and during core alterations.

ACTION STATEMENTS

ACTION 38 - 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 for up to 14 days 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 valve lineup.

Otherwise, suspend release of radioactive effluents via this pathway.

ACTION 39 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided the flow rate is estimated at least once per 4 hours.

ACTION 40 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue for up to 30 days provided grab samples are taken at least once per 12 hours and these samples are analyzed for radioactivity within 24 hours.

ACTION 41 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, immediately suspend PURGING of radioactive effluents via this pathway.

ACTION 42 - With the ~~number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement~~ outlet Oxygen monitor channel inoperable, operation of this system may continue provided grab samples are taken and analyzed at least every 24 hours. With both channels inoperable, operation may continue provided grab samples are taken and analyzed every 4 hours during degassing operations and at least every 24 hours during other operations.

ACTION 43 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via the effected pathway may continue for up to 30 days provided samples are continuously collected with auxiliary sampling equipment as required in Table 4.11-2.

INSERT A

ACTION 44 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, suspend oxygen supply to the recombiner.

INSERT A

ACTION 45 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, addition of waste gas to the Waste Gas Holdup System may continue provided grab samples are collected from the on-service gas decay tank and analyzed:

a. At least once per 4 hours during primary coolant system degassing operations.

b. At least once per 24 hours during other operations.

TABLE 3.3-13

JUSTIFICATION:

(1) System designators have been added to the monitor identification numbers to ensure each monitor identifier is unique and consistent with the plant equipment identification scheme.

(2) Containment integrity is not required to be maintained during modes 5 and 6 with the exception of Core Alterations during mode 6. The proposed change deletes surveillance and operability requirements for the Containment Purge noble gas monitors in modes where initiating signals from these monitors are not required to function or to be operable.

(3) The SNUPPS plant design does not provide for flow indication on the Unit Vent or Radwaste Building Vent effluent streams. Therefore, operability and surveillance requirements for these effluent stream flow rate monitors have been deleted. Release pathway flowrates are derived via fan status (i.e., on/off) and designed flowrate (reference, FSAR Table 11.1A-4). In lieu of actual flow measurement and indication, this method of flow determination is utilized.

(4) ACTION 42: Since two oxygen monitors are provided per recombiner, implementation of grab sampling and lab analysis is not warranted if the inlet channel is declared inoperable. Provided the outlet oxygen monitor is functional, sufficient on-line monitoring is provided to measure and control oxygen concentrations and ensure safe operttion of the Waste Gas Holdup System.

In the event that the inlet channel is inoperable, the most appropriate action from an operational and safety standpoint is to isolate the oxygen supply and monitor the outlet channel. In the event that the outlet channel is inoperable, the most appropriate action is to isolate the oxygen supply and implement sampling and analysis as indicated. In the event that both channels are inoperable, grab sampling is warranted and should be implemented.

(5) ACTION 44: As described in FSAR Section 11.3.6, the Gaseous Radwaste System prevents flammable mixtures by monitoring and controlling the oxygen concentration at appropriate levels. It is, therefore, appropriate that ACTION 44, which serves to prevent explosive gas mixtures through oxygen control, be applied to the specific monitor which provides the control function. (In the Callaway design, this is the oxygen monitor vice the hydrogen monitor.) This approach is consistent with Technical Specification 3.11.2.5.

(6) ACTION 45: Modifies ACTION 42 such that it is compatible with the minimum channels operable requirement for hydrogen monitors.

TABLE 4.3-9

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1. WASTE GAS HOLDUP SYSTEM Explosive Gas Monitoring System					
a. Inlet Hydrogen Monitor.	D	N.A.	Q(4)	M	**
b. Outlet Hydrogen Monitor	D	N.A.	Q(4)	M	**
c. Inlet Oxygen Monitor	D	N.A.	Q(5)	M	**
d. Outlet Oxygen Monitor	D	N.A.	Q(6)	M	**
2. Unit Vent System					
a. Noble Gas Activity Monitor Providing Alarm (GT-RE-21)	D	M	R(3)	Q(2)	*
b. Iodine Sampler (GT-)	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~~	~~Q~~	~~*~~
d. e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*
3. Containment Purge System					
Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release (GT-RE-22, GT-RE-33, GT-RE-31, GT-RE-32)	D	P	R(3)	1 Q(2)	***

TABLE 4.3-9 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
4. Radwaste Building Vent System					
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release (RE-10)	D, P	M, P	R(3)	Q(1)	*
b. Iodine Sampler GH-	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~~	~~Q~~	~~*~~
d.e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*

TABLE 4.3-9 (Continued)

TABLE NOTATIONS

* At all times.

** During WASTE GAS HOLDUP SYSTEM operation.

*** 1,2,3,4 and during core alterations

(1) The ANALOG CHANNEL OPERATIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occur if any of the following conditions exists:

/or

(isolation and alarm)

a. Instrument indicates measured levels above the Alarm/Trip Setpoint, or

b. Circuit failure, or (alarm only)

c. Instrument indicates a downscale failure (alarm only), or

d. Instrument controls not set in operate mode (alarm only).

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

a. Instrument indicates measured levels above the Alarm Setpoint, or

b. Circuit failure, or

c. Instrument indicates a downscale failure, or

d. Instrument controls not set in operate mode.

~~(3) The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Bureau of Standards (NBS) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration shall be used.~~

INSERT C →

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

a. One volume percent hydrogen, balance nitrogen, and

b. Four volume percent hydrogen, balance nitrogen.

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

a. One volume percent oxygen, balance nitrogen, and

b. Four volume percent oxygen, balance nitrogen.

(6) INSERT D

INSERT C

(3) CHANNEL CALIBRATION shall be performed using:

a. One or more standards traceable to the National Bureau of Standards, or

b. Standards obtained from suppliers that participate in measurement assurance activities with the National Bureau of Standards, or

c. Standards related to previous calibrations using (a) or (b) above.

INSERT D

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

a. 10 ppm by volume oxygen, balance nitrogen, and

b. 80 ppm by volume oxygen, balance nitrogen.

TABLE 4.3-9

JUSTIFICATION:

(1) The generic standard technical specification table does not reflect the SNUPPS Plant design. The table has been revised to reflect actual site specific design in regard to gaseous effluent monitoring instrumentation.

(2) According to Specifications 3.6.1.1 and 3.9.4, containment integrity is not required to be maintained during modes 5 and 6 with the exception of Core Alterations during mode 6. The proposed change to item 3 deletes surveillance requirements for Containment Purge Noble Gas Monitors in modes where initiating signals from these monitors are not required to function or to be operable.

(3) The SNUPPS plant design does not provide for flow indication on the Unit Vent or Radwaste Building Vent effluent streams. Therefore, operability and surveillance requirements for these effluent stream flow rate monitors have been deleted. Release pathway flowrates are derived via fan status (i.e., on/off) and designed flowrate (reference FSAR Table 11.1A-4). In lieu of actual flow measurement and indication, this method of flow determination is utilized.

(4) The changes to table notation (1) were made to reflect the designed capabilities and characteristics of the subject monitoring system. Although the monitors will provide an alarm indication when each of the four specified conditions exist, alarm and isolation will occur only when the Alarm/Trip setpoint is exceeded.

(5) In reference to table notation (3), these monitors are calibrated by the manufacturer using NBS traceable standards for principal radionuclide energies and concentrations. (Calibration of these monitors is addressed in FSAR Section 11.5.2.1.5.) In view of this fact, the alternate wording is proposed to clarify CHANNEL CALIBRATION reference standard requirements and is directed towards calibrations to be performed concurrent with and subsequent to initial plant startup. The proposed wording is consistent with Reg. Guide 4.15, Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment and the intent of the original footnote.

(6) A table notation (6) was added to address the range and specific calibration requirements of the outlet oxygen monitor. Readout of this monitor is in ppm vice percent. The calibration concentrations specified for CHANNEL CALIBRATION cover both high and low points of the monitor response.

3/4.11 RADIOACTIVE EFFLUENTS

3/4.11.1 LIQUID EFFLUENTS

CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.11.1.1 The concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS (see Figure 5.1-4) 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} microCurie/ml total activity.

APPLICABILITY: At all times.

ACTION:

a. With the concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS exceeding the above limits, immediately initiate action to restore the concentration to within the above limits.

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

SURVEILLANCE REQUIREMENTS

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

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

SPECIFICATION 3.11.1.1

JUSTIFICATION:

(1) Operational considerations preclude instantaneously accomplishing the required action. The proposed wording clarifies the intended action and ensures that steps to rectify the condition are immediately started and corrective action is completed as soon as possible.

(2) Action b:

A change in the operational status of the unit will have little or no impact on the release of liquid radioactive materials to the environment, as this is controlled by the liquid radwaste treatment system and its associated pumps, valves, etc., furthermore, the unit cannot be placed in a condition whereby this specification is not applicable. Therefore, the provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

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)(1) (μCi/ml)
a. Batch Waste Release Tanks(2)	P Each Batch	P Each Batch	Principal Gamma Emitters(3)	5×10^{-7}
			I-131	1×10^{-6}
1. Waste Monitor Tank	P One Batch/M	M	Dissolved and Entrained Gases (Gamma Emitters)	1×10^{-5}
2. Secondary Liquid ~~Water Waste~~ Monitor Tank	P Each Batch	M Composite(4)	H-3	1×10^{-5}
			Gross Alpha	1×10^{-7}
	P Each Batch	Q Composite(4)	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}
b. Continuous Releases(5)	D ~~Continuous~~(6) Grab Sample	W Composite(8) 4	Principal Gamma Emitters(3)	5×10^{-7}
			I-131	1×10^{-6}
Steam Generator Blowdown	M Grab Sample	M	Dissolved and Entrained Gases (Gamma Emitters)	1×10^{-5}
	D ~~Continuous~~(6) Grab Sample	M Composite(8) 4	H-3	1×10^{-5}
			Gross Alpha	1×10^{-7}
	D ~~Continuous~~(6) Grab Sample	Q Composite(8) 4	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}

TABLE 4.11-1 (Continued)

TABLE NOTATIONS

(1)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:

$$LLD = \frac{4.66\ s_b}{E \cdot V \cdot 2.22 \times 10^6 \cdot Y \cdot \exp(-\lambda \Delta t)}$$

Where:

LLD = the "a priori" lower limit of detection (microCuries per unit mass or volume),

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

E = the counting efficiency (counts per disintegration),

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

2.22×10^6 = the number of disintegrations per minute per microCurie,

Y = the fractional radiochemical yield, when applicable,

λ = the radioactive decay constant for the particular radionuclide (s^{-1}), and

Δt = the elapsed time between the midpoint of sample collection and the time of counting (s).

Typical values of E, V, Y, 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.

(2)A batch release is the discharge of liquid wastes of a discrete volume. Prior to sampling for analyses, each batch shall be isolated, and then thoroughly mixed ~~by a method described in the ODCM~~ to assure representative sampling.

TABLE 4.11-1 (Continued)

TABLE NOTATIONS (Continued)

(3) The principal gamma emitters for which the LLD specification applies exclusively are ~~include~~ 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 considered. Other gamma peaks that are identifiable, together with those of the above nuclides, shall also be analyzed and reported in the semiannual Radioactive Effluent Release Report pursuant to Specification 6.9.1.7. ~~in the format outlined in Regulatory Guide 1.21, Appendix B, Revision 1, June 1974.~~

(4) 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.

(5) 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.

~~(6) To be representative of the quantities and concentrations of radioactive materials in liquid effluents, samples shall be collected continuously in proportion to the rate of flow of the effluent stream. Prior to analyses, all samples taken for the composite shall be thoroughly mixed in order for the composite sample to be representative of the effluent release.~~

(6) While release is occurring.

Nuclides which are below the LLD for the analysis shall be reported as "less than" the nuclide's LLD, and shall not be reported as being present at the LLD level for that nuclide. The "less than" values shall not be used in the required dose calculations.

TABLE 4.11-1

JUSTIFICATION:

(1) The table was revised to incorporate the SNUPPS liquid release types and site specific system terminology. Since the SNUPPS Plant design does not include continuous composite samplers on the steam generator blowdown, daily grab samples while the release is occurring, is proposed as an acceptable alternative.

(2) Footnote 2: The methods for the mixing of the liquid waste tanks to ensure representative mixing is described in plant operating procedures as opposed to the ODCM.

(3) Footnote 3: Zn-65 was deleted since Zn-65 analyses are primarily applicable to BWR's with admiralty metal condenser tubes. Per FSAR 4.5.1.1, the primary system does not contain any zinc based steel alloys; therefore, there is no zinc to be activated to Zn-65.

The proposed modification provides clarification that the specification's LLD value applies only to the listed nuclides and not to a virtually limitless number of gamma emitting nuclides. The requirement to report all other identifiable radionuclides is not changed by the proposed modification.

The deletion of the reference to Reg. Guide 1.21 is to ensure consistency with Specification 6.9.1.7 (which augments the Reg. Guide 1.21 requirements) and to eliminate redundancy of Specifications.

The indicated text was added to clarify use and application of LLD values specified within the table.

(4) Footnote 6: Since the SNUPPS plant design does not include continuous composite samplers on the steam generator blowdown footnote 6 was deleted as not applicable. Daily grab samples while the release is occurring is proposed as an acceptable alternative to continuous composite samplers.

Footnote 6 original wording was replaced with "while release is occurring" to clarify the sampling frequency requirement for continuous releases.

RADIOACTIVE EFFLUENTS

DOSE

LIMITING CONDITION FOR OPERATION

3.11.1.2 The dose or dose commitment to ~~a MEMBER OF THE PUBLIC~~ an Individual from radioactive materials in liquid effluents released, from each unit, to UNRESTRICTED AREAS (see Figure 5.1-4) shall be limited:

a. During any calendar quarter to less than or equal to 1.5 mrems to the whole 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 whole body and to less than or equal to 10 mrems to any organ.

