SNUPPS

**Standardized Nuclear Unit
Power Plant System**

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Executive Director**

September 7, 1983

SLNRC 83-0050 FILE: 0543
SUBJ: SNUPPS Technical Specifications

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Docket Nos. STN 50-482 and STN 50-483

Ref: SLNRC 83-036, 7/11/83, Same Subject

Dear Mr. Denton:

The referenced letter forwarded a number of requested Technical Specification changes from SNUPPS to the NRC for review and approval. A number of items were identified in the reference as being under investigation for later submittal. Enclosed with this letter are several of these items as follows:

Enclosure I - SNUPPS Radiological Effluent Technical Specifications (RETS) - These changes to the RETS are being requested by both Wolf Creek and Callaway.

Enclosure II - Wolf Creek Specific Radiological Effluent Technical Specifications - These changes to the RETS are specific requests of Wolf Creek and are to apply only to their plant.

Enclosure III - Callaway Specific Radiological Effluent Technical Specifications - These changes to the RETS are applicable only to Callaway. Callaway and Wolf Creek specific requests are variations on the same basic specificatons due to differences in plant instrumentation and environmental monitoring requirements.

Enclosure IV - Miscellaneous Technical Specification Submittals - These changes to the specifications include the Reactor Vessel Level Indication System, Ultimate Heat Sink (UHS), level and temperature control for Callaway, and other items identified since the submittal forwarded with the referenced letter. All the requested changes are generic with the exception of Callaway's UHS specification.

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A PDR

The remaining open items in the reference letter are still under investigation.

Very truly yours,

N A Petrick

Nicholas A. Petrick

JHR/dck/9a23

Enclosures

cc:

G. L. Koester	KGE	w/encl.
D. T. McPhee	KCPL	"
D. F. Schnell	UE	"
W. Schum/H. W. Roberds	NRC/WC	"
J. H. Neisler	NRC/Cal	"

ENCLOSURE I

SNUPPS RADIOLOGICAL EFFLUENT TECHNICAL SPECIFICATIONS

INSERT 1

DEFINITIONS

PROCESS CONTROL PROGRAM

1.22 ~~The PROCESS CONTROL PROGRAM shall contain the provisions to assure that the SOLIDIFICATION of wet radioactive wastes results in a waste form with properties that meet the requirements of 10 CFR Part 61 and of low level radioactive waste disposal sites. The PCP shall identify process parameters influencing SOLIDIFICAITON such as pH, oil content, H_2O content, solids content, ratio of solidification agent to waste and/or necessary additives for each type of anticipated waste, and the acceptable boundary conditions for the process parameters shall be identified for each waste type, based on laboratory scale and full scale testing or experience. The PCP shall also include an identification of conditions that must be satisfied, based on full scale testing, to assure that dewatering of bead resins, powdered resins, and filter sludges will result in volumes of fresh water, at the time of disposal within the limits of 10 CFR Part 61 and of low level radioactive waste disposal sites.~~

PURGE - PURGING

1.23 PURGE or PURGING shall be the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating condition, in such a manner that replacement air or gas is required to purify the confinement.

QUADRANT POWER TILT RATIO

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

RATED THERMAL POWER

1.25 RATED THERMAL POWER shall be a total 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 OCCURRENCE

1.27 A REPORTABLE OCCURRENCE shall be any of those conditions specified in Specifications 6.9.1.10 and 6.9.1.11.

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 1

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.

SPECIFICATION 1.22

JUSTIFICATION:

The proposed definition is a more concise and understandable 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 definitions will not enhance the overall program objectives and makes understanding the basic intent of the definitions more difficult.

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 Insert 2

~~1.31 SOLIDIFICATION shall be the immobilization of wet radioactive wastes such as evaporator bottoms, spent resins, sludges, and reverse osmosis concentrates as a result of a process of thoroughly mixing the waste type with a solidification agent(s) to form a free standing monolith with chemical and physical characteristics specified in the PROCESS CONTROL PROGRAM (PCP).~~

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.

INSERT 2

Solidification

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

SPECIFICATION 1.31

JUSTIFICATION:

The proposed revision to NRC Draft 2 definition is intended to aid operating personnel in their understanding of same. The proposed definition does not compromise or alter the intent of the original definition.

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 Feature (ESF) Atmospheric Cleanup Systems are not considered to be VENTILATION EXHAUST TREATMENT SYSTEM components.

VENTING

1.39 VENTING shall be the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating condition, in such a manner that replacement air or gas is 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 ~~Primary~~ Coolant System offgases from the ~~Primary~~ Coolant System and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

Insert 3

SPECIFICIATION 1.38

JUSTIFICATION

Although charcoal adsorbers and HEPA filters are the most common filters used today, other filters may also be used for this purpose. Deleting the words "charcoal" and "HEPA" would allow the use of other filters should better ones become available.

INSERT-03

"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.

SPECIFICATION 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 Purge Isolation~~					
~~a. Manual Initiation~~	~~1~~	~~2~~	~~1, 2, 3, 4~~	~~N.A.~~	~~26~~
1. ~~a.~~ Containment Atmosphere Radioactivity-High (GT-RE-31,32)	1	~~2~~ 1	1, 2, 3, 4	< 2X Background	26
~~b. Containment Purge Exhaust Radioactivity-High~~	~~1~~	~~2~~ 1	~~1, 2, 3, 4~~	~~#~~	~~26~~
~~2. Fuel Building Ventilation Isolation~~					
~~a. Manual Initiation~~	~~1~~	~~2~~	~~All~~	~~N.A.~~	~~27~~
2. ~~b.~~ ~~Spent Fuel Pool~~ Radioactivity-High (GG-RE-27,28) FUEL BUILDING AREA	1	2 1	**	< 2X Background	27
3 ~~c.~~ Criticality-High Radiation Level (SD-RE-37,38)	1	~~2~~ 1	*	≤ (15) mR/hr	28
~~3. Containment Atmosphere~~					
4 ~~a.~~ Gaseous Radioactivity-RCS Leakage Detection (GT-RE-31,32)	N.A.	1	1, 2, 3, 4	N.A.	29
5 . ~~b.~~ Particulate Radioactivity-RCS Leakage Detection (GT-RE-31,32)	N.A.	1	1, 2, 3, 4	N.A.	29
~~4. Control Room Ventilation Isolation~~					
~~a. Manual Initiation~~	~~1~~	~~2~~	~~All~~	~~N.A.~~	~~27~~

TABLE 3.3-6 (Continued)

RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS

FUNCTIONAL UNIT	CHANNELS TO TRIP/ALARM	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ALARM/TRIP SETPOINT	ACTION
~~4. Containment Ventilation Isolation~~					
~~b. Containment Atmosphere Radioactivity High~~	~~1~~	~~2~~	~~All~~	~~< 2X~~ Background	~~27~~
~~7~~ ~~c. Containment Purge Exhaust Radioactivity High~~	~~1~~	~~2~~	~~All~~	~~< 2X~~ Background	~~27~~
6 ~~d.~~ ~~Control Room Air Intake Radioactivity High~~ (GK-RE-04,05)	~~1~~	~~2~~ 1	~~All~~	~~< 2X~~ Background	27

TABLE NOTATION

* - With fuel in the fuel storage areas or fuel building.
** - With irradiated fuel in the fuel storage areas or fuel building.
# - Must satisfy Specification 3.3.4.8 requirements.

