INSTRUMENTATION

METEOROLOGICAL INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.4 The meteorological monitoring instrumentation channels shown in Table 3.3-8 shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

a. ~~With one or more~~ required meteorological monitoring channels ~~inoperable~~ with the number of channels operable less than the minimum indicated in Table 3.3-8 for more than 7 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the channel(s) to OPERABLE status.

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

SURVEILLANCE REQUIREMENTS

4.3.3.4 Each of the above meteorological monitoring instrumentation channels shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-5.

SPECIFICATION 3.3.3.4

JUSTIFICATION:

The flexibility of operation provided by backup meteorological instrumentation is negated by requiring Special Reports for single channel inoperability. The proposed revision allows this flexibility while providing assurance that instrument malfunctions will be corrected in a timely manner.

TABLE 3.3-8 Delete - see insert

METEOROLOGICAL MONITORING INSTRUMENTATION

INSTRUMENT	LOCATION	MINIMUM OPERABLE
1. Wind Speed	Nominal Elev. 10m	1
	Nominal Elev. 60m	1
2. Wind Direction	Nominal Elev. 10m	1
	Nominal Elev. 60m	1
3. Air Temperature - ΔT	Nominal Elev. 10m-60m	1

Insert

TABLE 3.3-8

METEOROLOGICAL MONITORING INSTRUMENTATION

INSTRUMENT	LOCATION	MINIMUM OPERABLE
1. Wind Speed	10m, 35m, 60m	1
2. Wind Direction	10m, 35m, 60m	1
3. Δ-Temperature	10-35m, 10-60m, 10-85m	1

TABLE 3.3-8

JUSTIFICATION:

The reason for several different elevations for measuring devices is to provide backups for the primary (10m) instruments. So long as one channel is available, there is no loss of information.

Delete: see insert

TABLE 4.3-5

METEOROLOGICAL MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION
1. Wind Speed		
a. Nominal Elev. 10m	D	SA
b. Nominal Elev. 60m	D	SA
2. Wind Direction		
a. Nominal Elev. 10m	D	SA
b. Nominal Elev. 60m	D	SA
3. Air Temperature - ΔT		
a. Nominal Elev. 10-60m	D	SA

Insert

TABLE 4.3-5

METEOROLOGICAL MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION
1. Wind Speed	D	SA
2. Wind Direction	D	SA
3. Δ-Temperature	D	SA

TABLE 4.3-5

JUSTIFICATION:

The reason for several different elevations for measuring devices is to provide backups for the primary (10m) instruments. So long as one channel is available, there is no loss of information.

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, 22, 33)	1	~~2~~ 1	~~All~~ 1, 2, 3, 4	#	26
~~b. Containment Purge Exhaust Radioactivity-High~~	~~1~~	~~2~~	~~All~~	~~#~~	~~26~~
c. Gaseous Radioactivity-RCS Leakage Detection (GT-RE-31, 32)	N.A.	1	1, 2, 3, 4	N.A.	29
d. 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~~ Atmosphere Radioactivity-High (GG-RE-27, 28)	1	~~2~~ 1	**	$\leq$ 1×10^{-7} μCi/cc	27
b. Area Criticality- High Radiation Level (SD-RE-37, 38)	1	~~2~~ 1	*	$\leq$ 15 mR/h	28
3. Control Room					
Air Intake Radioactivity-High (GK-RE-04, 05)	1	~~2~~ 1	All	$\leq$ 1×10^{-7} μCi/cc	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, and is applicable during purge operation only.

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.

Table 3.3-6

Justifications:

2(a) and 3(a): At this alarm point emergency ventilation is actuated.

Footnote #: These monitors provide a trip function which terminates purges before the limits of 3.11.2.1 are exceeded.