APPLICABILITY: At all times.

ACTION:

a. With the calculated dose from the release of radioactive materials in liquid effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report 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. This Special Report shall also include: (1) the results of radiological analyses of the drinking water source, and (2) the radiological impact on finished drinking water supplies with regard to the requirements of 40 CFR Part 141, Clean Drinking Water Act.*

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

SURVEILLANCE REQUIREMENTS

4.11.1.2 Cumulative dose contributions from liquid effluents for the current calendar quarter and the current calendar year shall be determined in accordance with the methodology and parameters in the ODCM at least once per 31 days.

*The requirements of ACTION a.(1) and (2) are applicable only if drinking water supply is taken from the receiving water body within 3 miles of the plant discharge. In the case of river-sited plants this is 3 miles downstream only.

SPECIFICATION 3.11.1.2

JUSTIFICATION:

(1) The term "MEMBER OF THE PUBLIC" has been replaced with the term "Individual" in that:

a. 10CFR20 and 10CFR50, Appendix I, require that Radioactive Effluent Concentrations, Doses and Dose Rates be calculated for Individuals at or beyond the SITE BOUNDARY and/or in UNRESTRICTED AREAS. These regulations neither expressly or implicitly require that these calculations be performed for persons, real or imaginary, who may occupy areas within the SITE BOUNDARY for some fraction of the time.

b. The use of the term "MEMBER OF THE PUBLIC" as defined in Specification 1.16, is inconsistent with the requirements of the Specification that doses be calculated for UNRESTRICTED AREAS. Therefore, its use would cause the Specification to be internally inconsistent.

c. As stated in the bases, the purpose of this Specification is to provide for compliance with 10CFR20 and 10CFR50, Appendix I, limits. The use of "MEMBER OF THE PUBLIC" is inconsistent with the stated purpose of this Specification.

d. The design of the Callaway Plant is such that it precludes the possibility of exposure to an individual within the SITE BOUNDARY from liquid effluents.

Therefore, the use of the term "MEMBER OF THE PUBLIC" is inconsistent with the expressed purpose of the Specification and requires inconsistency on the part of the Licensee in complying with the Specification. Additionally, there are no legal requirements for its use in this specification.

Thus, the use of the term "MEMBER OF THE PUBLIC", while appropriate for Specifications implementing 40CFR190 requirements, is inappropriate in this Specification, and should be deleted in favor of the term "Individual".

LIQUID RADWASTE TREATMENT SYSTEM

LIMITING CONDITION FOR OPERATION

3.11.1.3 The Liquid Radwaste Treatment System shall be OPERABLE and appropriate portions of the system shall be used to reduce releases of radioactivity when the projected doses due to the liquid effluent, from each unit, to UNRESTRICTED AREAS (see Figure 5.1-4) would exceed 0.06 mrem to the whole body or 0.2 mrem to any organ in a 31 day period.

APPLICABILITY: At all times.

ACTION:

a. With radicactive liquid waste being discharged without treatment and in excess of the above limits and any portion of the Liquid Radwaste Treatment System not in operation, 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 Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.1.3.1 Doses due to liquid releases from each unit to UNRESTRICTED AREAS shall be projected at least once per 31 days in accordance with the methodology and parameters in the ODCM.

4.11.1.3.2 The installed Liquid Radwaste Treatment System shall be considered OPERABLE by meeting Specifications 3.11.1.1 and 3.11.1.2.

RADIOACTIVE EFFLUENTS

LIQUID HOLDUP TANKS

LIMITING CONDITION FOR OPERATION

3.11.1.4 The quantity of radioactive material contained in each of the following unprotected outdoor tanks shall be limited to less than or equal to 150 Curies, excluding tritium and dissolved or entrained noble gases:

a. Reactor Makeup Water Storage Tank,
~~b. Refueling Water Storage Tank,~~
b. ~~c.~~ Condensate Storage Tank, and
c. ~~d.~~ Outside temporary tanks, excluding liner being used to solidify radioactive waste and demineralizer vessels.

APPLICABILITY: At all times.

ACTION:

a. With the quantity of radioactive material in any of the above listed tanks exceeding the above limit, immediately suspend all additions of radioactive material to the tank, within 48 hours reduce the tank contents to within the limit, and describe the events leading to this condition in the next semiannual Radioactive Effluent Release 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

4.11.1.4 The quantity of radioactive material contained in each of the above listed tanks shall be determined to be within the above limit by analyzing a representative sample of the tank's contents at ~~least once per~~ 7 days when radioactive materials ~~are being~~ added to the tank.

within

have been

SPECIFICATION 3.11.1.4

JUSTIFICATION:

(1) Deletion of the Refueling Water Storage Tank (RWST):

a. Althought the RWST has the greatest pobability of containing significant levels of radioactivity, it is a Seismic Category I structure, with overflows to the liquid radwaste system. It should therefore be exempt from this Specification. (Ref: FSAR Section 6.3.2.2 and FSAR Table 3.2-1 (Sheet 5)).

Modification of the LCO as proposed ensures applicabiltiy of the Specification to the SNUPPS Plant design, while maintaining the intent and purpose of the Specification.

(2) Surveillance Requirements 4.11.1.4

Due to the low level of activity available for addition to these tanks, a sample every 7 days is adequate only if additions have been made. The wording provided by the Standard Tech Specs would require a separate sample for each addition to the tank -- no matter how small. This restriction is not warranted on these outside tanks.

RADIOACTIVE EFFLUENTS

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 whole body and less than or equal to 3000 mrem/yr to the skin, and

b. For Iodine-131 and 133, 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, from the inhalation pathway only.

APPLICABILITY: At all times.

ACTION:

(a) With the dose rate(s) exceeding the above limits, immediately initiate action to restore the release rate to within the above limit(s).

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

SURVEILLANCE REQUIREMENTS

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

4.11.2.1.2 The dose rate due to Iodine-131 and 133, 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 methodology and parameters in the ODCM by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in Table 4.11-2.

SPECIFICATION 3.11.2.1

JUSTIFICATION:

(1) This specification implements 10CFR20 concentration limits at the unrestricted area boundary. The MPC values specified in 10CFR20 were determined using ICRP 2 methodology and are therefore based on the inhalation pathway only. It is therefore appropriate that doses calculated to verify compliance with this specification consider only the inhalation pathway. The proposed wording has been added to clarify the LCO requirement.

(2) Operational considerations preclude instantaneously accomplishing the required action. The proposed wording clarifies the intended action and ensures that steps to rectify the condition are immediately started and corrective action (i.e., restoration of release rate to within limits) is completed as soon as practical.

(3) Action b:

A change in the operational status of the unit will have little or no impact on the release of radioactive materials to the environment, as this is controlled by the HVAC and its dampers, fans, etc., furthermore, the unit cannot be placed in a condition whereby this specification is not applicable. Therefore, the provisions of Specification 3.0.3 and 3.0.4 are not applicable.

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)(1) (μCi/ml)
1. Waste Gas Decay Tank	P Each Tank Grab Sample	P Each Tank	Principal Gamma Emitters(2)(4)	1×10^{-4}
2. Containment Purge or Vent	P Each PURGE Grab Sample	P Each PURGE	Principal Gamma Emitters(2)(3)	1×10^{-4}
		M	H-3 (oxide)	1×10^{-6}
3. Vents a. Unit Vent	M(3),(4) Grab Sample	M	Principal Gamma Emitters(2)(3)	1×10^{-4}
			H-3 (oxide)	1×10^{-6}
b. Radwaste Building Vent	~~M(5) Grab Sample~~	~~M~~	~~Principal Gamma Emitters(4)~~	~~1×10^{-4}~~
			~~H-3~~	~~1×10^{-6}~~
	M Grab Sample	M	Principal Gamma Emitters(2)(4)	1×10^{-4}
4. All Release Types as listed in 1., 2., and 3. above.	Continuous(5)(8)	W(6)(7) Charcoal Sample	I-131	1×10^{-12}
			I-133	1×10^{-10}
	Continuous(5)(8)	W(6)(7) Particulate Sample	Principal Gamma Emitters(2)	1×10^{-11}
	Continuous(5)(8)	M Composite Particulate Sample	Gross Alpha	1×10^{-11}
	Continuous(5)(8)	Q Composite Particulate Sample	Sr-89, Sr-90	1×10^{-11}

TABLE 4.11-2 (Continued)

TABLE NOTATIONS

(1)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:

$$LLD = \frac{4.66\ s_b}{E \cdot V \cdot 2.22 \times 10^6 \cdot Y \cdot \exp(-\lambda \Delta t)}$$

Where:

LLD = the "a priori" lower limit of detection (microCuries per unit mass or volume),

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

E = the counting efficiency (counts per disintegration),

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

2.22×10^6 = the number of disintegrations per minute per microCurie,

Y = the fractional radiochemical yield, when applicable,

λ = the radioactive decay constant for the particular radionuclide (s^{-1}), and

Δt = the elapsed time between the midpoint of sample collection and the time of counting (s).

Typical values of E, V, Y, 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.

TABLE 4.11-2 (Continued)

TABLE NOTATIONS (Continued)

(2) The principal gamma emitters for which the LLD specification applies exclusively are ~~include~~ the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, and Xe-138 in noble gas releases and Mn-54, Fe-59, Co-58, Co-60, ~~Zn-65~~, Mo-99, I-131, Cs-134, Cs-137, Ce-141, and Ce-144 in iodine and particulate releases. This list does not mean that only these nuclides are to be considered. Other gamma peaks that are identifiable, together with those of the above nuclides, shall also be analyzed and reported in the semiannual Radioactive Effluent Release Report pursuant to Specification 6.9.1.7. ~~in the format outlined in Regulatory Guide 1.21, Appendix B, Revision 1, June 1974.~~

(3) Sampling and analysis shall also be performed following shutdown, STARTUP, or a THERMAL POWER change exceeding 15% of RATED THERMAL POWER within 1 hour period. from ≥ 15% RATED THERMAL POWER to ≥ 15% RATED THERMAL POWER

(4) Tritium grab samples shall be taken ~~at least once per~~ 24 hours ~~when~~ after the refueling canal is flooded, and at least once per 7 days thereafter while the refueling canal is flooded. within

~~(5) 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~~

(5) 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.

(6) Samples shall be changed at least once per 7 days and analyses shall be completed within 48 hours after changing, or after removal from sampler. Sampling shall also be performed at least once per 24 hours for at least 7 days following each shutdown, STARTUP, or THERMAL POWER change exceeding 15% of RATED THERMAL POWER within a 1-hour period 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 reactor coolant has not increased more than a factor of 3, and (2) the noble gas monitor shows that effluent activity has not increased more than a factor of 3. from ≥ 15% RATED THERMAL POWER to ≥ 15% RATED THERMAL POWER

Nuclides which are below the LLD for the analysis shall be reported as "less than" the nuclide's LLD and shall not be reported as being present at the LLD level for that nuclide. The "less than" values shall not be used in the required dose calculations.

TABLE 4.11-2

JUSTIFICATION:

(1) This table was marked up to reflect site specific SNUPPS Plant design.

(2) Footnote (3) for Containment Purge and the Unit Vent was repositioned from the "Sampling Frequency" column to "Principal Gamma Emitters" to indicate that only a radioisotopic analysis is required for a 15% power change. Analyzing only for gamma emitters (fission products) following a power change is appropriate since it is unlikely that tritium levels would be greatly affected by changes in reactor power.

(3) The footnote for three of the "Principal Gamma Emitters" was changed to (2) it is the appropriate and applicable footnote for that type of anlaysis.

(4) Footnote 2: Zn-65 was deleted since Zn-65 analyses are primarily applicable to BWR's with admiralty metal condenser tubes. Per FSAR 4.5.1.1 the primary system does not contain any zinc based steel alloys: therefore, there is no zinc to be activated to Zn-65.

The proposed modification provides clarification that the specification s LLD value applies only to the listed nuclides and not to a virtually limitless number of gamma emitting nuclides. The requirement to report all other identifiable radionuclides is not changed by the proposed modification. The proposed modification is consistant with the equivalent notation of Table 4.11-1.

The inserted text was added to clarify use and application of LLD values specified within the table.

(5) Footnote 3: The additional wording is proposed to clarify the performance of sampling and activity analysis associated with changes in reactor power levels.

(6) Footnote 4: The extended tritium sampling frequency is justified since airborne tritium levels are not subject to rapid variations or fluctuations, and are, therefore, relatively stable after initial flooding of the canal. The proposed sampling requirements ensure adequate monitoring and surveillance of airborne tritium concentrations.

(7) Footnote 5: Footnote (5) was deleted and subsequent footnotes renumbered. It is proposed that the normal tritium sampling of the Unit Vent is sufficient to monitor the tritium concentration in the fuel pool area ventilation exhaust. Justification for this position is as follows:

(7) Continued

a. The SNUPPS Plant is designed such that the Fuel Building ventilation exhaust is discharged through the Unit Vent. Therefore, the routine tritium sampling of the Unit Vent also monitors the fuel pool area exhaust (FSAR Section 9.4.2.2.3).

b. The Spent Fuel Pool Cooling System (FPCS) (FSAR Section 9.1.3.2.3.1) provides constant removal of decay heat, maintaining the water temperature below 135°F. The FPCS is a Seismic Category I system with separate and redundant loops. It, therefore, provides reasonable assurance of relatively constant Fuel Pool temperatures and thus relatively constant tritium levels from fuel pool water evaporation. It is, therefore, reasonable that the tritium sampling frequency be extended as proposed.

c. Protection of personnel who may be working in the vicinity of the spent fuel pool is partially provided by the Fuel Building HVAC, which takes a suction on the area above the spent fuel pool (FSAR Section 9.4.2.2.3) and is ensured by the tritium sampling performed as part of the Radiation Work Permit program.