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 or 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 pool area. Restore the inoperable monitors to OPERABLE status within 30 days or suspend all operations involving fuel movement in the Fuel Building.

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

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 Purge Isolation~~	~~N.A.~~	~~N.A.~~	~~N.A.~~	~~1, 2, 3, 4~~
~~a. Manual Initiation~~				
1. ~~A.~~ Containment Atmosphere Radioactivity-High (GT-RE-31, 32)	S	R	M	1, 2, 3, 4
~~B. Containment Purge Exhaust Radioactivity High (~~	~~S~~	~~R~~	~~M~~	~~1, 2, 3, 4~~
~~2. Fuel Building Ventilation Isolation~~				
~~a. Manual Initiation~~	~~N.A.~~	~~N.A.~~	~~N.A.~~	~~All~~
2. ~~b.~~ ~~Spent Fuel Pool~~ FUEL BUILDING ATMOSPHERE (GG-RE-27,28) Radioactivity-High	S	R	M	**
3. ~~c.~~ Criticality-High Radiation Level FUEL BUILDING AREA (SD-RE-37,38)	S	R	M	*
~~3.~~ Containment Atmosphere				
4. ~~d.~~ Gaseous Radioactivity- RCS Leakage Detection (GT-RE-31,32)	S	R	M	1, 2, 3, 4
5. ~~B.~~ Particulate Radioactivity - RCS Leakage Detection (GT-RE-31,32)	S	R	M	1, 2, 3, 4

TABLE 4.3-3 (Continued)

RADIATION MONITORING INSTRUMENTATION FOR PLANT OPERATIONS SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES REQUIRING SURVEILLANCE
~~4. Control Room Ventilation Isolation~~				
~~a. Manual Initiation~~	~~N.A.~~	~~N.A.~~	~~N.A.~~	~~All~~
~~b. Containment Atmosphere Radioactivity-High~~	~~S~~	~~R~~	~~M~~	~~All~~
~~c. Containment Purge Exhaust Radioactivity-High~~	~~S~~	~~R~~	~~M~~	~~All~~
6. d. Control Room Air Intake Radioactivity-High (GK-RE-04,05)	S	R	M	All

TABLE NOTATION

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

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

Technical Specification: Tables 3.3-6, 4.3-3

Justification:

(1) Monitor instrument numbers were incorporated to clarify site specific changes.

(2) Specific references deleted were based primarily on the fact that 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 3.9.12 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.

This change continues to assure operability 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 operability.

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.~~10~~ 9 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: change the setpoint so that it is acceptably conservative,

a. With a radioactive liquid effluent monitoring instrumentation channel Alarm/Trip Setpoint less conservative than required by the above specification, ~~without delay~~ without delay 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, in lieu of a Licensee Event Report, explain in the next Semiannual Radioactive Effluent Release Report why this inoperability was not corrected within the time specified.

c. The provisions of Specifications 3.0.3, 3.0.4, and 6.9.1.~~12~~ 11b. are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.~~10~~ 9 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 4.3-12.

SPECIFICATION 3.3.3.9

JUSTIFICATION:

Immediately is a term subject to interpretation and if taken literally it is unlikely that any of the required action could be accomplished within the required time frame. The wording "without delay" is proposed since it more clearly communicates the time frame of the required action.

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.

The term "and adjusted" has been deleted as it is not the purpose of the ODCM to instruct on the adjustment of setpoints, but rather in the calculation of setpoints. Setpoint adjustment will be made in accordance with the applicable plant procedures.

TABLE 3.3-12 (Continued)

TABLE NOTATION

ACTION 28 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases 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;

Otherwise, suspend release of radioactive effluents via this pathway.

ACTION 29 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided grab samples are analyzed for radioactivity for up to 30 days at a lower limit of detection of at least 10^{-4} microCurie/ml:

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, and

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 30 - 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 at least 10^{-7} microCurie/ml.

ACTION ~~31~~ 32 - 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.

~~ACTION 32 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via the affected pathway may continue for up to 30 days provided the radioactivity level is determined at least once per 4 hours during actual releases.~~

INSERT - 05

Action 30

"while a release is occurring"

INSERT - 06

Action 31 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases may continue for up to 30 days provided that prior to initiating a release:

a. At least two independent samples are analyzed in accordance with Specification 4.11.1.1.3, 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 TABLE NOTATION

JUSTIFICATION:

(1) Action 30 was modified to clarify the fact that the sampling requirement is applicable only while releases are occurring.

(2) The new Action 31 was incorporated because the 30 day release interval and the sampling and analysis requirements are the most appropriate action for the Secondary Liquid Waste System since this is a batch type release of either non-radioactive or at the most very low level radioactive wastes.

(3) Deletion of Action 32 -
The original Action 32 is not applicable to the proposed Revised Table 3.3-12 because radioactivity recorders are not included in the SNUPPS Plant design.

TABLE 4.3-12 (Continued)

TABLE NOTATION

(1) The ANALOG CHANNEL OPERATIONAL TEST shall also demonstrate that automatic isolation of this pathway Insert 08 ~~and~~ control room alarm annunciation occur if any of the following conditions exists:

a. Instrument indicates measured levels above the Alarm/Trip Setpoint, Insert 09

b. Circuit failure, Insert 10 Insert 11

c. Instrument indicates a downscale failure, and Insert 11

d. Instrument controls not set in operate MODE. Insert 11

~~(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,~~

~~b. Circuit failure,~~

~~c. Instrument indicates a downscale failure, and~~

~~d. Instrument controls not set in operate MODE.~~

(2) ~~(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 12

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

INSERT-08

"and/or"

INSERT-09

"(isolation and alarm)."