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 Monitor	1/recombiner	**	~~42~~ 44
	b. Oxygen Monitor	2/recombiner	**	42
2.	Unit Vent System (GT-RE-21)			
	a. Noble Gas Activity Monitor ~~- Providing Alarm (RE-21)~~	1	*	40
	b. Iodine ~~Activity Monitor (RE-21)~~ Sampler	1	*	43
	c. Particulate ~~Activity Monitor (RE-21)~~ Sampler	1	*	43
	~~d. Flow Rate Monitor~~	~~1~~	~~*~~	~~39~~
	e. Sampler Flow Rate Monitor	1	*	39
3.	Containment Purge System (GT-RE-22, GT-RE-33, GT-RE-31, GT-RE-32)			
	a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release ~~(RE-22, RE-33, RE-31, RE-32)~~	1	~~*~~ ***	41
	b. Iodine Sampler	1	*	43
	c. Particulate Sampler	1	*	43
	~~d. Flow Rate Monitor~~	~~1~~	~~*~~	~~39~~
	e. Sampler Flow Rate Monitor	1	*	39

TABLE 3.3-13 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

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

TABLE 3.3-13

JUSTIFICATION:

The generic standard tech spec 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.

Explosive gas monitoring instrumentation is provided on the hydrogen recombiners for the Waste Gas Holdup System. Since SNUPPS design has two recombiners, which can be operated independently, a number/recombiner format is used to specify the minimum channels operable requirement. By system design, only the inlet hydrogen monitor for each recombiner provides controlling functions. However, a process hydrogen monitor on the recombiner outlet will alarm and alert operators to conditions of potentially high hydrogen concentrations. Provided one of the hydrogen monitors is functional, sufficient on-line monitoring is provided to measure and control hydrogen concentrations and ensure safe operation of the Waste Gas Holdup System.

Airborne effluent radioactivity monitors are identified and described in Section 11.5.2.3.3 of the SNUPPS FSAR. Table 3.3-13 has been revised to incorporate these monitors. In addition to the Unit Vent and Radwaste Building Vent instrumentation, the Containment Purge System monitor has been included in the table since these monitors have pathway isolation functions which will automatically terminate a containment purge.

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 surveillance and operability requirements in modes where initiating signals from these monitors are not required to function or to be operable.

TABLE 3.3-13 (Continued)

TABLE NOTATIONS

* At all times.

** During WASTE GAS HOLDUP 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 Waste Gas Holdup Tanks 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, 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 at least every 4 hours during degassing operation and at least every 24 hours during other operations.~~

See Insert for Page 3/4 3-71

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

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

Insert Page 3/4 3-71

ACTION 42

With the Outlet Oxygen Monitor Channel inoperable, operation of the system may continue provided grab samples are taken and analyzed at least every 24 hours. With both channels inoperable, suspend oxygen supply to the recombiner. Addition of waste gas to the system may continue provided grab samples are taken and analyzed every 4 hours during degassing operations for shutdowns and at least every 24 hours during other operations.

TABLE 3.3-13, TABLE NOTATION

JUSTIFICATION

(1) ACTION 42

Specification 3.11.2.5 provides for the continued safe operation of the WASTE GAS HOLDUP SYSTEM. The proposed sampling and analysis frequencies reflect the period when the maximum amount of Gaseous Radwaste is being added to the system and are therefore designed to detect increases in the hydrogen/oxygen content.

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

TABLE 4.11-1 (Continued)

TABLE NOTATIONS (Continued)

(3)The principal gamma emitters for which the LLD specification applies 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) These sampling requirements become effective when the secondary coolant system initially becomes radioactively contaminated. Sampling will be performed only if the effluent will be discharged to the environment

Table 4.11-1 TABLE NOTATION

JUSTIFICATION:

(1) 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 reference to specification 6.9.1.12 was changed to 6.9.1.7 to correspond to the equivalent section of the proposed section 6.0 of the Wolf Creek Tech Specs.

(2) Footnote 6: The steam generator blowdown monitor continuously monitors the blowdown line. Therefore, sampling prior to contamination of the secondary system is not required. In addition, all releases from these systems are discharged through plant discharge monitors (LE-RE-52 or 59) if they are discharged to the environment.

RADIOACTIVE EFFLUENTS

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.~~ in a 92 day period, would exceed 0.75 mrem to the total body or 2.5 mrem to any organ.

APPLICABILITY: At all times.

ACTION:

a. With radioactive liquid waste being discharged without treatment and in excess of the above limits 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.

SPECIFICATION 3.11.1.3

Justification:

The above numbers are consistent with 3.11.1.2, and there is no need to further restrict operations since these are the part 50 Appendix I (ALARA) design goals, not part 20 (Rad Protection) limits.