(8) Footnote 6: The additional wording is proposed to clarify the change out and analysis of charcoal and paper filter samples associated with changes in reactor power levels.

RADIOACTIVE EFFLUENTS

DOSE - NOBLE GASES

LIMITING CONDITION FOR OPERATION

3.11.2.2 The air dose due to noble gases released in gaseous effluents, from each unit, 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 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:

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 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 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 for noble gases shall be determined in accordance with the methodology and parameters in the ODCM at least once per 31 days.

DOSE - IODINE-131 AND 133, TRITIUM, AND RADIOACTIVE MATERIAL IN PARTICULATE FORM

LIMITING CONDITION FOR OPERATION

3.11.2.3 The dose to ~~a MEMBER OF THE PUBLIC~~ an Individual from Iodine-131 and 133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released, from each unit, 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 mrem/ to any organ, and

b. During any calendar year: Less than or equal to 15 mrem/ to any organ.

APPLICABILITY: At all times.

ACTION:

a. With the calculated dose from the release of Iodine-131 and 133, 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 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 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 and 133, tritium, and radionuclides in particulate form with half-lives greater than 8 days shall be determined in accordance with the methodology and parameters in the ODCM at least once per 31 days.

SPECIFICATION 3.11.2.3

JUSTIFICATION:

The term "MEMBER OF THE PUBLIC" has been replaced with the term "Individual" in that:

a. 10CFR20 and 10CFR50, Appendix I, require that Radioactive Effluent Concentrations, Doses and Dose Rates be calculated for Individuals at or beyond the SITE BOUNDARY and/or in UNRESTRICTED AREAS. These regulations neither expressly or implicitly require that these calculations be performed for persons, real or imaginary, who may occupy areas within the SITE BOUNDARY for some fraction of the time.

b. The use of the term "MEMBER OF THE PUBLIC" as defined in Specification 1.16, is inconsistent with the requirements of the Specification that doses be calculated at the SITE BOUNDARY. Therefore, its use would cause the Specification to be internally inconsistent.

c. As stated in the bases, the purpose of this Specification is to provide for compliance with 10CFR20 and 10CFR50, Appendix I, limits. The use of "MEMBER OF THE PUBLIC" is inconsistent with the stated purpose of this Specification.

Therefore, the use of the term "MEMBER OF THE PUBLIC" is inconsistent with the expressed purpose of the Specification and requires inconsistency on the part of the Licensee in complying with the Specification. Additionally, there are no legal requirements for its use in this specification.

Thus, the use of the term "MEMBER OF THE PUBLIC", while appropriate for specifications implementing 40CFR190 requirements, is inappropriate in this Specification, and should be deleted in favor of the term "Individual".

RADIOACTIVE EFFLUENTS

GASEOUS RADWASTE TREATMENT SYSTEM

LIMITING CONDITION FOR OPERATION

3.11.2.4 The VENTILATION EXHAUST TREATMENT SYSTEM and the WASTE GAS HOLDUP SYSTEM shall be OPERABLE and appropriate portions of these systems shall be used to reduce releases of radioactivity when the projected doses in 31 days due to gaseous effluent releases, from each unit, to areas at and beyond the SITE BOUNDARY (see Figure 5.1-3) would exceed:

a. 0.2 mrad to air from gamma radiation, or

b. 0.4 mrad to air from beta radiation, or

c. 0.3 mrem to any organ of ~~a MEMBER OF THE PUBLIC.~~ an Individual

APPLICABILITY: At all times.

ACTION:

a. With radioactive 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. 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

4.11.2.4.1 Doses due to gaseous releases from each unit to areas at and beyond the SITE BOUNDARY shall be projected at least once per 31 days in accordance with the methodology and parameters in the ODCM when Gaseous Radwaste Treatment Systems are not being fully utilized.

4.11.2.4.2 The installed VENTILATION EXHAUST TREATMENT SYSTEM and the WASTE GAS HOLDUP SYSTEMS shall be considered OPERABLE by meeting Specifications 3.11.2.1 and 3.11.2.2 or 3.11.2.3.

SPECIFICATION 3.11.2.4

JUSTIFICATION:

The term "MEMBER OF THE PUBLIC" has been replaced with the term "Individual" in that:

a. 10CFR20 and 10CFR50, Appendix I, require that Radioactive Effluent Concentrations, Doses and Dose Rates be calculated for Individuals at or beyond the SITE BOUNDARY and/or in UNRESTRICTED AREAS. These regulations neither expressly or implicitly require that these calculations be performed for persons, real or imaginary, who may occupy areas within the SITE BOUNDARY for some fraction of the time.

b. The use of the term "MEMBER OF THE PUBLIC" as defined in Specification 1.16, is inconsistent with the requirements of the Specification that doses be calculated at the SITE BOUNDARY. Therefore, its use would cause the Specification to be internally inconsistent.

c. As stated in the bases, the purpose of this Specification is to provide for compliance with 10CFR20 and 10CFR50, Appendix I, limits. The use of "MEMBER OF THE PUBLIC" is inconsistent with the stated purpose of this Specification.

Therefore, the use of the term "MEMBER OF THE PUBLIC" is inconsistent with the expressed purpose of the Specification and requires inconsistency on the part of the Licensee in complying with the Specification. Additionally, there are no legal requirements for its use in this Specification.

Thus, the use of the term "MEMBER OF THE PUBLIC", while appropriate for specifications implementing 40CFR190 requirements, is inappropriate in this Specification, and should be deleted in favor of the term "Individual".

EXPLOSIVE GAS MIXTURE

LIMITING CONDITION FOR OPERATION

3.11.2.5 The concentration of oxygen in the WASTE GAS HOLDUP SYSTEM shall be limited to less than or equal to ~~2%~~ 3.5% by volume whenever the hydrogen concentration exceeds 4% by volume.

APPLICABILITY: At all times.

ACTION:

a. With the concentration of oxygen in the WASTE GAS HOLDUP SYSTEM greater than ~~2%~~ 3.5% by volume but less than or equal to 4% by volume, reduce the oxygen concentration to the above limits within 48 hours.

b. With the concentration of oxygen in the WASTE GAS HOLDUP SYSTEM greater than 4% by volume and the hydrogen concentration greater than 4% by volume, immediately suspend all additions of waste gases to the system and reduce the concentration of oxygen to less than or equal to 4% by volume, then take ACTION a. above.

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

SURVEILLANCE REQUIREMENTS

4.11.2.5 The concentrations of hydrogen and oxygen in the WASTE GAS HOLDUP SYSTEM shall be determined to be within the above limits by continuously monitoring the waste gases in the WASTE GAS HOLDUP SYSTEM with the hydrogen and oxygen monitors required OPERABLE by Table 3.3-13 of Specification 3.3.3.11.

SPECIFICATION 3.11.2.5

JUSTIFICATION:

The proposed limit reflects the design of the SNUPPS Plant WASTE GAS HOLDUP SYSTEM.

Since the SNUPPS Plant system is designed to operate with hydrogen concentrations of up to 6 volume percent, up to 3 volume percent oxygen is necessary for operation of the catalytic recombiner. Termination of oxygen feed at 2 volume percent is therefore inappropriate for this particular system design.

This design has automatic safety control features which serve to limit the oxygen concentration to well below the limits of flammabiltiy.

If the oxygen concentration in the recombiner feed reaches 3 percent by volume, an alarm sounds and oxygen feed flow is limited so that no further increase in flow is possible. This control maintains the system oxygen concentration at 3 percent or less, which is below the flammable limit for hydrogen-oxygen mixtures.

If the oxygen concentration in the recombiner feed reaches 3.5 percent by volume, an alarm sounds and the oxygen feed flow is terminated.

Since the minimum oxygen concentration necessary to support combustion at 4 percent by volume hydrogen concentrations is 5 percent, the hi-alarm setpoint of 3 percent provides sufficient margin (i.e., 60 percent of the limit) to flammability.

RADIOACTIVE EFFLUENTS

GAS STORAGE TANKS

LIMITING CONDITION FOR OPERATION

3.11.2.6 The quantity of radioactivity contained in each gas storage tank shall be limited to less than or equal to 2.5×10^5 Curies of noble gases (considered as Xe-133 equivalent).

APPLICABILITY: At all times.

ACTION:

a. With the quantity of radioactive material in any gas storage tank exceeding the above limit, immediately suspend all additions of radioactive material to the tank and, ~~within 48 hours,~~ without delay, begin to reduce the tank contents to within the limit, and describe the events leading to this condition in the next semiannual Radioactive Effluent Release 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

~~4.11.2.6 The quantity of radioactive material contained in each gas storage tank shall be determined to be within the above limit at least once per 24 hours when radioactive materials are being added to the tank.~~

Insert F

INSERT F

4.11.2.6.1 The quantity of radioactive material contained in the inservice Waste Gas Decay Tank shall be determined to be within the above limit at least once per 24 hours when:

a. Primary coolant system degassing operations are occurring, and

b. Conditions of confirmed 1% or greater failed fuel exist, and

c. Radioactive materials have been added to the tank.

4.11.2.6.2 The quantity of radioactive material contained in the inservice Waste Gas Decay Tank shall be determined to be within the above limit at least once per 7 days when:

a. Conditions of confirmed 1% or greater failed fuel exist, and

b. Radioactive materials have been added to the tank.

SPECIFICATION 3.11.2.6

JUSTIFICATION:

Action a:

Depending on operating conditons at the time, it may prove inadvisable to place restrictions on the length of time given to accomplish the activity reduction.

The proposed wording allows the operator to assess the various parameters and to make a reasonable decision, balancing the risks involved (e.g., excessive dose to the public vs. possibility of tank rupture).

The restriction to a finite time limitation could result in circumstances whereby this specification is in direct opposition to the satisfaction of Specifications 3.11.2.2, 3.11.2.3, and 3.11.2.4. Such a restriction could result in a situation whereby the operator would be forced to vent the affected tank under unfavorable conditions (e.g., heavy precipitation, temperature inversion, extremely stable conditions) and thereby result in an unnecessarily high dose to the public.

The proposed wording is also consistent with the proposed modification to Specification 3.11.2.5.

SPECIFICATION 4.11.2.6

JUSTIFICATION:

(1) FSAR Section 15.7.1 describes the analysis of a postulated Waste Gas Decay Tank failure and its projected radiological consequences. This evaluation utilized the fission product accumulation and release assumptions identified in Regulatory Guide 1.24. Some of these assumptions are:

a. The maximum amount of waste gases stored in any one tank occurs after a refueling shutdown, at which time the Waste Gas Decay Tanks store the radioactive gases stripped from the reactor coolant.

b. The accumulated activity in the gaseous waste processing system after 40 years' operation and immediately following plant shutdown (with zero decay) assumed to be in the Waste Gas Decay Tank, is based on 1% failed fuel, which is 8 times greater than that assumed under normal operating conditions. All noble gas activity has been removed from the reactor coolant system and transferred to the Waste Gas Decay Tank that is postulated to fail.

The calculated maximum activity in the Waste Gas Decay Tank under these conditions is presented in FSAR Table 15.7-3, and is approximately 2.1 E04 Curies.

The calculated whole body dose to an individual at the Exclusion Area Boundary (EAB) is presented in FSAR Table 15.7-4, and is 33 mrem.

From the aforementioned analysis, we can conservatively establish the following conclusions:

a. The maximum amount of activity in a Waste Gas Decay Tank during normal operations is the result of primary system degassing operations.

b. The maximum amount of activity in the primary coolant system, and thus the Waste Gas Decay Tank, occurs during periods of 1% or greater failed fuel.

c. The maximum Waste Gas Decay Tank activity, after 40 years of operation with 1% failed fuel and immediately following total primary coolant system degassing, is conservatively estimated as approximately 8% of the limit of Specification 3.11.2.6 (2.5E+5 Curies).

d. The projected whole body dose to an individual at the EAB, using the limiting short-term χ/Q, is conservatively estimated as approximately 7% of the 500 mrem NUREG 0133 objective and approximately 1% of the 10CFR100.11 limit.

e. Due to the relatively low amount of activity available to be added to the Waste Gas Decay Tank under normal operations, sampling is unwarranted until such time as the condition of 1% failed fuel is encountered.

(2) It is the expressed purpose of 10CFR20 (10CFR20.1(c)) that radiation exposures and releases of radioactive materials in effluents to unrestricted areas be maintained ALARA. It is not in keeping with the concept of ALARA to require sampling and analysis activities which result in unnecessary occupational radiation exposure and releases of radioactive materials to the environment.

The proposed sampling and analysis requirements serve to implement good ALARA principles and thus reduce the expended man-rem, both occupationally and to the public.

(3) The intent of Specification 3.11.2.6 as stated in the Bases, is to provide assurance that in the event of an uncontrolled release of the Waste Gas Decay Tank's contents, the resulting whole body dose to an individual at the EAB will not exceed 500 mrem, which is substantially below the dose limits of 10CFR100 for a postulated event.

The analysis of a postulated Waste Gas Decay Tank rupture, conducted in accordance with Nuclear Regulatory Commission Guidelines and recommendations, using greatly conservative assumptions, conclusively demonstrates that the proposed surveillance requirements maintain a significant margin of safety with respect to the expressed objective of Specification 3.11.2.6, thus assuring that the limits of 10CFR100 are not approached.

(4) The proposed modification requiring Surveillance of the inservice Gas Decay Tank is appropriate since the SNUPPS WASTE GAS HOLDUP SYSTEM is designed with multiple tanks, only one of which can be inservice at any one time.

3/4.11.3 SOLID RADWASTE TREATMENT SYSTEM

LIMITING CONDITION FOR OPERATION

3.11.3 Radioactive wastes shall be solidified or dewatered in accordance with the PROCESS CONTROL PROGRAM to meet shipping and transportation requirements during transit, and disposal site requirements when received at the disposal site.