INSERT- 10

"Monitor"

INSERT- 11

"(alarm only)."

INSERT-12

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 4.3-12 TABLE NOTATION

JUSTIFICATION

(1) 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 set-point is exceeded.

(2) Table notation (2) was deleted since there are no monitors in the table which have alarm functions only and, therefore, is not referenced by the table.

(3) 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.

INSTRUMENTATION

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.~~11~~ 10 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 are not exceeded. The Alarm/Trip Setpoints of these channels shall be determined ~~and adjusted~~ 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 monitoring instrumentation channel Alarm/Trip Setpoint less conservative than required by the above specification, ~~without delay~~ without delay immediately suspend the release of radioactive gaseous effluents monitored by the affected channel, or declare the channel inoperable. change 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, in lieu of a Licensee Event Report, explain in the next Semiannual Radioactive Effluent Release Report why this inoperability was not corrected within the time specified.

c. The provisions of Specifications 3.0.3, 3.0.4, and 6.9.1.12b. are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.~~11~~ 10 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 4.3-13.

SPECIFICATION 3.3.3.10

JUSTIFICATION:

Immediately is a term subject to interpretation and if taken literally it is unlikely that any of the required action could be accomplished within the required time frame. The wording "without delay" is proposed since it more clearly communicates the time frame of the required action.

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.

The term "and adjusted" has been deleted as it is not the purpose of the ODCM to instruct on the adjustment of setpoints, but rather in the calculation of setpoints. Setpoint adjustment will be made in accordance with the applicable plant procedures.

TABLE 3.3-13

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

	INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
1.	Waste Gas Holdup System			
	a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release	1	*	35
	b. Iodine Sampler	1	*	41
	c. Particulate Sampler	1	*	41
	d. Effluent System Flow Rate Measuring Device	1	*	36
	e. Sampler Flow Rate Measuring Device	1	*	36
2A.	Waste Gas Holdup System Explosive Gas Monitoring System (for systems designed to withstand the effects of a hydrogen exposion)			
	a. Hydrogen Monitor (Automatic control)	1	**	39
	b. Hydrogen or Oxygen Monitor (Process)	1	**	39
2B.	Waste Gas Holdup System Explosive Gas Monitoring System (for systems not designed to withstand the effects of a hydrogen explosion)			
	a. Hydrogen Monitors (Automatic control, redundant)	2	**	40, 42
	b. Hydrogen or Oxygen Monitors (Process, dual)	2	**	40

INSERT 13.

TABLE 3.3-13 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
3. Condenser Evacuation System			
a. Noble Gas Activity Monitor	1	*	37
b. Iodine Sampler	1	*	41
c. Particulate Sampler	1	*	41
d. Flow Rate Monitor	1	*	36
e. Sampler Flow Rate Monitor	1	*	36
4. Vent Header System			
a. Noble Gas Activity Monitor	1	*	37
b. Iodine Sampler	1	*	41
c. Particulate Sampler	1	*	41
d. Flow Rate Monitor	1	*	36
e. Sampler Flow Rate Monitor	1	*	36
5. Containment Purge System			
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release	1	*	38
b. Iodine Sampler	1	*	41
c. Particulate Sampler	1	*	41

CALLAWAY
WOLF CREEK - UNIT 1

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INSERT 13

TABLE 3.3-13 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
5. Containment Purge System (Continued)			
d. Flow Rate Monitor	1	*	36
e. Sampler Flow Rate Monitor	1	*	36
6. Auxiliary Building Ventilation System			
a. Noble Gas Activity Monitor	1	*	37
b. Iodine Sampler	1	*	41
c. Particulate Sampler	1	*	41
d. Flow Rate Monitor	1	*	36
e. Sampler Flow Rate Monitor	1	*	36
7. Fuel Storage Area Ventilation System			
a. Noble Gas Activity Monitor	1	*	37
b. Iodine Sampler	1	*	41
c. Particulate Sampler	1	*	41
d. Flow Rate Monitor	1	*	36
e. Sampler Flow Rate Monitor	1	*	36

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TABLE 3.3-13 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
8. Radwaste Area Ventilation System			
a. Noble Gas Activity Monitor	1	*	37
b. Iodine Sampler	1	*	41
c. Particulate Sampler	1	*	41
d. Flow Rate Monitor	1	*	36
e. Sampler Flow Rate Monitor	1	*	36
9. Other Exhaust and Vent Systems such as:			
a. Noble Gas Activity Monitor	1	*	37
b. Iodine Sampler	1	*	41
c. Particulate Sampler	1	*	41
d. Flow Rate Monitor	1	*	36
e. Sampler Flow Rate Monitor	1	*	36

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INSERT 13

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	**	39
b. Oxygen Monitors	2/recombiner	**	40
2. Unit Vent Monitor (GT-RE-21)			
a. Noble Gas Activity Monitor	1	*	37
b. Iodine Sampler	1	*	41
c. Particulate Sampler	1	*	41
d. Flow Rate Monitor	1	*	36
e. Sampler Flow Rate Monitor	1	*	36
3. Containment Purge System Monitor (GT-RE-22, GT-RE-33, GT-RE-31, GT-RE-32)			
a. Noble Gas Activity - Providing Alarm and Automatic Termination of Release	1	***	38
b. Iodine Sampler	1	*	41
c. Particulate Sampler	1	*	41
d. Flow Rate Monitor	1	*	36
e. Sampler Flow Rate Monitor	1	*	36

INSERT 13

TABLE 3.3-13 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
4. Radwaste Building Ventilation System Monitor (GH-RE-10)			
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Waste Gas Holdup System Release	1	*	37 and 35
b. Iodine Sampler	1	*	41
c. Particulate Sampler	1	*	41
d. Flow Rate Monitor	1	*	36
e. Sampler Flow Rate Monitor	1	*	36

INSERT 13

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 NOTATION

* At all times.

** During WASTE GAS HOLDUP SYSTEM operation.
*** 1, 2, 3, 4, and during core alterations.
ACTION 35 - 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 36 - 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 37 - 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 gross activity ~~with~~ within 24 hours.

ACTION 38 - 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 39 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of this WASTE GAS HOLDUP SYSTEM may continue for up to 30 days provided grab samples are collected at least once per 4 hours and analyzed within the following 4 hours.~~

INSERT 14

~~ACTION 40 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, operation of this system may continue for up to 14 days. With two channels inoperable, be in at least HOT STANDBY within 6 hours.~~

INSERT 15

TABLE 3.3-13 (Continued)

TABLE NOTATION

ACTION 41 - 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.