In addition due to the recirculation of the Wolf Creek cooling lake, Wolf Creek cannot meet the lower values provided in the standard RETS. The ER(OLS) notes the calculated doses from operation of WCGS under normal conditions (Table 5.2-12) to be 2.5 mrem/year total body and 3.6 mrem/yr organ dose. These doses meet the ALARA criteria, but cannot meet the summarily lowered limits in the standard RETS.

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,~~ (During periods of confirmed primary to secondary leakage)
b. ~~c.~~ Condensate Storage Tank, and
c. ~~d.~~ Outside temporary tanks ~~excluding liners being used to solidify radioactive wastes.~~ water storage which have the potential for receiving radioactive material.

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~~ within 7 days when radioactive materials ~~are being~~ have been added to the tank.

SPECIFICATION 3.11.1.4

JUSTIFICATION:

~~(1) The selection of 150 curies as a tank activity limit is based upon calculations performed to assess consequences of major radioactive tank ruptures (FSAR SNUPPS Site Addendum Section 2.4.12.1 and 2.4.13.3). Results of the groundwater transport calculations indicate that 150 curies is a sufficiently small fraction of the tank activity levels required to exceed MPC concentrations at the nearest groundwater discharge locations.~~

(2) The SNUPPS Plants have 3 permanent outside storage tanks which have the possibility of receiving radioactive materials:

a. Refueling Water Storage Tank (RWST) (Ref: FSAR Section 6.3.2.2 and FSAR Table 3.2-1 (Sheet 5)).

Although the RWST has the greatest probability 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.

b. Condensate Storage Tank (CST) (Ref: FSAR Section 9.2.6)

The CST is not a Seismically designed structure, but under normal operations, it will contain no radioactivity. Only in the event of a primary-to-secondary system leakage due to a steam generator tube leak, is it possible that the CST would contain radioactive materials. Therefore, the CST should be exempt from the sampling and analysis requirements of this Specification until such time as it is possible for it to contain radioactive materials.

c. Reactor Makeup Storage Tank (RMWST) (FSAR Section 9.2.7.2.1 and and FSAR Table 3.2-1 (Sheet 8)

The RMWST is not a Seismically designed structure and, under normal operations, has the possibility of containing extremely low levels of radioactivity. It should therefore be included as part of this Specification.

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

(3) ~~ACTION b: As indicated in ACTION a, events exceeding the LCO are described in the Semiannual Radioactive Effluent Release Report, therefore, Specification 6.9.1.11 is not applicable.~~

(4) 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 if only 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

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 substitution is designed to reflect the site specific design of the SNUPPS Plant in that:

~~(a)~~ The hydrogen and oxygen monitoring instrumentation monitor the the inlet H_2/O_2 and outlet H_2/O_2 of the recombiner, therefore only the in service Waste Gas Decay Tank is monitored with installed instrumentation.

~~(b)~~ The SNUPPS Plant WASTE GAS HOLDUP SYSTEM is designed with a total of eight Waste Gas Decay Tanks, only one of which can be in service at any one time. The proposed substitution allows the operation of the system using one of the other tanks, while necesesary actions are being taken to reduce the oxygen level in the affected tank.

(c) As described in FSAR Section 11.3.6, a minimum of 5 volume percent oxygen is required to support combustion of 4 volume percent hydrogen. The SNUPPS Plant System is designed for alarm at 3 volume percent oxygen and alarm and isolation of oxygen feedgas at 3½ volume percent oxygen. These values are well below the necessary 5 volume percent oxygen and the Specification 3.11.2.5 limit of 4 volume percent oxygen.

~~(d)~~ The requirement to be within limits within 48 hours in ACTION a is inconsistent with the requirements of ACTION b. Additionally, in the event of recombiner failure, it would become necessary to vent the affected tank to the atmosphere in order to be in compliance with the Specification. Such an action could possibly result in a violation of Specification 3.11.2.2, 3.11.2.3, and 3.11.2.4. The proposed wording however, would afford the operational lattitude to vent the tank slowly over a longer period and perhaps allow the utilization of more favorable meterology to reduce doses and dose rates.