APPLICABILITY: At all times.

ACTION:

a. With SOLIDIFICATION or dewatering not meeting disposal site and shipping and transportation requirements, suspend shipment of the inadequately processed wastes and correct the PROCESS CONTROL PROGRAM, the procedures and/or the Solid Waste System as necessary to prevent recurrence.

b. With SOLIDIFICATION or dewatering not performed in accordance with the PROCESS CONTROL PROGRAM, test the improperly processed waste in each container to ensure that it meets burial ground and shipping requirements and take appropriate administrative action to prevent recurrence.

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

SURVEILLANCE REQUIREMENTS

4.11.3 SOLIDIFICATION of at least one representative test specimen from at least every tenth batch of each type of wet radioactive wastes (e.g., filter sludges, spent resins, evaporator bottoms, boric acid solutions and sodium sulfate solutions) shall be verified in accordance with the PROCESS CONTROL PROGRAM:

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

b. If the initial test specimen from a batch of waste fails to verify SOLIDIFICATION, the PROCESS CONTROL PROGRAM shall provide for the collection and testing of representative test specimens from each consecutive batch of the same type of wet waste until 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; and

c. With the installed equipment incapable of meeting Specification 3.11.3 or declared out-of-service, restore the equipment to operable status or provide for contract capability to process wastes as necessary to satisfy all applicable transportation and disposal requirements.

3/4.11.4 TOTAL DOSE

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 to radiation from uranium fuel cycle sources shall be limited to less than or equal to 25 mrems to the whole body or any organ, except the thyroid, which shall be limited to less than or equal to 75 mrems.

APPLICABILITY: At all times.

ACTION:

a. With the calculated doses from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of Specification 3.11.1.2a., 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 units and from outside storage tanks to determine whether the above limits of Specification 3.11.4 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.

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, and 4.11.2.3, and in accordance with the methodology and parameters in the ODCM.

4.11.4.2 Cumulative dose contributions from direct radiation from the units and from radwaste storage tanks shall be determined in accordance with the methodology and parameters in the ODCM. This requirement is applicable only under conditions set forth in ACTION a. of Specification 3.11.4.

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:

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 6.9.1.6, 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~~ an Individual 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:

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

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~~ an Individual from all radionuclides is equal to or greater than the calendar year limits of Specifications 3.11.1.2, 3.11.2.2 and 3.11.2.3. This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event, the condition shall be reported and described in the Annual Radiological Environmental Operating Report, required by Specification 6.9.1.6.

c. With ~~milk or~~ fresh leafy vegetable samples unavailable from one or more of the sample locations required by Table 3.12-1, identify specific locations for obtaining replacement samples and add them within 30 days to the Radiological Environmental Monitoring Program given in the ODCM** The specific locations from which samples

*The methodology and parameters used to estimate the potential annual dose to a MEMBER OF THE PUBLIC shall be indicated in this report.

** Excluding short-term or temporary unavailability.

LIMITING CONDITION FOR OPERATION

ACTION (Continued)

were unavailable may then be deleted from the monitoring program. Pursuant to Specification 6.14, submit in the next semiannual Radioactive Effluent Release Report documentation for a change in the ODCM, including a revised figure(s) and table for the ODCM reflecting the new location(s) with supporting information identifying the cause of the unavailability of samples and justifying the selection of new location(s) for obtaining samples.

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 specific locations given in the table and figure(s) in the ODCM, and shall be analyzed pursuant to the requirements of Table 3.12-1 and the detection capabilities required by Table 4.12-1.

SPECIFICATION 3/4.12.1, "Monitoring Program"

JUSTIFICATION:

(1) The term "MEMBER OF THE PUBLIC" has been replaced with the term "Individual" in that:

a. The purpose of this Specification and the Radiological Environmental Monitoring Program (REMP) is to supplement the Radiological Effluent Monitoring Program, thus assuring compliance with 10CFR50, Appendix I. Accordingly, the REMP is not designed to assess dose within the SITE BOUNDARY. Thus, the use of the term "MEMBER OF THE PUBLIC" is inconsistent with the stated purpose of the Specification.

b. 10CFR20 and 10CFR50, Appendix I, require that Radioactive Effluent Concentrations, Doses and Dose Rates be calculated for Individuals at or beyond the SITE BOUNDARY and/or in UNRESTRICTED AREAS. These regulations neither expressly or implicitly require that these calculations be performed for persons, real or imaginary, who may occupy areas within the SITE BOUNDARY for some fraction of the time.

c. The use of the term "MEMBER OF THE PUBLIC" as defined in Specification 1.16, is inconsistent with the requirements of the Specification that doses be calculated at the SITE BOUNDARY. Therefore, its use would cause the Specification to be internally inconsistent.

Therefore, the use of the term "MEMBER OF THE PUBLIC" is inconsistent with the expressed purpose of the Specification and requires inconsistency on the part of the Licensee in complying with the Specification. Additionally, there are no legal requirements for its use in this Specification.

Thus, the use of the term "MEMBER OF THE PUBLIC", while appropriate for specifications implementing 40CFR190 requirements, is inappropriate in the Specification, and should be deleted in favor of the term "Individual".

TABLE 3.12-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS(1)	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
1. Direct Radiation(2)	Forty routine monitoring stations either with two or more dosimeters or with one instrument for measuring and recording dose rate continuously, placed as follows: An inner ring of ~~sixteen~~ sixteen stations, one in each meteorological sector in the general area of the SITE BOUNDARY; An outer ring of ~~sixteen~~ sixteen stations, one in each meteorological sector in the 5- to 8-km range from the ~~site~~ SITE BOUNDARY; and ~~The balance of the~~ Eight stations to be placed in special interest areas such as population centers, nearby residences, schools, and in one or two areas to serve as control stations.	~~Quarterly.~~ At least once per 92 days	Gamma dose ~~quarterly.~~ at least once per 92 days.

TABLE 3.12-1 (Continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS(1)	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
2. Airborne Radioiodine and Particulates	Samples from five locations: Three samples from close to the three SITE BOUNDARY locations, in different sectors, of the highest calculated annual average ground level D/Q. One sample from the vicinity of a community having the highest calculated annual average ground-level D/Q. One sample from a control location, as for example 15 to 30 km distant and in the least prevalent wind direction.(3)	at least once per 7 days Continuous sampler operation with sample collection ~~weekly~~, or more frequently if required by dust loading.	at least once per 7 days Radioiodine Cannister: I-131 analysis ~~weekly~~. Insert 1 ~~Particulate Sampler: Gross beta radioactivity analysis following filter change;(4) and gamma isotopic analysis(5) of composite (by location) quarterly.~~
3. Waterborne 5 a. Surface(6)	One sample upstream. One sample downstream.	a period of ≤ 31 days(6). Composite sample over ~~1 month period~~.(6)	Insert 2 ~~Gamma isotopic analysis(5) monthly. Composite for tritium analysis quarterly.~~
~~b. Ground~~	~~Samples from one or two sources only if likely to be affected(8).~~	~~Quarterly.~~	~~Gamma isotopic(5) and tritium analysis quarterly.~~
Insert 3 ~~c. Drinking~~	One sample of each of one to three of the nearest water supplies ~~that~~ could be affected by its discharge. One ~~sample~~ from a control location.	Composite sample over 2-week period(7) when I-131 ~~analysis~~ is performed, monthly composite otherwise.	I-131 analysis ~~on each composite~~ when the dose calculated for the consumption of the water is greater than 1 mrem per year.(5) Composite for gross beta and gamma isotopic analyses(5) monthly. Composite for tritium analysis ~~quarterly~~.

INSERT 1

Particulate Sampler:

Analyze for gross beta radioactivity $\geq$ 24 hours following filter change. Perform gamma isotopic analysis (4) on those samples for which the gross beta activity is > 10 times the yearly mean of control samples. Perform gamma isotopic analysis (4) on composite samples (by location) at least once per 92 days.

INSERT 2

Gamma isotopic analysis (4) at least once per 31 days. Tritium analysis of composite sample (by location) at least once per 92 days.

INSERT 3

b.	Drinking	One sample of the nearest drinking water supply that could be affected by liquid effluent discharge.	Grab sample collected at least once per 31 days.	Gamma isotopic (4) and gross beta analyses at least once per 31 days. Tritium analyses of composite sample (by location) at least once per 92 days.
		One sample from a control location.	Composite sample (6) over a period of less than or equal to 31 days.	

TABLE 3.12-1 (Continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS(1)	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
~~3. Waterborne (Continued)~~			
~~d. Sediment from shoreline~~	~~One sample from downstream area with existing or potential recreational value.~~	~~Semiannually.~~	~~Gamma isotopic analysis(5) semiannually.~~
4. Ingestion			
~~a. Milk~~	~~Samples from milking animals in three locations within 5 km distance having the highest dose potential. If there are none, then, one sample from milking animals in each of three areas between 5 to 8 km distant where doses are calculated to be greater than 1 mrem per yr(9).~~ ~~One sample from milking animals at a control location, 15 to 30 km distant and in the least prevalent wind direction.~~	~~Semimonthly when animals are on pasture, monthly at other times.~~	~~Gamma isotopic(5) and I-131 analysis semimonthly when animals are on pasture; monthly at other times.~~
a.~~b.~~ Fish ~~and Invertebrates~~	One sample of each commercially and recreationally important species in vicinity of plant discharge area. One sample of same species in areas not influenced by plant discharge.	Sample in season, or semiannually if they are not seasonal.	Gamma isotopic analysis(5) on edible portions.
b.~~c~~. Food Products	One 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(8,9) ~~(10)~~.	Gamma isotopic analyses(5) on edible portion.

TABLE 3.12-1 (Continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS(1)	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
4. Injestion (Continued)			
b f. Food Products (cont'd)	Samples of ~~three~~ different kinds of broad leaf vegetation grown nearest each of two different offsite locations of highest predicted annual average ground-level D/Q if milk sampling is not performed.	Monthly when available.	Gamma isotopic(5/4) and I-131 analysis.
	One sample of each of the similar broad leaf vegetation grown 15 to 30 km distant in the least prevalent wind direction if milk sampling is not performed.	Monthly when available.	Gamma isotopic(5/4) and I-131 analysis.

TABLE 3.12-1 (Continued)

TABLE NOTATIONS

(1) Specific parameters of distance and direction sector from the centerline of one unit, and additional description where pertinent, shall be provided for each and every sample location in Table 3.12-1 in a table and figure(s) in the ODCM. Refer to NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants," October 1978, and to Radiological Assessment Branch Technical Position, Revision 1, November 1979. Deviations are permitted from the required sampling schedule if specimens are unobtainable due to hazardous conditions, seasonal unavailability, malfuntion of automatic sampling equipment, and other legitimate reasons. If specimens are unobtainable due to sampling equipment malfunction, every effort shall be made to complete corrective action prior to the end of the next sampling period. All deviations from the sampling schedule shall be documented in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.6. It is recognized that, at times, it may not be possible or practicable to continue to obtain samples of the media of choice at the most desired location or time. In these instances suitable specific alternative media and locations may be chosen for the particular pathway in question and appropriate substitutions made within 30 days in the Radiological Environmental Monitoring Program given in the ODCM. Pursuant to Specification 6.14, submit in the next semiannual Radioactive Effluent Release Report documentation for a change in the ODCM including a revised figure(s) and table for the ODCM reflecting the new location(s) with supporting information identifying the cause of the unavailability of samples for that pathway and justifying the selection of the new location(s) for obtaining samples.

(2) One or more instruments, such as a 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 (TLD) is considered to be one phosphor; two or more phosphors in a packet are considered as two or more dosimeters. Film badges shall not be used as dosimeters for measuring direct radiation. The 40 stations is not an absolute number. The number of direct radiation monitoring stations 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. The frequency of analysis or readout for TLD systems will depend upon the characteristics of the specific system used and should be selected to obtain optimum dose information with minimal fading.

(3) 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.

TABLE 3.12-1 (Continued)

TABLE NOTATIONS

~~(4) Airborne particulate sample filters shall be analyzed for gross beta radioactivity 24 hours or more after sampling to allow for radon and thoron daughter decay. If gross beta activity in air particulate samples is greater than 10 times the yearly mean of control samples, gamma isotopic analysis shall be performed on the individual samples.~~

(~~3~~ 4) Gamma isotopic analysis means the identification and quantification of gamma-emitting radionuclides that may be attributable to the effluents from the facility.

(~~5~~ 5) 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. Salt water shall be sampled only when the receiving water is utilized for recreational activities.~~

~~(7) A composite sample is one in which the quantity (aliquot) of liquid sampled is proportional to the quantity of flowing liquid and in which the method of sampling employed results in a specimen that is representative of the liquid flow. In this program composite sample aliquots shall be collected 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.~~

~~(8) 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.

7 (~~9~~) The dose shall be calculated for the maximum organ and age group, using the methodology and parameters in the ODCM.

(~~10~~ 8) 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.

(6) In this program, constant volume aliquots are collected at time intervals which are short (e.g. hourly) relative to the compositing period (eg. Monthly).

— Insert 4 —

INSERT 4

(9) Sampling and analysis to commence when food products grown in areas irrigated by Missouri River Water are identified by the Annual Land Use Census, conducted pursuant to Specification 3.12.2.

TABLE 3.12-1, "Radiological Environmental Monitoring Progra

JUSTIFICATION:

(1) Changes to frequency verbage: We propose the following changes to the frequency notation in the interest of clarity:

weekly	- no more than 7 days
monthly	- no more than 31 days
quarterly	- no more than 92 days
semi-annually	- no more than 184 days
semi-monthly	- no more than 15 days

(2) Deletion of Groundwater sampling requirements:

Section 5.2.2.1.1.1 of the Callaway Plant Environmental Report, Operating License Stage, states that, "Since routine plant releases will be discharged directly to the Missouri River by pipeline, there will be no impact on the local ground-water system(s) from this source". We, therefore, propose to delete the Groundwater sampling requirements per Notation (8).