~~ACTION 42 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, suspend oxygen supply to the recombiner.~~

INSERT 15

ACTION 40 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, except for testing, isolate the oxygen supply to the affected recombiner. With no channels OPERABLE, addition of waste gas to the Waste Gas Holdup System may continue provided a grab sample is taken from the on-service waste 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.

The provisions of Technical Specification 3.11.2.5 are applicable.

INSERT - 14

ACTION 39 - 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.

The provisions of Technical Specification 3.11.2.5 are applicable.

TABLE 3.3-13, TABLE NOTATION

JUSTIFICATION

(1) ACTION 39 & 40

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.

Additionally, due to the large increase in the volume of Gaseous Radwaste generated following a shutdown, it would be inadviseable to require that the unit be in at least HOT STANDBY within 6 hours.

(2) ACTION 42

ACTION 42 has been incorporated into the proposed ACTION 40.

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TABLE 4.3-13

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					
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release	P	P	R(3)	Q(1)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Effluent System Flow Rate Measuring Device	P	N.A.	R	Q	*
e. Sampler Flow Rate Measuring Device	D	N.A.	R	Q	*
2A. Waste Gas Holdup System Explosive Gas Monitoring System (for systems designed to withstand the effects of a hydrogen explosion)					
a. Hydrogen Monitor (Automatic control)	D	N.A.	Q(4)	M	**
b. Hydrogen or Oxygen Monitor (Process)	D	N.A.	Q(4) or Q(5)	M	**
2B. Waste Gas Holdup System Explosive Gas Monitoring System (for systems not designed to withstand the effects of a hydrogen explosion)					
a. Hydrogen Monitors (Automatic control, redundant)	D	N.A.	Q(4)	M	**
b. Hydrogen or Oxygen Monitors (Process, dual)	D	N.A.	Q(4) or Q(5)	M	**

INSERT 16

TABLE 4.3-13 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
3. Condenser Evacuation System					
a. Noble Gas Activity Monitor	D	M	R(3)	Q(2)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Flow Rate Monitor	D	N.A.	R	Q	*
e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*
4. Vent Header System					
a. Noble Gas Activity Monitor	D	M	R(3)	Q(2)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Flow Rate Monitor	D	N.A.	R	Q	*
e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*

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TABLE 4.3-13 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
5. Containment Purge System					
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release	D	P	R(3)	Q(1)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Flow Rate Monitor	D	N.A.	R	Q	*
e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*
6. Auxiliary Building Ventilation System					
a. Noble Gas Activity Monitor	D	M	R(3)	Q(2)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Flow Rate Monitor	D	N.A.	R	Q	*
e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*

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TABLE 4.3-13 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
7. Fuel Storage Area Ventilation System					
a. Noble Gas Activity Monitor	D	M	R(3)	Q(2)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Flow Rate Monitor	D	N.A.	R	Q	*
e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*
8. Radwaste Area Ventilation System					
a. Noble Gas Activity Monitor	D	M	R(3)	Q(2)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Flow Rate Monitor	D	N.A.	R	Q	*
e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*

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TABLE 4.3-13 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
9. Other Exhaust and Vent Systems					
a. Noble Gas Activity Monitor	D	M	R(3)	Q(2)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Flow Rate Monitor	D	N.A.	R	Q	*
e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*

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TABLE 4.3-13

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 Monitor (GT-RE-21)					
a. Noble Gas Activity Monitor	D	M	R(3)	Q(2)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Flow Rate Monitor	D	N.A.	R	Q	*
e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*

INSERT 16

TABLE 4.3-13 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
3. Containment Purge System Monitor (GT-RE-22, GT-RE-33, GT-RE-31, GT-RE-32)					
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release	D	P	R(3)	Q(1)	***
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Flow Rate Monitor	D	N.A.	R	Q	*
e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*
4. Radwaste Building Ventilation System Monitor (GH-RE-10)					
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Waste Gas Holdup System Only	D&P	M&P	R(3)	Q(1)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Flow Rate Monitor	D	N.A.	R	Q	*
e. Sampler Flow Rate Monitor	D	N.A.	R	Q	*

INSERT 16

TABLE 4.3-13

JUSTIFICATION:

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.

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 4.3-13 (Continued)

TABLE NOTATION

* 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/or control room alarm annunciation occur if any of the following conditions exists:

a. Instrument indicates measured levels above the Alarm/Trip Setpoint (ISOLATION and Alarm),

b. Circuit failure, (alarm only)

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

d. Istrument 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,

b. Circuit failure,

c. Instrument indicates a downscale failure, and

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 M →

(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.

INSERT 18 →

INSERT 17

(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 18

(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 4.3-13 TABLE NOTATION

JUSTIFICATION:

(1) The changes to 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 4 specified conditions exist, alarm and isolation will occur only when the Alarm/Trip setpoint is exceeded.

(2) 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.

(3) 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 %. 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-~~3~~ 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 x 10-~~4~~ 5 microCuries/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, without delay restore the concentration to within the above limits.

b. The provisions of Specifications 3.0.3, 3.0.4 and 6.9.1.~~9.b~~ 11.b 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) The Noble gas concentration limit of 2.0E-4 uci/cc was taken from NuReg 0472, Rev 2, Radiological Effluent Technical Specifications for PWR's. This was converted from the Xe-135 MPC for air using ICRP 2 methodology.

(2) The provisions of Specification 3.0.3 and 3.0.4 are not applicable to Specification 3.11.1.1.

(3) The reference to Specification 6.9.1.9b was changed to 6.9.1.11b to correspond with the proposed Section 6.0 of Callaway and Wolf Creek Specs.

TABLE 4.11-1

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE	SAMPLING FREQUENCY	MINIMUM ANALYSIS FREQUENCY	TYPE OF ACTIVITY ANALYSIS	LOWER LIMIT OF DETECTION (LLD)[a] (μCi/ml)
A. Batch Waste Release Tanks[b]	P Each Batch	P Each Batch	Principal[1e] Gamma Emitters[c]	5×10^{-7}
			I-131	1×10^{-6}
1. ~~Tanks~~ Waste Monitor Tanks	P One Batch/M	M	Dissolved and Entrained Gases (Gamma Emitters)	1×10^{-5}
2. ~~Monitor Tanks~~ Secondary Liquid Waste	P Each Batch	M Composite[d]	H-3	1×10^{-5}
			Gross Alpha	1×10^{-7}
~~3.~~	P Each Batch	Q Composite[d]	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}
B. Continuous Releases[e,f]	~~Continuous~~[f] D Grab Sample	W Composite[d]	Principal[1e] Gamma Emitters[c]	5×10^{-7}
			I-131	1×10^{-6}
1. ~~Line~~ Steam Generator Blowdown	M Grab Sample	M	Dissolved and Entrained Gases (Gamma Emitters)	1×10^{-5}
2. ~~Discharge Line~~ Turbine Building Drains	~~Continuous~~[f] D Grab Sample	M Composite[d]	H-3	1×10^{-5}
			Gross Alpha	1×10^{-7}
~~3.~~	~~Continuous~~[f] D Grab Sample	Q Composite[d]	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}

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 blow down, daily grab samples while the release is occurring is proposed as an acceptable alternative.