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 x 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, 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.~~

See Insert F

INSERT F

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 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.

4.11.2.6.3 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.

4.11.2.6.1 The quantity of radioactive materials contained in each Waste Gas Decay Tank shall be determined to be within the above limit at least once per 18 months during shutdown.

SPECIFICATION 3.11.2.6

JUSTIFICATION:

(1) Tank Content: NUREG 0133 (October 1978) Section 5.6.1 provides the following equation for determining the maximum curie limit in each gas storage tank:

$$\Sigma\ Q_{iT} \leq \frac{500\ \text{mrem}\ (3.15 \times 10^7\ \text{sec/yr})}{10^6\ \mu\text{Ci/Ci}\ \ \Sigma_i K_i\ (\overline{X/Q})_{DBA}\ (\text{mrem sec}/\mu\text{Ci yr})}$$

$(X/Q)_{DBA}$ = 2.0 E-04 sec/meter^3 (Callaway) FSAR Table 15 A-2
= 1.5 E-04 (Wolf Creek)

FSAR Table 15.7-3 identifies Xe-133 (59%) and Kr-85 (36%) as the principal activities assumed to be released in the event of a waste gas decay tank rupture.

From Reg. Guide 1.109, Table B-1:

K_i (Xe-133) = 2.94 E +02 (mrem/yr) per (μCi/m^3)

K_i (Kr-85) = 1.61 E + 01

ΣQ_{iT} $\leq$ 2.5 E+05 Curies per tank (Callaway)
$\leq$ 3.3 E+05 Curies per tank (Wolf Creek)

FSAR Section 11.3.2.1 states, "Operation of the system is such that fission gases are distributed throughout the six normal operation gas decay tanks. Seperation of the Gaseous Radwaste System gaseous inventory in several tanks assures that the allowable site boundry dose will not be exceeded in the event of a gas decay tank rupture."

SPECIFICATION 3.11.2.6

JUSTIFICATION (Continued)

(2) Depending on operating conditions at the time, it may prove inadviseable 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 vs. possibility of tank rupture).

The restriction to a finite time limitation could result in circumstances whereby the Specification is in direct oposition to the satisfaction of other Specification(s).

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

SPECIFICATION 4.11.2.6

JUSTIFICATION:

I. 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 collant.

(b) The accumlated 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 Table 15.7-3, and is approximately 2.1 E04 Curies.

The caluclaced whole body dose to an individual at the Exclusion Area Boundary (EAR) is presented in Table 15.7-4, and is 33 mrem (Callaway) and 25 mrem (wolf Creek).
From the aforementioned analysis, we can conservatively establish the following conclusions:

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

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

3. 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 calculated using NUREG 0133 methodology.

4. The projected whole body dose to an individual at the EAB, using the limiting short-term X/Q, is conservately estimated as approximately 7% of the 500 mrem NUREG 0133 objective and approximately 1% of the 10 CFR 100.11 limit.

5. 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.

II. 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.

III. 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 nearest EAB will not exceed 500 mrem, which is substantially below the dose limits of 10CFR 100 for a postulated event.

The analysis of a postulated Waste Gas Decay Tank repture, 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 10CFR 100 are not approached.

requirement that the appropriate portions of this system be used when specified provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonably achievable." This specification implements the requirements of 10 CFR 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 Liquid Radwaste Treatment System were specified as a suitable fraction of the dose design objectives set forth in Section II.B and II.C of Appendix I, 10 CFR Part 50, for gaseous effluents.

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.

3/4.11.2.5 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

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.

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 at the nearest SITE BOUNDARY will not exceed 0.5 rem. This is consistent with

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

GAS STORAGE TANKS (Continued)

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.

Insert →

3/4.11.3 SOLID RADIOACTIVE WASTES

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.

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.

Insert

The contents of these tanks shall be determined at least once per 18 months during shutdown. However, should conditions of confirmed 1% or greater failed fuel exist, the tank contents will be determined at a frequency consistent with Specifications 4.11.2.6.2 or 4.11.2.6.3.

B 3/4. 11.2.6

JUSTiFICATION

This bases has been revised to be consistent with the sampling methodology in Specification 4.11.2.6.