(3) Change in the number of required Drinking Water Samples:

Section 5.2.4.1 of the Callaway Plant Environmental Report, Operating License State, states that: "No drinking water is drawn from the Missouri River within 50 miles downstream of the Callaway Plant discharge". We, therefore, propose to obtain Drinking Water samples from only one downstream location, which is at, or near, the water intake for the City of St. Louis, which, according to Section 11.2.3.3.3 of the Callaway Plant's FSAR, is the closest municipal user of Missouri River water downstream of the Callaway Plant, located approximately 78 river miles downstream of the Callaway Plant discharge.

(4) Change in the Drinking Water sample collection methodology:

Due to the relatively extreme distance (approximately 78 river miles downstream of the Callaway Plant discharge) of the nearest possible Drinking Water sampling location and, the extreme dilution of any liquid effluents, and with respect to the existing sampling equipment and the significant cost of establishing a continuous sampling station at this location, we propose to collect a single grab sample at least each 31 days in order to fulfill the requirements of the Technical Specifications.

TABLE 3.12-1 (Continued)

(5) Deletion of Drinking Water I-131 analysis requirements:

Although no Drinking Water is drawn from the Missouri River within 50 miles of the plant discharge, Section 5.2.4.1 of the Callaway Plant Environmental Report, Operating License State, states that for the hypothetical case of an individual who obtains his entire annual water requirement from the Missouri River 264 feet downstream of the plant discharge, the maximum accumulated dose to a single organ would be 0.152 mrem/year to an infant's liver. This dose is much lower than the 1 mrem/year given as guidance, and would be reduced to a much lower dose at the nearest Drinking Water intake on the Missouri River. Therefore, we propose that the requirement to perform I-131 analysis on Drinking Water be deleted from the Technical Specifications.

(6) Elimination of the requirement regarding Milk Sampling Stations:

Because of the lack of adequate milk sampling stations satisfying the specified criteria, it is proposed that milk sampling be deleted. Sampling and analysis of food products will be performed in lieu of milk sampling.

(7) Deletion of the sampling Invertebrates: NUREG-0133, Section 4.3.1, indicates that the consideration of invertebrates as being a significant contributor to the dose from liquid effluents, is not applicable to fresh water sites such as the Callaway Plant. We, therefore, propose that this requirement be deleted from the Technical Specifications.

(8) Deletion and modification of various Table 3.12-1 Notations:

a. Notation 4: We propose to relocate this notation into the context of Table 3.12-1 as indicated, for the purposes of clarity and conciseness.

b. Notation 6: We propose to modify this notation as indicated, such that it is applicable to the site-specific location of the Callaway Plant.

c. Notation 7: This notation was modified due to the impracticality of obtaining a composite sample, at the required sampling frequency, which is representative of the Missouri River flow during the sampling period. The great variability in the flow of the Missouri River necessitates a constant volume aliquot over the sampling period. For example: The ten year high flow is 610,000 cfs, whereas the 7 day, 10 year low flow is 9,900 cfs (refer to Environmental Report, Operating License Stage Tables 2.4-5 and 2.4-6). Therefore, it is neither practical or reasonable to perform weighted composite sampling of this free flowing, highly variable river. The current composite samplers are designed as constant volume samplers and perform as indicated in the proposed text.

d. Notation 8: We propose to delete this notation based on the deletion of the requirements to perform Ground Water sampling for the Callaway Plant (see 2, above).

e. Addition of Footnote 9:

Section 5.2.4.1 of the Callaway Plant Environmental Report, Operating License Stage, states "Crop irrigation is not considered a potential pathway of liquid effluents to man. This is because most water used for irrigation by local farmers comes from small streams in the vicinity rather than the Missouri River". Table 2.1-19 of the Callaway Plant Environmental Report, Operating License Stage further supports this statement, in that the closest downstream intake for irrigation water on the Missouri River is approximately 51 river miles from the plant's discharge.

Therefore, this pathway should be exempted from sampling and analyses requirements until such time as the Annual Land Use Census identifies a location(s) which could be substantially affected by the plant's discharge.

(9) Deletion of requirement to perform Sediment from Shoreline sampling:

As stated in the Environmental Report, OLS, Section 2.1.3.5.2, "According to MDC (Missouri Department of Conservation), no public access points exist on the Missouri River downstream of the discharge. The shore near the plant discharge is privately owned, and only boat anglers would generally be expected to fish near there". Section 2.1.3.4.2 further states, "These waters (within 50 miles of the plant discharge) are accessible to boat anglers, but public access along the shoreline is limited".

Owing mostly to this inaccessibility, there are no areas downstream of the discharge with existing or potential recreational value.

We, therefore, propose that requirements to perform sampling of Sediment from Shoreline be deleted.

(10) Deletion of the number of broad leaf vegetation samples:

Based on data collected to date in the conduct of vegetation sampling operations, it is unlikely that it will be possible to obtain three different kinds of broadleaf vegetation during various times of the year, owing to the relatively short growing season of many of the types grown in the general area.

TABLE 3.12-2

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES

ANALYSIS	REPORTING LEVELS WATER (pCi/ℓ)	AIRBORNE PARTICULATE OR GASES (pCi/m³)	FISH (pCi/kg, wet)	MILK (pCi/ℓ)	FOOD PRODUCTS (pCi/kg, wet)
H-3	20,000*				
Mn-54	1,000		30,000		
Fe-59	400		10,000		
Co-58	1,000		30,000		
Co-60	300		10,000		
~~Zn-65~~	~~300~~		~~20,000~~		
Zr-Nb-95	400**				
I-131	2	0.9		3	100
Cs-134	30	10	1,000	60	1,000
Cs-137	50	20	2,000	70	2,000
Ba-La-140	200**			300**	

*For drinking water samples. This is 40 CFR Part 141 value. ~~If no drinking water pathway exists~~, a value of 30,000 pCI/ℓ may be used. For surface water samples,

** Total activity, parent plus daughter.

TABLE 3.12-2, "Reporting Levels for Radioactivity Concentration in Environmental Samples"

(1) Deletion of Zn-65: As identified in FSAR Section 4.5.1.1, only stainless steels, nickel-chromium-iron, and cobalt based alloys are used in the primary system. We propose, therefore, to delete Zn-65, as there is no zinc to be activated.

(2) Change to footnote: The proposed modification provides clarification as to the reporting limits for non-drinking water samples.

(3) Addition of footnote: We propose the addition of this footnote in the interest of clarity.

TABLE 4.12-1

DETECTION CAPABILITIES FOR ENVIRONMENTAL SAMPLE ANALYSIS(1)

LOWER LIMIT OF DETECTION (LLD)(2),(3)

ANALYSIS	WATER (pCi/ℓ)	AIRBORNE PARTICULATE OR GAS (pCi/m³)	FISH (pCi/kg, wet)	MILK (pCi/ℓ)	FOOD PRODUCTS (pCi/kg, wet)	SEDIMENT (pCi/kg, dry)
Gross Beta	4	0.01				
H-3	2000*					
Mn-54	15		130			
Fe-59	30		260			
Co-58,60	15		130			
~~Zn-65~~	~~30~~		~~260~~			
Zr-Nb-95	15**					
I-131	1(4)	0.07		1	60	
Cs-134	15	0.05	130	15	60	150
Cs-137	18	0.06	150	18	80	180
Ba-La-140	15**			15**		

*~~If no drinking water pathway exists~~, a value of 3000 pCi/l may be used.
For surface water samples,

** Total activity, parent plus daughter.

TABLE 4.12-1 (Continued)

TABLE NOTATIONS

(1) This list does not mean that only these nuclides are to be considered. Other peaks that are identifiable, together with those of the above nuclides, shall also be analyzed and reported in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.6.

(2) ~~Required~~ Recommended detection capabilities for thermoluminescent dosimeters used for environmental measurements are given in Regulatory Guide 4.13, Rev. 1 (July 1977).

(3) 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:

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

Where:

LLD = the "a priori" lower limit of detection (picoCuries per unit mass or volume),

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

E = the counting efficiency (counts per disintegration),

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

2.22 = the number of disintegrations per minute per picoCurie,

Y = the fractional radiochemical yield, when applicable,

λ = the radioactive decay constant for the particular radionuclide (s^{-1}), and

Δt = the elapsed time between sample collection, or end of the sample collection period, and time of counting (s).

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

TABLE 4.12-1 (Continued)

TABLE NOTATIONS (Continued)

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. Analyses shall be performed in such a manner that the stated LLDs will be achieved under routine conditions. Occasionally background fluctuations, unavoidable small sample sizes, the presence of interfering nuclides, or other uncontrollable circumstances may render these LLDs unachievable. In such cases, the contributing factors shall be identified and described in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.6.

(4) LLD for drinking water samples. For surface water samples, ~~If no drinking water pathway exists~~, the LLD of gamma isotopic analysis may be used.

TABLE 4.12-1, "Detection Capabilities for Environmental Sample Analysis"

JUSTIFICATION:

(1) Deletion of Zn-65: As identified in FSAR Section 4.5.1.1, only stainless steels, nickel-chromium-iron, and cobalt based alloys are used in the primary system. We propose, therefore, to delete Zn-65, as there is no zinc to be activated.

(2) Change to footnote: The proposed modification provides clarification as to the LLD for H-3 for non-drinking water samples.

(3) Addition of footnote: We propose the addition of the indicated footnote in the interest of clarity.

(4) Changes to Notation 2:

a. We propose to substitute the word "recommended" for the word "required", to be consistent with the fact that it is not the intended purpose of Regulatory Guides to establish requirements, but instead to offer guidelines for meeting requirements. As stated in Reg. Guide 4.13, "the requirements and recommendations" of ANSI N545 are "generally acceptable to the NRC staff".

b. Since Regulatory Guides are subject to revision, we propose to establish a baseline document which can then be used for obtaining guidance in the development and operation of the Radiological Environmental Monitoring Program.

(5) Changes to Notation 4:

The proposed modification provides clarification as to the detection limits for non-drinking water samples.

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 m^2 (500 ft^2) producing broad leaf vegetation.

APPLICABILITY: At all times.

ACTION:

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 6.9.1.7.

b. With a Land Use Census identifying a location(s) that yields a calculated dose or dose commitment (via the same exposure pathway) 20% greater than at a location from which samples are currently being obtained in accordance with Specification 3.12.1, add the new location(s) within 30 days to the Radiological Environmental Monitoring Program given in the ODCM. 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 6.14, submit in the next semiannual Radioactive Effluent Release Report documentation for a change in the ODCM including a revised figure(s) and table(s) for the ODCM reflecting the new location(s) with information supporting the change in sampling locations.

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

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 6.9.1.6.

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*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/Qs in lieu of the garden census. Specifications for broad leaf vegetation sampling in Table 3.12-1, Part 4.c. shall be followed, including analysis of control samples.

3/4.12.3 INTERLABORATORY COMPARISON PROGRAM

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: At all times.

ACTION:

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 6.9.1.6.

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

SURVEILLANCE REQUIREMENTS

4.12.3 ~~The Interlaboratory Comparison Program shall be described in the ODCM.~~ A summary of the results obtained as part of the above required Interlaboratory Comparison Program shall be included in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.6.

Justification for Proposed Changes to Technical Specification 3/4.12.3, "Interlaboratory Comparison Program"

1. Changes to Surveillance Requirement 4.12.3: We propose that the description of the Interlaboratory Comparison Program not be included in the ODCM, as the Callaway Plant contracts the analysis of environmental samples to third-party, independent laboratories. Therefore, the exact program is established by the independent laboratory, and although said program satisfies NRC requirements, it is not conducted under the auspices of the Union Electric Company and should thereby not be described in the ODCM.

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT*

6.9.1.6 Routine Radiological Environmental Operating Reports covering the operation of the unit during the previous calendar year shall be submitted prior to May 1 of each year. The initial report shall be submitted prior to May 1 of the year following initial criticality.

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 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 environmental radiation measurements taken during the period pursuant to the locations specified in the Table and Figures in the ODCM, as well as summarized and tabulated results of 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** covering all sampling locations keyed to a table giving distances and directions from the centerline of one reactor; the results of licensee participation in the Interlaboratory Comparison Program and the corrective action being taken if the specified program is not being performed as required by Specification 3.12.3; reasons for not conducting the Radiological Environmental Monitoring Program as required by Specification 3.12.1 and discussion of all deviations from the sampling schedule of Table 3.12-1; discussion of environmental sample measurements that exceed the reporting levels of Table 3.12-2 but are not the result of the plant effluents, pursuant to Specification 3.12.1; and discussion of all analyses in which the LLD required by Table 4.12-1 was not achievable.

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*A single submittal may be made for a multiple unit station.

**One map shall cover stations near the site boundary; a second shall include the more distant stations.

SEMIANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT*

6.9.1.7 Routine Radioactive Effluent Release Reports covering the operation of the unit during the previous 6 months of operation shall be submitted within 60 days after January 1 and July 1 of each year. The period of the first report shall begin with the date of initial criticality.

The Radioactive Effluent Release Reports shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit as outlined in Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," Revision 1, June 1974, with data summarized on a quarterly basis following the format of Appendix B thereof. For solid wastes, the format for Table 3 in Appendix B shall be supplemented with three additional categories: class of solid waste (as defined by 10 CFR Part 60), type of container (e.g., LSA, Type A, Type B, Large Quantity), and SOLIDICATION agent or absorbent (e.g., cement, urea formaldehyde).

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 on 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 (Figures 5.1-3 and 5.1-4) during the report period. All assumptions used in making these assessments, i.e., specific activity, exposure time and location, shall be included in these reports. ~~The meteorological conditions concurrent with the time of release of radioactive materials in gaseous effluents, as determined by sampling frequency and measurement, shall be used for determining the gaseous pathway doses.~~ The assessment of radiation doses shall be performed in accordance with the methodology and parameters in the OFFSITE DOSE CALCULATION MANUAL (ODCM).