(2) LLD FOR LIQUID BATCH RELEASES FOR Sr-89, Sr-90

As the total activity should be greater for the liquid batch releases vs. the liquid continuous releases, the potential for decreased sensitivity is also greater. It would be impractical to expect that the detection limit (LLD) would increase (become more sensitive) under the conditions of increasing overall activity, therfore, it is proposed that the LLD for liquid batch releases be the same value as that for liquid continuous release.

The proposed value is a factor of 6 below the most restrictive MPC (Sr-90) (10CFR20, Appendix B, Table II, Column 2) and should therefore provide for the detection of sufficiently low levels of activity to ensure that releases to Unrestricted Areas are well below legal limits.

RADIOACTIVE EFFLUENTS

DOSE

LIMITING CONDITION FOR OPERATION

3.11.1.2 The ~~dose~~ 4/ 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-~~3~~) shall be limited:

a. During any calendar quarter to less than or equal to 1.5 ~~mrems~~ to the total body and to less than or equal to 5 ~~mrems~~ to any organ, and

b. During any calendar year to less than or equal to 3 ~~mrems~~ to the total body and to less than or equal to 10 ~~mrems~~ to any organ.

APPLICABILITY: At all times.

ACTION:

a. With the calculated dose from the release of radioactive materials in liquid effluents exceeding any of the above limits, in lieu of a Licensee Event Report, 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.*

b. The provisions of Specifications 3.0.3, ~~and~~ 3.0.4, and 6.9.1.11 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.

*This sentence is 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".

(2) As stated in ACTION a, a Licensee Event Report is not required, therefore, Specification 6.9.1.11 is not applicable.

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 reactor unit, to UNRESTRICTED AREAS (see Figure 5.1-3) ~~would exceed 0.06 mrem to the total body or 0.2 mrem to any organ in a 31 day period~~ when averaged over 92 days, would exceed 0.18 mrem to the total body or 0.6 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, in lieu of a Licensee Event Report, 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. and 6.9.1.11

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, not declared inoperable by a Licensee Event Report, shall be demonstrated OPERABLE by meeting Specifications 3.11.1.1 and 3.11.1.2.

SPECIFICATION 3.11.1.3

JUSTIFICATION

(1) The interval specified for dose projections is too short to accurately assess Liquid Radwaste Treatment System operations. Dose projections averaged over a 3 month period would be a more valid indication of the need to treat liquid radwaste prior to discharge. A futher restriction to monthly limits is not warranted or required by regulation.

(2) As stated in ACTION a, a Licensee Event Report is not required, therefore Specification 6.9.1.11 is not applicable.

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. Condensate Storage Tank (During periods of confirmed primary-to-secondary leakage.)
c. ~~a.~~ Outside temporary water storage tanks, 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.

b. The provisions of Specifications 3.0.3, ~~and~~ 3.0.4 and 6.9.1.11 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~~ have been added to the tank. Within

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

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

3/4.11.2 GASEOUS EFFLUENTS

DOSE RATE

LIMITING CONDITION FOR OPERATION

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

a. For noble gases: Less than or equal to 500 mrem/yr to the total body and less than or equal to 3000 mrem/yr to the skin, and

b. For ~~Iodine-131~~ Iodine-131, for tritium, and for all radionuclides in particulate form with half lives greater than 8 days: Less than or equal to 1500 mrem/yr to any organ, from the inhalation pathway only.

APPLICABILITY: At all times.

ACTION:

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

b. The provisions of Specification 3.0.3, 3.0.4, and 6.9.1.~~9.b~~ 11.b 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~~ Iodine-131, tritium, and all radionuclides in particulate form with half lives greater than 8 days in gaseous effluents shall be determined to be within the above limits in accordance with the 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 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 only appropriate that doses calculated to verify compliance with this specification consider only the inhalation pathway.

(2) The provision of Specifications 3.03 and 3.04 are not applicable to Specification 3.11.2.1., therefore the proposed wording has been added.

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, in lieu of a Licensee Event Report, 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 and 6.9.1.11 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.2 Cumulative does 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.

SPECIFICATION 3.11.2.2

JUSTIFICATION

(1) As stated in ACTION a, a Licensee Event Report is not required, therefore Specification 6.9.1.11 is not applicable.

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

LIMITING CONDITION FOR OPERATION

3.11.2.3 The dose to ~~a MEMBER OF THE PUBLIC~~ an Individual from iodine-131, 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 mrems to any organ, and

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

APPLICABILITY: At all times.

ACTION:

a. With the calculated dose from the release of Iodine-131, tritium, and radionuclides in particulate form with half lives greater than 8 days, in gaseous effluents exceeding any of the above limits, in lieu of a Licensee Event Report, 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, and 6.9.1.11 are not applicable.

SURVEILLANCE REQUIREMENTS

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

SPECIFICATION 3.11.2.3

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.

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 stated in ACTION a., a Licensee Event Report is not required, therefore, Specification 6.9.1.11 is not applicable.

GASEOUS RADWASTE TREATMENT

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~~ in 92 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~~ 0.6 mrad to air from gamma radiation, or

b. ~~0.4~~ 1.2 mrad to air from beta radiation, or

c. ~~0.3~~ 0.9 mrem to any organ of a MEMBER OF THE PUBLIC.

APPLICABILITY: At all times.

ACTION:

a. With radioactive gaseous waste being discharged without treatment and in excess of the above limits, in lieu of a Licensee Event Report, 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 and 6.9.1.11 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.

4.11.2.4.2 The installed Gaseous Radwaste Treatment System, not declared inoperable by a Licensee Event Report, shall be demonstrated OPERABLE by meeting Specification 3.11.2.1 and 3.11.2.2 or 3.11.2.3.

SPECIFICATION 3.11.2.4

JUSTIFICATION

(1) The interval specified for dose projections is too short to accurately assess gaseous radwaste treatment systems operations. Dose projections averaged over a 3 month period would be a more valid indication of the need to treat gaseous radwastes prior to discharge. A further restriction to monthly limits is not warranted or required by regulation.

(2) As stated in ACTION a, a Licensee Event Report is not required, therefore Specification 6.9.1.11 is not applicable.

RADIOACTIVE EFFLUENTS

EXPLOSIVE GAS MIXTURE (Systems designed to withstand a hydrogen explosion)

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: At all times.

ACTION:

a. With the concentration of hydrogen or oxygen in the WASTE GAS HOLDUP SYSTEM exceeding the limit, restore the concentration to within the limit within 48 hours.

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

SURVEILLANCE REQUIREMENTS

4.11.2.5 The concentration of hydrogen or 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 or oxygen monitors required OPERABLE by table 3.3-13 of Specification 3.3.3.11.

RADIOACTIVE EFFLUENTS

EXPLOSIVE GAS MIXTURE (Systems not designed to withstand a hydrogen explosion)

LIMITING CONDITION FOR OPERATION

INSERT 19

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

APPLICABILITY: At all times.

ACTION:

a. With the concentration of oxygen in the WASTE GAS HOLDUP SYSTEM greater than 2% by volume but less than or equal 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 without delay, then take ACTION a. above.

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

SURVEILLANCE REQUIREMENTS

4.11.2.5A 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.

INSERT 19

3.11.2.5 The concentration of oxygen in any Waste Gas Decay Tank shall be limited to less than or equal to 2% by volume whenever the concentration of hydrogen in that Waste Gas Decay Tank exceeds 4% by volume.

APPLICABILITY: At all times.

ACTION:

Whenever the concentration of hydrogen in any Waste Gas Decay Tank is greater than or equal to 4% by volume, and:

a. The concentration of oxygen in that Waste Gas Decay Tank is greater than 2% by volume, but less than or equal to 4% by volume, without delay begin to reduce the oxygen and/or hydrogen concentration to within its limit.

b. With the concentration of oxygen in that Waste Gas Decay Tank greater than 4% by volume and the hydrogen concentration greater than 4% by volume, immediately suspend additions of waste gas to that Waste Gas Decay Tank and without delay begin to reduce the oxygen and/or hydrogen concentration to within its limit.

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 inservice Waste Gas Decay Tank shall be monitored with the hydrogen and oxygen monitors required OPERABLE by Specification 3.3.3.10 or by sampling in accordance with Specification 3.3.3.10 if the hydrogen and/or oxygen monitors are inoperable.

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 necessary 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 2.5E+5 Curies noble gases (considered as Xe-133).

APPLICABILITY: At all times.

ACTION:

a. With the quantity of radioactive material in any gas storage tank exceeding the above limit, immediately suspend all additions of radioactive material to the tank and, ~~within 48 hours,~~ reduce the tank contents to within the limit. without delay, begin to

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~~

4.11.2.6.1 The quantity of radioactive material contained in each Waste Gas Decay Tank shall be determined to be within the above limit at least once per 24 hours during primary coolant system degassing operations following periods of confirmed 1% or greater failed fuel, when radioactive materials have been added to that tank.

4.11.2.6.2 The quantity of radioactive material contained in each Waste Gas Decay Tank shall be determined to be within the above limit at least once per 7 days during periods of confirmed 1% or greater failed fuel, when radioactive materials have been added to that tank.

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 ‹e 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 caluclated 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 conservatively 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.

3/4.11.3 SOLID RADIOACTIVE WASTE

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 3 consecutive initial test specimens demonstrate SOLIDIFICATION. The PROCESS CONTROL PROGRAM shall be modified as required, as provided in Specification 6.13, to assure SOLIDIFICATION of subsequent batches of waste; 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 total body or any organ, except the thyroid, which shall be limited to less than or equal to 75 mrems.

APPLICABILITY: At all times.

ACTION:

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, in lieu of a Licensee Event Report, 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. and 6.9.1.11

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. ~~above~~ of Specification 3.11.4.

SPECIFICATION 3.11.4

JUSTIFICATION:

As stated in ACTION a, a Licensee Event Report is not required, therefore Specification 6.9.1.11 is not applicable.

3/4.3.3.7 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~~ actuated by fire detectors, will discharge extinguishing agent 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.

3/4.3.3.8 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.

3/4.3.3.9 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

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

B3/4.3.3.9
JUSTIFICATION

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

The methods for the actual adjustment of monitor setpoints is delineated in plant procedure for the specific equipment vice the ODCM. Therefore, the phrase "and adjusted" is deleted.

#2

3/4.3.3.10 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.

B3/4.3.3.10
JUSTIFICATION

The methods for the actual adjustment of monitor setpoints is delineated in plant procedures for the specific equipment vice the ODCM. Therefore, the phrase "and adjusted" is deleted.

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 an Individual ~~a MEMBER OF THE PUBLIC,~~ 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 an Individual ~~a MEMBER OF THE PUBLIC~~ through appropriate pathways is unlikely to be substantially underestimated. The equations specified in the ODCM for calculating the doses due to the actual release rates of radioactive materials in liquid effluents are consistent with the methodology provided in

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.

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 liquid effluents from each reactor at the site. For units with shared radwaste treatment systems, the liquid effluents from the shared system are proportioned among the units sharing that system.~~

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. For units with shared radwaste treatment systems, the liquid effluents from the shared system are proportioned among the units sharing that system.~~

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.

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

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 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 Monitroing 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.

BASES

assurance that radioactive material discharged in gaseous effluents will not result in the exposure of ~~a MEMBER OF THE PUBLIC~~ 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 Part 20.106(b)). For ~~MEMBERS OF THE PUBLIC~~ 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~~ at or beyond the SITE BOUNDARY to less than or equal to 500 mrems/year to the total 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 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~~ 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.

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.

BASES

either or real time

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. For units with shared Radwaste Treatment Systems, the gaseous effluents from the shared system are proportioned among the units sharing that system.~~

and 133

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

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, Appendix I," Revisio 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 either the historical average or real time atmospheric conditions. The release rate specifications for iodine-131 & 133, tritium, and radionuclides 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. For units with shared Radwaste Treatment Systems, the gaseous effluents from the shared system are proportioned among the units sharing that system.~~

3/4.11.2.4 GASEOUS RADWASTE TREATMENT

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

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.