, as required by Technical Specification 3.11.4

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

, as required by Technical Specification 3.11.4

*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.

**In lieu of submission, 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.

SPECIFICATION 6.9.1.7

JUSTIFICATION:

(1) Technical Specification 3.11.1.2, 3.11.2.2 and 3.11.2.3 require a routine assessment of doses received at the SITE BOUNDARY or beyond. Only Technical Specification 3.11.4 requires the calculation of dose to a MEMBER OF THE PUBLIC from activities inside the SITE BOUNDARY. The proposed change relates the requirements for calculating and reporting the dose to a MEMBER OF THE PUBLIC from activities inside the SITE BOUNDARY to Specification 3.11.4 and its initiating conditions.

The suggested change provides consistency with surveillance requirements 4.11.4.1 and 4.11.4.2, and would require that dose assessments, performed to demonstrate compliance with 40CFR190 limits, are reported in the Semi-annual Effluent Release Report.

(2) The requirement to calculate effluent dose and dose commitment utilizing meterological conditions concurrent with time of release was deleted pursuant to published NRC guidance in order to provide consistency with Specifications 3.11.2.2, 3.11.2.2, B3/4.11.2.2, B3/4.11.2.3, and 6.9.1.7.

Specifically:

(a) Specifications 3.11.2.2, 3.11.2.3, and 6.9.1.7 require that doses be calculated in accordance with the methodology and parameters in the OFFSITE DOSE CALCULATION MANUAL (ODCM). An examination of the bases for these Specifications reveals the methodology upon which the ODCM (and thus the calculation of offsite doses) is to be based.

Bases 3/4.11.2.2 states:

> "The ODCM equations provided for determining the air doses at and beyond the SITE BOUNDARY are based upon the historical average atmospheric conditions."

Bases 3/4.11.2.3 states:

> "These equations also provide for determining the actual doses based upon the historical average atmospheric conditions."

(b) Regulatory Guide 1.11, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors", Revision 1, July 1977, states:

> "If emissions are continuous, annual data summaries should be used",

and:

> "Use of annual average conditions for consideration of intermittent releases will be acceptable only if it is established that releases will be random in time. Otherwise the method of evaluation of intermittent releases should follow the methodology outlined in Section 2.3.4 of NUREG-75/087. This method uses an appropriate χ/Q probability level, as well as the annual average χ/Q ... for adjustments reflecting more adverse diffusion conditions than indicated by the annual average. These adjustments are applied to the annual average χ/Q and D/Q for the total number of hours associated with intermittent releases per year." (Pages 1.111-13,14)

It further states:

> "For calculation of doses through ingestion pathways, particularly through the cows-milk pathway, meterological data for only the grazing or growing season should be used." (Page 1.111-14)

Regulatory Guide 1.111, therefore, explicitly requires that historical χ/Q and D/Q values be used to calculate doses from routine gaseous releases.

(c) NUREG 0800 (formerly issued as NUREG-75/087), "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants", July 1981, states:

> "Regulatory Guide 1.111 provides criteria for characterizing atmospheric transport and diffusion conditions for evaluating the consequences of routine releases." (Section II, page 2.3.5-2)
>
> It specifically requires that: "Relative concentration (χ/Q) and relative deposition (D/Q) values used for assessment of consequences of routine radioactive gas releases" be provided by the applicant in the Safety Analysis Report (SAR). (Section II, page 2.3.5-2)

NUREG 0800 therefore requires the utilization of historical χ/Q and D/Q values.

(d) 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, consistently defines χ/Q as:

> "The annual average (gaseous, atmospheric, etc.) dispersion factor". (Equations 7, 9, B-4, B-7, C-3, others)

Regulatory Guide 1.109, therefore, clearly requires that annual average χ/Q and D/Q values be used to calculate doses to individuals and populations.

(e) NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants", October 1978, describes one of its purposes as:

> "(This) manual additionally describes current staff positions on the methodology for estimating radiation exposure due to the release of radioactive materials in effluents". (Section 1.1, Page 1)

With respect to the use of χ/Q values, it states:

> "Determination of doses due to long-term releases should use the historical annual average relative concentration (χ/Q) based on meteorological data summarized, as recommended in Regulatory Guide 1.111."

> "Determination of doses due to short-term releases can use the annual average relative concentration (long-term) if it can be demonstrated that past short-term releases were sufficiently random in both time of day and duration ... to be represented by the annual average dispersion conditions. Otherwise, the short-term relative concentration value should be calculated in accordance with the guidelines provided in NUREG-0324 for short-term release." (Section 3.3., Page 8)

Section 3.6, Page 9 describes the ODCM:

> "The ODCM shall contain the methodology and parameters to be used in the calculation of off-site doses due to radioactive liquid and gaseous effluents pursuant to Specifications 3.11.1.2, 3.11.2.2 and 3.11.2.3, and the established limits of Specifications 3.11.1.1 and 3.11.2.1."

Sections 5.2.1 and 5.3.1 provide acceptable methodology for calculating offsite doses:

> "The relationships presented ... are acceptable for inclusion in the ODCM". (Pages 22 & 28)

These relationships define χ/Q and D/Q values as:

> "The highest calculated annual average relative concentration for any area at or beyond the unrestricted area boundary",

and:

> "The highest calculated annual average dispersion parameter for estimating the dose to an individual at the controlling location ...". (Section 5.2.1, Page 23)

Section 5.3.1 defines χ/Q and D/Q as the highest calculated annual average (relative concentration, dispersion parameter) for (long, short) term releases.

NUREG 0133, therefore, requires that annual average χ/Q and D/Q values be utilized to determine offsite doses from gaseous effluents.

(f) Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants", Revision 1, June 1974, states:

"Dose calculations should be made using the measured effluent and meteorological data and acceptable dose models such as those provided in draft regulatory guides for implementation of numerical guides."

Although it would appear that this requires the use of concurrent meterological data in the calculation of dose estimates, two points should be noted:

(1) The "draft regulatory guides" referenced in Regulatory Guide 1.21 have subsequently been issued as Regulatory Guides 1.109 and Regulatory Guide 1.111, neither requiring the use of concurrent χ/Q and D/Q values, but historical values instead.

(2) Regulatory Guides 1.109 and 1.111 are referenced by and post-date Regulatory Guide 1.21, and therefore, provide clarification of its requirements.

(g) It is therefore apparant, that pursuant to published documents describing methods acceptable to the NRC staff (Regulatory Guide 1.21, Regulatory Guide 1.109, Regulatory Guide 1.111, NUREG 0133, and NUREG 0800), and pursuant to Specifications 3.11.2.2, 3.11.2.3, B3/4.11.2.2, B3/4.11.2.3, and 6.9.1.7, that the use of historical χ/Q and D/Q values is an acceptable and appropriate method for the calculation of offsite doses.

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SEMIANNUAL RADIOACTIVE EFFLUENT REPORT (Continued)

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 a list and description 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 and to the ODCM, pursuant to Specification 6.13 and 6.14, respectively, as well as any major change to Liquid, Gaseous, or Solid Radwaste Treatment Systems, pursuant to Specification 6.15. It shall also include a listing of new locations for dose calculations and/or environmental monitoring identified by the Land Use Census pursuant to Specification 3.12.2.

The Radioactive Effluent Release Reports shall also include the following information: An explanation as to why the inoperability of liquid or gaseous effluent monitoring instrumentation was not corrected within the time specified in Specification 3.3.3.10 or 3.3.3.11, respectively; and description of the events leading to liquid holdup tanks or gas storage tanks exceeding the limits of Specification 3.11.1.4 or 3.11.2.5, respectively.

MONTHLY OPERATING REPORT

6.9.1.8 Routine reports of operating statistics and shutdown experience, including documentation of all challenges to the pressurizer PORVs or RCS safety valves, shall be submitted on a monthly basis to the Director, Office of Resource Management U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the NRC Regional Office, no later than the 15th of each month following the calendar month covered by the report.

RADIAL PEAKING FACTOR LIMIT REPORT

6.9.1.9 The F_{xy} limits for RATED THERMAL POWER (F_{xy}^{RTP}) shall be provided to the NRC Regional Administrator with a copy to the Director of Nuclear Reactor Regulation, Attention: Chief, Core Performance Branch, U.S. Nuclear Regulatory Commission, Washington, D.C., 20555 for all core planes containing Bank "D" control rods and all unrodded core planes and the plot of perdicted ($F_Q' \cdot P_{Rel}$) vs Axial Core Height with the limit envelope at least 60 days prior to cycle initial criticality unless otherwise approved by the Commission by letter. In addition, in the event that the limit should change requiring a new submittal or an amended submittal to the Peaking Factor Limit Report, it shall be submitted 60 days prior to the date the limit would become effective unless otherwise approved by the Commission by letter. Any information needed to support F_{xy}^{RTP} will be by request from the NRC and need not be included in this report.

HIGH RADIATION AREA (Continued)

otherwise following plant radiation protection procedures for entry into such high radiation areas. Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

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

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

c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by Health Physics management personnel in the RWP.

6.12.2 In addition to the requirements of Specification 6.12.1, areas accessible to personnel with radiation levels greater than 1000 mR/h at 45 cm (18 in.) from the radiation source or from any surface which the radiation penetrates shall be provided with locked doors to prevent unauthorized entry, and the keys shall be maintained under the administrative control of the Shift Supervisor/Operating Supervisor on duty and/or health physics supervision. Doors shall remain locked except during periods of access by personnel under an approved RWP which shall specify the dose rate levels in the immediate work areas and the maximum allowable stay time for individuals in that area. In lieu of the stay time specification of the RWP, direct or remote (such as closed-circuit TV cameras) continuous surveillance may be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities being performed within the area.

For individual high radiation areas accessible to personnel with radiation levels of greater than 1000 mR/h that are located within large areas, such as PWR containment, where no enclosure exists for purposes of locking, and where no enclosure can be reasonably constructed around the individual area, that individual area shall be barricaded, conspicuously posted, and a flashing light shall be activated as a warning device.

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:

a. 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:

PROCESS CONTROL PROGRAM (PCP) (Continued)

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

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

3) Documentation of the fact that the change has been reviewed and found acceptable by the ORC.

b. Shall become effective upon review and approval by the ORC and in accordance with Specification 6.5.3.1.

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:

a. Shall be submitted to the Commission in the semiannual Radioactive Effluent Release Report for the period in which the change(s) was made effective. This submittal shall contain:

1) 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, dated and containing the revision number together with appropriate analyses or evaluations justifying the change(s);

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

3) Documentation of the fact that the change has been reviewed and found acceptable by the ORC.

b. Shall become effective upon review and approval by the ORC and in accordance with Specification 6.5.3.1.

6.15 MAJOR CHANGES TO LIQUID, GASEOUS, AND SOLID RADWASTE TREATMENT SYSTEMS*

6.15.1 Licensee-initiated major changes to the Radwaste Treatment Systems (liquid, gaseous, and solid):

a. Shall be reported to the Commission in the semiannual Radioactive Effluent Release Report for the period in which the evaluation was reviewed by the ORC. The discussion of each change shall contain:

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

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

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

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

5) An evaluation of the change, which shows the expected maximum exposures to a MEMBER OF THE PUBLIC in the UNRESTRICTED AREA and to the general population that differ from those previously estimated in the License application and amendments thereto;

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

7) An estimate of the exposure to plant operating personnel as a result of the change; and

8) Documentation of the fact that the change was reviewed and found acceptable by the ORC.

b. Shall become effective upon review and approval by the ORC and in accordance with Specification 6.5.3.1.

*Licensees may chose to submit the information called for in this specification as part of the annual FSAR update.

Engineered Safety Features Actuation System Interlocks

The Engineered Safety Features Actuation System interlocks perform the following functions:

P-4 Reactor tripped - Actuates Turbine trip, closes main feedwater valves on T_{avg} below setpoint, prevents the opening of the main feedwater valves which were closed by a Safety Injection or High Steam Generator Water Level signal, allows Safety Injection block so that components can be reset or tripped.

Reactor not tripped - prevents manual block of Safety Injection.

P-11 On increasing pressure P-11 automatically reinstates Safety Injection actuation on low pressurizer pressure and low steam line pressure and automatically blocks steam line isolation on negative steam line pressure rate. On decreasing pressure, P-11 allows the manual block of Safety Injection one low pressurizer pressure and low steam line pressure and allows steam line isolation on negative steam line pressure rate to become active upon manual block of low steam line pressure SI.

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING FOR PLANT OPERATIONS

The OPERABILITY of the radiation monitoring instrumentation for plant operations ensures that: (1) the associated action will be initiated when the radiation level monitored by each channel or combination thereof reaches its setpoint, (2) the specified coincidence logic is maintained, and (3) sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance. The radiation monitors for plant operations senses radiation levels in selected plant systems and locations and determines whether or not predetermined limits are being exceeded. If they are, the signals are combined into logic matrices sensitive to combinations indicative of various accidents and abnormal conditions. Once the required logic combination is completed, the system sends actuation signals to initiate alarms or automatic isolation action and acutation of Emergency Exhaust or Control Room Emergency Ventilation Systems.

3/4.3.3.2 MOVABLE INCORE DETECTORS

The OPERABILITY of the movable incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the core. The OPERABILITY of this system is demonstrated by irradiating each detector used and determining the acceptability of its voltage curve.

For the purpose of measuring $F_Q(Z)$ or $F^N_{\Delta H}$ a full incore flux map is used. Quarter-core flux maps, as defined in WCAP-8648, June 1976, may be used in recalibration of the Excore Neutron Flux Detection System, and full incore flux maps or symmetric incore thimbles may be used for monitoring the QUADRANT POWER TILT RATIO when one Power Range Neutron Flux Channel is inoperable.