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. For units with shared Radwaste Treatment Systems, the gaseous effluents from the shared system are proportioned among the units sharing that system.~~

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

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 a release would be substantially below the guideline dose values of 10 CFR Part 100 for a postulated event.

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 total body exposure to ~~a MEMBER OF THE PUBLIC~~ an Individual at the nearest exclusion area 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 RADIOACTIVE WASTE

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

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.

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.

BASES 3/4.11.2.7

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.

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 from plant generated radioactive effluents and direct radiation exceed 25 mrems to the total 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 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 Part 190.11 and 10 CFR Part 20.405c, is considered to be a timely request and fulfills the requirements of 40 CFR Part 190 until NRC staff action is completed. The variance only relates to the limits of 40 CFR Part 190, and does not apply in any way to the other requirements for dose limitation of 10 CFR Part 20, as addressed in Specifications 3.11.1.1 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.

ENCLOSURE II

WOLF CREEK SPECIFIC RADIOLOGICAL EFFLUENT TECHNICAL SPECIFICATIONS

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 Effluent Line	1	28
b. Steam Generator Blowdown Effluent Line	1	29
c. Turbine Building (Floor Drains) Sumps Effluent Line	1	29
2. Radioactivity Monitors Providing Alarm But Not Providing Automatic Termination of Release		
a. Service Water System Effluent Line	1	30
b. Component Cooling Water System Effluent Line	1	30
3. Continuous Composite Samplers and Sampler Flow Monitor		
a. Steam Generator Blowdown Effluent Line (alternate to Item 1.b)	1	29
b. Turbine Building Sumps Effluent Line (alternate to Item 1.c)	1	29
4. Flow Rate Measurement Devices		
a. Liquid Radwaste Effluent Line	1	31
b. Steam Generator Blowdown Effluent Line	1	31
c. Discharge Canal	1	31

WOLF CREEK ONLY

See insert A

TABLE 3.3-12 (Continued)

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	ACTION
~~5. Radioactivity Recorders*~~		
~~a. Liquid Radwaste Effluent Line~~	~~1~~	~~28~~
~~b. Steam Generator Blowdown Effluent Line~~	~~1~~	~~32~~

~~*Required only if Alarm/Trip Setpoint is based on recorder-controller.~~

WOLF CREEK ONLY

TABLE 3.3-12

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	ACTION
1. GROSS RADIOACTIVITY MONITORS PROVIDING AUTOMATIC TERMINATION OF RELEASE		
a. Liquid Radwaste Discharge Monitor (HB-RE-18)	(1)	28
b. Steam Generator Blowdown Discharge Monitor (BM-RE-52)	(1)	29
c. Turbine Building Drain Monitor (LE-RE-59)	(1)	30
d. Secondary Liquid Waste System Monitor (HF-RE-45)	(1)	31
2. FLOW RATE MEASUREMENT DEVICES		
a. Liquid Radwaste Discharge Line		
(1) Waste Monitor Tank A Discharge Line	(1)	32
(2) Waste Monitor Tank B Discharge Line	(1)	32
b. Steam Generator Blowdown Effluent Line	(1)	32
c. Secondary Liquid Waste System Discharge Line	(1)	32

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TABLE 3.3-12

JUSTIFICATION

The generic standard tech spec tables do not reflect the Wolf Creek Plant design. The table has been revised to reflect actual site specific design in regard to release pathways and liquid effluent radioactivity monitors.

Liquid effluent Radioactivity monitors are identified and described in Section 11.5.2.2.3 of the SNUPPS FSAR. Table 3.3-12 has been revised to incorporate these monitors. The monitors listed cover all actual and potential liquid effluent release pathways during normal plant operations.

Since Wolf Creek does not have effluent Radioactivity monitors that provide alarm but not automatic termination of the release, no monitors in this category were listed.

Continuous composite samplers and sampler flow monitors are not included in the Wolf Creek Plant design. Online radioactivity monitors provide the capability for real time assessment and control of liquid effluents being discharged and are considered more desirable than only composite samplers which provide only an after the fact sample. Since online monitors with automatic isolation features are provided in lieu of composite samplers for the indicated pathways, the composite sampler category is deleted.

Flow rate measurement devices are listed as required by the standard RETS.

Radioactivity recorders are not applicable to Wolf Creek since monitor set points are not based upon record-controller devices. Therefore, this category is not included in Table 3.3-12.

TABLE 4.3-12

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 Effluent Line	D	P	R(3)	Q(1)
b. Steam Generator Blowdown Effluent Line	D	M	R(3)	Q(1)
c. Turbine Building (Floor Drains) Sumps Effluent Line	D	M	R(3)	Q(1)
2. Radioactivity Monitors Providing Alarm But Not Providing Automatic Termination of Release				
a. Service Water System Effluent Line	D	M	R(3)	Q(2)
b. Component Cooling Water System Effluent Line	D	M	R(3)	Q(2)
3. Continuous Composite Samplers and Sampler Flow Monitor				
a. Steam Generator Blowdown Effluent Line (alternate to Item 1.b)	D	N.A.	R	Q
b. Turbine Building Sumps Effluent Line (alternate to Item 1.c)	D	N.A.	R	Q

WOLF CREEK ONLY

See insert B

K-1

TABLE 4.3-12 (Continued)

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST
4. Flow Rate Measurement Devices				
a. Liquid Radwaste Effluent Line	D(4)	N.A.	R	Q
b. Steam Generator Blowdown Effluent Line	D(4)	N.A.	R	Q
c. Discharge Canal	D(4)	N.A.	R	Q
5. Radioactivity Recorders*				
a. Liquid Radwaste Effluent Line	D	N.A.	R	Q
b. Steam Generator Blowdown Effluent Line	D	N.A.	R	Q

*Required only if Alarm/Trip Setpoint is based on recorder-controller.

WOLF CREEK ONLY

TABLE 4.3-12

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. GROSS BETA OR GAMMA RADIOACTIVITY MONITORS PROVIDING ALARM AND AUTOMATIC 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	P	R(2)	Q(1)
2. FLOW RATE MEASUREMENT DEVICES				
a. Liquid Radwaste Discharge Line				
(1) Waste Monitor Tank A Discharge Line	D(3)	N.A.	R	Q
(2) Waste Monitor Tank B 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

WOLF CREEK ONLY

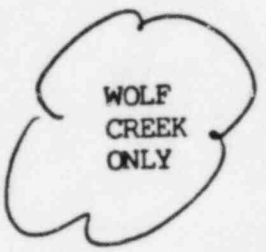
Insert B

K-1

TABLE 4.3-12

JUSTIFICATION

The generic standard tech spec tables do not reflect the Wolf Creek Plant design. The table has been revised to reflect actual site specific design in regard to release pathways and liquid effluent radioactivity monitors.