3/4.3.3.8 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the fire detection instrumentation ensures that adequate warning capability is available for the prompt detection of fires and that Fire Suppression Systems, that are actuated by fire detectors, will discharge extinguishing agents in a timely manner. Prompt detection and suppression of fires will reduce the potential for damage to safety-related equipment and is an integral element in the overall facility Fire Protection Program.

Fire detectors that are used to actuate fire suppression systems represent a more critically important component of a facility's Fire Protection Program than detectors that are installed solely for early fire warning and notification. Consequently, the minimum number of OPERABLE fire detectors must be greater.

The loss of detection capability for fire suppression systems, actuated by fire detectors, represents a significant degradation of fire protection for any area. As a result, the establishment of a fire watch patrol must be initiated at an earlier stage than would be warranted for the loss of detectors that provide only early fire warning. The establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is restored to OPERABILITY.

3/4.3.3.9 LOOSE-PART DETECTION INSTRUMENTATION

The OPERABILITY of the loose-part detection instrumentation ensures that sufficient capability is available to detect loose metallic parts in the Reactor Coolant System and avoid or mitigate damage to Reactor Coolant System components. The allowable out-of-service times and Surveillance Requirements are consistent with the recommendations of Regulatory Guide 1.133, "Loose-Part Detection Program for the Primary System of Light-Water-Cooled Reactors," May 1981.

3/4.3.3.10 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTPUMENTATION

adjusted to values

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 methodology and parameters 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.~~

BASES

B3/4.3.3.10
JUSTIFICATION:

Tables 3.3-12 and 4.3-12 do not include any tank level indicating device. This statement is, therefore, not applicable.

The bases has been modified to clarify the requirement for adjustment of setpoints.

adjusted to values

3/4.3.3.11 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The Alarm/Trip Setpoints for these instruments shall be calculated ~~and adjusted~~ in accordance with the methodology and parameters 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. The sensitivity of any noble gas activity monitor used to show compliance with the gaseous effluent release requirements of Specification 3.11.2.2 shall be such that concentrations as low as 1×10^{-6} μCi/cc are measurable.

3/4.3.4 TURBINE OVERSPEED PROTECTION

This specification is provided to ensure that the turbine overspeed protection instrumentation and the turbine speed control valves are OPERABLE and will protect the turbine from excessive overspeed. Protection from turbine excessive overspeed is required since excessive overspeed of the turbine could generate potentially damaging missiles which could impact and damage safety-related components, equipment, or structures.

BASES

B3/4.3.3.11
JUSTIFICATION:

(1) The bases has been modified to clarify the requirement for adjustment of setpoints.

3/4.11 RADIOACTIVE EFFLUENTS

BASES

3/4.11.1 LIQUID EFFLUENTS

3/4.11.1.1 CONCENTRATION

This specification is provided to ensure that the concentration of radioactive materials released in liquid waste effluents to UNRESTRICTED AREAS will be less than the concentration levels specified in 10 CFR Part 20, Appendix B, Table II, Column 2. This limitation provides additional assurance that the levels of radioactive materials in bodies of water 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,~~ an Individual and (2) the limits of 10 CFR Part 20.106(e) to the population. The concentration limit for dissolved or entrained noble gases is based upon the assumption that Xe-135 is the controlling radioisotope and its MPC in air (submersion) was converted to an equivalent concentration in water using the methods described in International Commission on Radiological Protection (ICRP) Publication 2.

~~This specification applies to the release of radioactive materials in liquid effluents from all units at the site.~~

The required detection capabilities for radioactive materials in liquid waste samples are tabulated in terms of the lower limits of detection (LLDs). Detailed discussion of the LLD, and other detection limits can be found in HASL Procedures Manual, HASL-300 (revised annually), Currie, L. A., "Limits for Qualitative Detection and Quantitative Determination - Application to Radiochemistry," Anal. Chem. 40, 586-93 (1968), and Hartwell, J. K., "Detection Limits for Radioanalytical Counting Techniques," Atlantic Richfield Hanford Company Report ARH-SA-215 (June 1975).

3/4.11.1.2 DOSE

This specification is provided to implement the requirements of Sections II.A, III.A and IV.A of Appendix I, 10 CFR Part 50. The Limiting Condition for Operation implements the guides set forth in Section II.A of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive material in liquid effluents to UNRESTRICTED AREAS will be kept "as low as is reasonably achievable." Also, for fresh water 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 the requirements of 40 CFR Part 141. The dose calculation methodology and parameters 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~~ an Individual through appropriate pathways is unlikely to be substantially underestimated. The equations specified in the ODCM for calculating the doses due to the actual release rates of radioactive materials in liquid effluents are consistent with the methodology provided in

BASES B3/4.11.1.1

JUSTIFICATION

(1) The term "MEMBER OF THE PUBLIC" has been replaced with the term "Individual" in that:

(a) 10CFR20 and 10CFR50, Appendix I, require that Radioactive Effluent Concentrations, Doses and Dose Rates be calculated for Individuals at or beyond the SITE BOUNDARY and/or in UNRESTRICTED AREAS. These regulations neither expressly or implicitly require that these calculations be performed for persons, real or imaginary, who may occupy areas within the SITE BOUNDARY for some fraction of the time.

(b) The use of the term "MEMBER OF THE PUBLIC" as defined in Specification 1.16, is inconsistent with the requirements of the Specification that concentrations be calculated for UNRESTRICTED AREAS. Therefore, its use would cause the Specification to be internally inconsistent.

(c) As stated in the bases, the purpose of this Specification is to provide for compliance with 10CFR20 and 10CFR50, Appendix I, limits. The use of "MEMBER OF THE PUBLIC" is inconsistent with the stated purpose of this Specification.

(d) 10CFR50, Appendix I, states: " ... shall be demonstrated by calculational procedures based upon models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated ...".

Therefore, the use of the term "MEMBER OF THE PUBLIC" is inconsistent with the expressed purpose of the Specification and requires inconsistency on the part of the Licensee in complying with the Specification. Additionally, there are no legal requirements for its use in this specification.

Thus, the use of the term "MEMBER OF THE PUBLIC", while appropriate for specifications implementing 40CFR190 requirements, is inappropriate in this Specification, and should be deleted in favor of the term "Individual".

(2) The SNUPPS Plants are single reactor unit sites, therefore, this statement is not applicable.

BASES 3/4.11.1.2

JUSTIFICATION

(1) The term "MEMBER OF THE PUBLIC" has been replaced with the term "Individual" in that:

(a) 10CFR20 and 10CFR50, Appendix I, require that Radioactive Effluent Concentrations, Doses and Dose Rates be calculated for Individuals at or beyond the SITE BOUNDARY and/or in UNRESTRICTED AREAS. These regulations neither expressly or implicitly require that these calculations be performed for persons, real or imaginary, who may occupy areas within the SITE BOUNDARY for some fraction of the time.

(b) The use of the term "MEMBER OF THE PUBLIC" as defined in Specification 1.16, is inconsistent with the requirements of the Specification that doses be calculated for UNRESTRICTED AREAS. Therefore, its use would cause the Specification to be internally inconsistent.

(c) As stated in the bases, the purpose of this Specification is to provide for compliance with 10CFR20 and 10CFR50, Appendix I, limits. The use of "MEMBER OF THE PUBLIC" is inconsistent with the stated purpose of this Specification.

(d) 10CFR50, Appendix I, states: "... shall be demonstrated by calculational procedures based upon models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated ...".

Therefore, the use of the term "MEMBER OF THE PUBLIC" is inconsistent with the expressed purpose of the Specification and requires inconsistency on the part of the Licensee in complying with the Specification. Additionally, there are no legal requirements for its use in this specification.

Thus, the use of the term "MEMBER OF THE PUBLIC", while appropriate for specifications implementing 40CFR190 requirements, is inappropriate in this Specification, and should be deleted in favor of the term "Individual".

(2) Since the SNUPPS Plants are single reactor unit sites, and consequently have no shared radwaste treatment systems, this paragraph is not applicable.

DOSE (Continued)

Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977 and Regulatory Guide 1.113, "Estimating Aquatic Dispersion of Effluents from Accidental and Routine Reactor Releases for the Purpose of Implementing Appendix I," April 1977.

~~This specification applies to the release of radioactive materials in liquid effluents from each unit at the site. When shared Radwaste Treatment Systems are used by more than one unit on a site, the wastes from all units are mixed for shared treatment; by such mixing, the effluent releases cannot accurately be ascribed to a specific unit. An estimate should be made of the contributions from each unit based on input conditions, e.g., flow rates and radioactivity concentrations, or, if not practicable, the treated effluent releases may be allocated equally to each of the radioactive waste producing units sharing the Radwaste Treatment System. For determining conformance to LCOs, these allocations from shared Radwaste Treatment Systems are to be added to the releases specifically attributed to each unit to obtain the total releases per unit.~~

3/4.11.1.3 LIQUID RADWASTE TREATMENT SYSTEM

The OPERABILITY of the Liquid Radwaste Treatment System ensures that this system will be available for use whenever liquid effluents require treatment prior to release to the environment. The 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.D of Appendix I to 10 CFR Part 50. The specified limits govening 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.

~~This specification applies to the release of radioactive materials in liquid effluents from each unit at the site. When shared Radwaste Treatment Systems are used by more than one unit on a site, the wastes from all units are mixed for shared treatment; by such mixing, the effluent releases cannot accurately be ascribed to a specific unit. An estimate should be made of the contributions from each unit based on input conditions, e.g., flow rates and radioactivity concentrations, or, if not practicable, the treated effluent releases may be allocated equally to each of the radioactive waste producing units sharing the Radwaste Treatment System. For determining conformance to LCOs, these allocations from shared Radwaste Treatment Systems are to be added to the releases specifically attributed to each unit to obtain the total releases per unit.~~

3/4.11.1.4 LIQUID HOLDUP TANKS

The tanks listed in this specification include all those outdoor radwaste 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.

BASES 3/4.11.1.3

JUSTIFICATION

Since the SNUPPS Plants are single reactor unit sites, and consequently have no shared radwaste treatment systems, this paragraph is not applicable.

BASES

LIQUID HOLDUP TANKS (Continued)

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

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 to UNRESTRICTED AREAS. The annual dose limits are the doses associated with the concentrations of 10 CFR Part 20, Appendix B, Table II, Column 1. These limits provide reasonable assurance that radioactive material discharged in gaseous effluents will not result in the exposure of ~~a MEMBER OF THE PUBLIC~~ an Individual in an UNRESTRICTED AREA, ~~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 (10 CFR 20.106(b)). For ~~MEMBERS OF THE PUBLIC~~ Individuals who may at times be within the SITE BOUNDARY, the occupancy of that ~~MEMBER OF THE PUBLIC~~ 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~~ an Individual at or beyond the SITE BOUNDARY to less than or equal to 500 mrems/year to the whole body or to less than or equal to 3000 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 radioactive materials in gaseous effluents from all units at the site.~~

The required detection capabilities for radioactive materials in gaseous waste samples are tabulated in terms of the lower limits of detection (LLDs). Detailed discussion of the LLD, and other detection limits can be found in HASL Procedures Manual, HASL-300 (revised annually), Currie, L. A., "Limits for Qualitative Detection and Quantitative Determination - Application to Radiochemistry," Anal. Chem. 40, 586-93 (1968), and Hartwell, J. K., "Detection Limits for Radioanalytical Counting Techniques," Atlantic Richfield Hanford Company Report ARH-SA-215 (June 1975).

3/4.11.2.2 DOSE - NOBLE GASES

This specification is provided to implement the requirements of Sections II.B, III.A and IV.A of Appendix I, 10 CFR Part 50. The Limiting

BASES 3/4.11.2.1

JUSTIFICATION

(1) The term "MEMBER OF THE PUBLIC" has been replaced with the term "Individual" in that:

(a) 10CFR20 and 10CFR50, Appendix I, require that Radioactive Effluent Concentrations, Doses and Dose Rates be calculated for Individuals at or beyond the SITE BOUNDARY and/or in UNRESTRICTED AREAS. These regulations neither expressly or implicitly require that these calculations be performed for persons, real or imaginary, who may occupy areas within the SITE BOUNDARY for some fraction of the time.

(b) The use of the term "MEMBER OF THE PUBLIC" as defined in Specification 1.16, is inconsistent with the requirements of the Specification that doses be calculated at the SITE BOUNDARY. Therefore, its use would cause the Specification to be internally inconsistent.

(c) As stated in the bases, the purpose of this Specification is to provide for compliance with 10CFR20 and 10CFR50, Appendix I, limits. The use of "MEMBER OF THE PUBLIC" is inconsistent with the stated purpose of this Specification.

(d) 10CFR50, Appendix I, states: "... shall be demonstrated by calculational procedures based upon models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated ...".

Therefore, the use of the term "MEMBER OF THE PUBLIC" is inconsistent with the expressed purpose of the Specification and requires inconsistency on the part of the Licensee in complying with the Specification. Additionally, there are no legal requirements for its use in this specification.

Thus, the use of the term "MEMBER OF THE PUBLIC", while appropriate for specifications implementing 40CFR190 requirements, is inappropriate in this Specification, and should be deleted in favor of the term "Individual".

(2) As defined in NUREG 0133 (October 1978) and in Technical Specification Definition 1.17, the ODCM is intended to provide the methodology and parameters utilized to perform off-site dose calculations, gaseous and liquid effluent monitor setpoint determinations, and a description of the Environmental Radiological Monitoring Program. The proposed deletion is to ensure that the ODCM remains within its intended scope and does not become a forum for justifications and example calculations.

(3) The SNUPPS Plants are single reactor unit sites, therefore, this statement is not applicable.

DOSE - NOBLE GASES (Continued)

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 to UNRESTRICTED AREAS 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~~ an individual through appropriate pathways is unlikely to be substantially underestimated. The dose calculation methodology and parameters 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 Part 50, Appendix I," Revision 1, October 1977 and Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water Cooled Reactors," Revision 1, July 1977. The ODCM equations provided for determining the air doses at and beyond the SITE BOUNDARY are based upon the historical average atmospheric conditions.

~~This specification applies to the release of radioactive materials in gaseous effluents from each unit at the site. When shared Radwaste Treatment Systems are used by more than one unit on a site, the wastes from all units are mixed for shared treatment; by such mixing, the effluent releases cannot accurately be ascribed to a specific unit. An estimate should be made of the contributions from each unit based on input conditions, e.g., flow rates and radioactivity concentrations, or, if not practicable, the treated effluent releases may be allocated equally to each of the radioactive waste producing units sharing the Radwaste Treatment System. For determining conformance to LCOs, these allocations from shared Radwaste Treatment Systems are to be added to the releases specifically attributed to each unit to obtain the total releases per unit.~~

3/4.11.2.3 DOSE - IODINE-131, TRITIUM, AND RADIOACTIVE MATERIAL IN PARTICULATE FORM and 133

This specification is provided to implement the requirements of Sections II.C, III.A and IV.A of Appendix I, 10 CFR Part 50. The Limiting Conditions for Operation are the guides set forth in Section II.C of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive materials in gaseous effluents to UNRESTRICTED AREAS will be kept "as low as is reasonably achievable." The ODCM calculational methods specified in the Surveillance Requirements implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data, such that the actual exposure of ~~a MEMBER OF THE PUBLIC~~ an individual through appropriate pathways is unlikely to be substantially underestimated. The ODCM calculational methodology and parameters 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 Part 50,

BASES 3/4.11.2.2

JUSTIFICATION

(1) The term "MEMBER OF THE PUBLIC" has been replaced with the term "Individual" in that:

(a) 10CFR20 and 10CFR50, Appendix I, require that Radioactive Effluent Concentrations, Doses and Dose Rates be calculated for Individuals at or beyond the SITE BOUNDARY and/or in UNRESTRICTED AREAS. These regulations neither expressly or implicitly require that these calculations be performed for persons, real or imaginary, who may occupy areas within the SITE BOUNDARY for some fraction of the time.

(b) The use of the term "MEMBER OF THE PUBLIC" as defined in Specification 1.16, is inconsistent with the requirements of the Specification that doses be calculated at the SITE BOUNDARY. Therefore, its use would cause the Specification to be internally inconsistent.

(c) As stated in the bases, the purpose of this Specification is to provide for compliance with 10CFR20 and 10CFR50, Appendix I, limits. The use of "MEMBER OF THE PUBLIC" is inconsistent with the stated purpose of this Specification.

(d) 10CFR50, Appendix I, states: "... shall be demonstrated by calculational procedures based upon models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated ...".

Therefore, the use of the term "MEMBER OF THE PUBLIC" is inconsistent with the expressed purpose of the Specification and requires inconsistency on the part of the Licensee in complying with the Specification. Additionally, there are no legal requirements for its use in this specification.

Thus, the use of the term "MEMBER OF THE PUBLIC", while appropriate for specifications implementing 40CFR190 requirements, is inappropriate in this Specification, and should be deleted in favor of the term "Individual".

(2) NUREG 0133 provides for the use of annual average (historical) atmospheric data in the calculation of offsite doses, whereas Regulatory Guide 1.111 provides for the use of hourly measured (real time) values. The bases has therefore been modifed to reflect the acceptability of either method.

(3) Since the SNUPPS Plants are single reactor unit sites, and consequently have no shared radwaste treatment systems, this paragraph is not applicable.

DOSE - IODINE-131, TRITIUM, AND RADIOACTIVE MATERIAL IN PARTICULATE FORM (Continued)

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 doses based upon the historical average atmospheric conditions. The release rate specifications for Iodine-131 and 133, tritium, and radioactive material in particulate form with half-lives greater than 8 days are dependent upon 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.

~~This specification applies to the release of radioactive materials in gaseous effluents from each reactor unit at the site. When shared Radwaste Treatment Systems are used by more than one unit on a site, the wastes from all units are mixed for shared treatment; by such mixing, the effluent releases cannot accurately be ascribed to a specific unit. An estimate should be made of the contributions from each unit based on input conditions, e.g., flow rates and radioactivity concentrations, or, if not practicable, the treated effluent releases may be allocated equally to each of the radioactive waste producing units sharing the Radwaste Treatment System. For determining conformance to LCOs, these allocations from shared Radwaste Treatment Systems are to be added to the releases specifically attributed to each unit to obtain the total releases per unit.~~

3/4.11.2.4 GASEOUS RADWASTE TREATMENT SYSTEM

The OPERABILITY of the WASTE GAS HOLDUP SYSTEM and the VENTILATION EXHAUST TREATMENT SYSTEM ensures that the systems will be available for use whenever gaseous effluents require treatment prior to release to the environment. The requirement that the appropriate portions of these systems be used, when specified, provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonably achievable". This specification implements the requirements of 10 CFR Part 50.36a, General Design Criterion 60 of Appendix A to 10 CFR Part 50, and 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 Sections II.B and II.C of Appendix I, 10 CFR Part 50, for gaseous effluents.

~~This specification applies to the release of radioactive materials in gaseous effluents from each unit at the site. When shared Radwaste Treatment Systems are used by more than one unit on a site, the wastes from all units are mixed for shared treatment; by such mixing, the effluent releases cannot accurately be ascribed to a specific unit. An estimate should be made of the contributions from each unit based on input conditions, e.g., flow rates and radioactivity concentrations, or, if not practicable, the treated effluent releases~~

BASES 3/4.11.2.3

JUSTIFICATION

(1) The term "MEMBER OF THE PUBLIC" has been replaced with the term "Individual" in that:

(a) 10CFR20 and 10CFR50, Appendix I, require that Radioactive Effluent Concentrations, Doses and Dose Rates be calculated for Individuals at or beyond the SITE BOUNDARY and/or in UNRESTRICTED AREAS. These regulations neither expressly or implicitly require that these calculations be performed for persons, real or imaginary, who may occupy areas within the SITE BOUNDARY for some fraction of the time.

(b) The use of the term "MEMBER OF THE PUBLIC" as defined in Specification 1.16, is inconsistent with the requirements of the Specification that doses be calculated at the SITE BOUNDARY. Therefore, its use would cause the Specification to be internally inconsistent.

(c) As stated in the bases, the purpose of this Specification is to provide for compliance with 10CFR20 and 10CFR50, Appendix I, limits. The use of "MEMBER OF THE PUBLIC" is inconsistent with the stated purpose of this Specification.

(d) 10CFR50, Appendix I, states: "... shall be demonstrated by calculational procedures based upon models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated ...".

Therefore, the use of the term "MEMBER OF THE PUBLIC" is inconsistent with the expressed purpose of the Specification and requires inconsistency on the part of the Licensee in complying with the Specification. Additionally, there are no legal requirements for its use in this specification.

Thus, the use of the term "MEMBER OF THE PUBLIC", while appropriate for specifications implementing 40CFR190 requirements, is inappropriate in this Specification, and should be deleted in favor of the term "Individual".

(2) Since the SNUPPS Plants are single reactor unit sites, and consequently have no shared radwaste treatment systems, this paragraph is not applicable.

B3/4.11.2.4

JUSTIFICATION

Since the SNUPPS Plants are single reactor unit sites and consequently have no shared radwaste treatment systems, this paragraph is not applicable.

GASEOUS RADWASTE TREATMENT SYSTEM (Continued)

~~may be allocated equally to each of the radioactive waste producing units sharing the Radwaste Treatment System. For determining conformance to LCOs, these allocations from shared Radwaste Treatment Systems are to be added to the releases specifically attributed to each unit to obtain the total releases per unit.~~

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

3/4.11.2.6 GAS STORAGE TANKS

INSERT G

~~The tanks included in this specification are those tanks for which the quantity of radioactivity contained is not limited directly or indirectly by another Technical Specification to a quantity that is less than the quantity that provides assurance that in the event of an uncontrolled release of the tanks' contents the resulting whole body exposure to a MEMBER OF THE PUBLIC at the nearest SITE BOUNDARY will not exceed 0.5 rem, the annual dose limit in 10 CFR Part 20.~~

Exclusion Area

Restricting the quantity of radioactivity contained in each gas storage tank provides assurance that in the event of an uncontrolled release of the tank's contents, the resulting whole body exposure to ~~a MEMBER OF THE PUBLIC~~ an Individual at the ~~nearest SITE~~ BOUNDARY will not exceed 0.5 rem. This is consistent with Standard Review Plan 11.3, Branch Technical Position ETSB 11-5, "Postulated Radioactive Releases Due to a Waste Gas System Leak or Failure," in NUREG-0800, July 1981, and the FSAR accident analysis for a Waste Gas Decay Tank failure.

3/4.11.3 SOLID RADWASTE TREATMENT SYSTEM

This specification implements the requirements of 10 CFR 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, and mixing and curing times.

INSERT G

This specification considers postulated radioactive releases due to a waste gas system leak or failure, and limits the quantity of radioactivity contained in each pressurized gas storage tank in the WASTE GAS HOLDUP SYSTEM to assure that in the event of a release of the tank's contents, the resulting whole body exposure to an Individual at the nearest Exclusion Area Boundary will not exceed 0.5 rem, the annual limit in 10CFR Part 20.

B3/4.11.2.5
JUSTIFICATION

Since Specification 3.11.2.5 does not require automatic control features on the Waste Gas Hold Up System, the indicated portion was deleted as not applicable.

BASES 3/4.11.2.6

JUSTIFICATION:

(1) The term "MEMBER OF THE PUBLIC" has been deleted in favor of the term "Individual" to provide consistency with NUREG 0133 and 10CFR100.

(2) The FSAR accident analysis for a Waste Gas Decay Tank failure, conducted in compliance with guidance given by Regulatory Guide 1.24, was utilized to a great extent in the development of this specification, and should, therefore, be part of its Bases.

(3) The deleted portion of the Bases as written, could be interpreted to apply to any tank containing radioactivity in gaseous form, thereby necessitating unwarranted and unrealistic sampling and analysis of those tanks. The primary intent of Specification 3.11.26, as noted in NuReg 0133, Section 5.6.1 and NuReg 0472 is to limit radioactive material in gas storage tanks of the Waste Gas Holdup System to a level such that in the event of rupture or leakage of the tank the resulting off-site dose consequence would not exceed 0.5 Rem total body.

Alternate wording has been proposed to clarify that the specification is applicable to Waste Gas Holdup System Storage Tanks.

3/4.11.4 TOTAL DOSE

This specification is provided to meet the dose limitations of 40 CFR Part 190 that have been incorporated into 10 CFR Part 20 by 46 FR 18525. The specification requires the preparation and submittal of a Special Report whenever the calculated doses due to releases of radioactivity and the radiation from uranium fuel cycle sources exceed 25 mrems to the whole body or any organ, except the thyroid, which shall be limited to less than or equal to 75 mrems. For sites containing up to four 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 twice the dose design objectives of Appendix I, and if direct radiation doses from the reactor units and from outside storage tanks are kept small. 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 the purposes of the Special Report, it may be assumed that the dose commitment to the MEMBER OF THE PUBLIC from other uranium fuel cycle sources is negligible, with the exception that dose contributions from other nuclear fuel cycle facilities at the same site or within a radius of 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 190.11 and 10 CFR 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 3.11.1.1 and 3.11.2.1. 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.

3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING

BASES

3/4.12.1 MONITORING PROGRAM

Rev. 1 (November 1979)

The Radiological Environmental Monitoring Program required by this specification provides representative 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.B.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. Guidance for this monitoring program is provided by the Radiological Assessment Branch Technical Position on Environmental Monitoring. ~~The initially specified monitoring program will be effective for at least the first 3 years of commercial operation. Following this period,~~ Program changes may be initiated based on operational experience.

The required detection capabilities for environmental sample analyses are tabulated in terms of the lower limits of detection (LLDs). The LLDs required by Table 4.12-1 are considered optimum for routine environmental measurements in industrial laboratories. 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.

Detailed discussion of the LLD, and other detection limits, can be found in HASL Procedures Manual, HASL-300 (revised annually), Currie, L. A., "Limits for Qualitative Detection and Quantitative Determination - Application to Radiochemistry," Anal. Chem. 40, 586-93 (1968), and Hartwell, J. K., "Detection Limits for Radioanalytical Counting Techniques," Atlantic Richfield Hanford Company Report ARH-SA-215 (June 1975).

BASES 3/4.12.1

JUSTIFICATION

(1) The proposed addition to the referenced BTP provides clarification as to the exact referenced document and establishes a baseline document.

(2) The proposed modification allows the Union Electric Company greater flexibility in suggesting program change based on operational experience.

3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING

BASES

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 given in the ODCM are made if required by the results of this census. ~~The best information from the door-to-door survey, from aerial survey, or from consulting with local agricultural authorities shall be used.~~ This census satisfies the requirements of Section IV.B.3 of Appendix I to 10 CFR Part 50. Restricting the census to gardens of greater than 50 m^2 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) a vegetation yield of 2 kg/m^2.

3/4.12/3 INTERLABORATORY COMPARISON PROGRAM

The requirement for participation in an approved 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 valid for the purposes of Section IV.B.2 of Appendix I to 10 CFR Part 50.

Information that will provide the best results, such as by a door-to-door survey, aerial survey, or by consulting local agriculture authorities shall be used.

Justification for Proposed Changes to "Bases, 3/4.12.2 Land Use Census"

1. Change of wording in 2nd sentence: The proposed wording of this sentence is more consistent with the wording of a similar sentence in Surveillance Requirement 4.12.2.