WOLF CREEK ONLY

TABLE 4.11-1 (Continued)

TABLE NOTATION

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

For a particular measurement system, which may include radiochemical separation:

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

Where:

LLD is the "a priori" lower limit of detection as defined above, as microCuries per unit mass or volume,

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

E is the counting efficiency, as counts per disintegration,

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

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

Y is the fractional radiochemical yield, when applicable,

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

Δt for plant effluents is the elapsed time between the midpoint of sample collection and the time of counting.

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.

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

WOLF CREEK ONLY

TABLE 4.11-1 (Continued)

TABLE NOTATION

[c] The principal gamma emitters for which the LLD specification applies exclusively are the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, ~~Zn-65~~, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144. This list does not mean that only these nuclides are to be 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.~~12~~ 7.

[d] A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen that is representative of the liquids released.

[e] A continuous release is the discharge of liquid wastes of a nondiscrete volume, e.g., from a volume of a system that has an input flow during the continuous release.

[f] ~~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.~~

WOLF CREEK ONLY

TABLE 4.11-1 TABLE NOTATION

JUSTIFICATION

(1) Footnote c: 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 f: This section was deleted since it is applicable to continuous composite samplers which are not included in the Wolf Creek plant design.

(3) Footnote b: "by a method described in the ODCM" was deleted since the ODCM does not describe a method for mixing tanks.

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)[a] (μCi/ml)
A. Waste Gas ~~Storage~~ Decay Tank	P Each Tank Grab Sample	P Each Tank	Principal[le] Gamma Emitters[b]	2×10^{-4}
B. Containment PURGE ~~or VENT~~	P Each PURGE[k] Grab Sample	P Each PURGE[k]	Principal[le] Gamma Emitters[b,c]	2×10^{-4}
		M	H-3	1×10^{-6}
C.1 ~~Plant~~ Vent Unit	M[k,d] Grab Sample	M	Principal[le] Gamma Emitters[b,c]	1×10^{-4}
			H-3	1×10^{-6}
~~C.2 Fuel Storage Area Ventilation~~	~~M[k] Grab Sample~~	~~M~~	~~Principal Gamma Emitters[b]~~	~~1×10^{-4}~~
			~~H-3~~	~~1×10^{-6}~~
C.2 ~~Auxiliary Bldg, Radwaste Area, SGB Vent, Others~~ Radwaste Building Ventillation	M Grab Sample	M	Principal[le] Gamma Emitters[b]	1×10^{-4}
			H-3	1×10^{-6}
D. All Release Types as listed in A,B, C above.	Continuous[f,e]	W[g,f] Charcoal Sample	I-131	~~1×10^{-12}~~ 1×10^{-10}
			I-133	
	Continuous[f,e]	W[g,f] Particulate Sample	Principal[le] Gamma Emitters[b]	1×10^{-11}
	Continuous[f,e]	M Composite Particulate Sample	Gross Alpha	1×10^{-11}
	Continuous[f,e]	Q Composite Particulate Sample	Sr-89, Sr-90	1×10^{-11}
	Continuous[f,e]	Noble Gas Monitor	Noble Gases Gross Beta ~~or Gamma~~	1×10^{-6}

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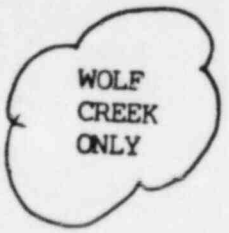

TABLE 4.11-2

JUSTIFICATION

This table was marked up to reflect site specific Wolf Creek plant desgin.

Footnote c for Containment Purge and the Unit Vent was repositioned from the "Sampling Frequency" column to "Principle 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.

"or Gamma" was deleted for the Noble Gas Monitor since the detectors for the gas monitors are beta sensitive, plastic scintillators (FSAR Section 11.5.2.3.1.3).

The Radwaste Building Ventillation is a potential release point for H-3 therefore we have included the H-3 analysis in the table for Radwaste Building Ventillation.

WOLF CREEK ONLY

TABLE 4.11-2 (Continued)

TABLE NOTATION

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

For a particular measurement system, which may include radiochemical separation:

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

Where:

LLD is the "a priori" lower limit of detection as defined above, as microCuries per unit mass or volume,

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

E is the counting efficiency, as counts per disintegration,

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

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

Y is the fractional radiochemical yield, when applicable,

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

Δt for plant effluents is the elapsed time between the midpoint of sample collection and the time of counting.

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 NOTATION

WOLF CREEK ONLY

[b] The principal gamma emitters for which the LLD specification applies 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.~~12~~ 7.

[c] 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.

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

[e] ~~Tritium grab samples shall be taken at least once per 7 days from the ventilation exhaust from the spent fuel pool area, whenever spent fuel is in the spent fuel pool.~~

[f] The ratio of the sample flow rate to the sampled stream flow rate shall be known for the time period covered by each dose or dose rate calculation made in accordance with Specifications 3.11.2.1, 3.11.2.2 and 3.11.2.3.

[g] Samples shall be changed at least once per 7 days and analyses shall be completed within 48 hours after changing, or after removal from sampler. Sampling shall also be performed at least once per 24 hours for at least 7 days following each shutdown, STARTUP or THERMAL POWER change exceeding 15% of RATED THERMAL POWER in 1 hour and analyses shall be completed within 48 hours of changing. When samples collected for 24 hours are analyzed, the corresponding LLDs may be increased by a factor of 10. This requirement does not apply if: (1) analysis shows that the DOSE EQUIVALENT I-131 concentration in the ~~primary~~ 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.

WOLF CREEK ONLY

TABLE 4.11-2 TABLE NOTATION

JUSTIFICATION

(1) Footnote b: 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 d: The extended tritium sampling frequency is justified since airborne tritium levels are not subject to rapid variations or fluctuation because tritium levels are relatively stable after initial flooding of the canal. The proposed sampling requirements ensure adequate monitoring and surveillance of airborne tritium concentration.

(3) Footnote e: It is proposed that the normal tritium sampling of the Unit Vent is sufficient to monitor the tritium concentration in the fuel pool area ventillation exhaust.

The Wolf Creek Plant is designed such that the Fuel Building ventillation 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).

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 redundancy 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.

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 areas 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.

WOLF CREEK ONLY

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, in lieu of a Licensee Event Report, 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, in lieu of a Licensee Event Report, prepare and submit to the Commission within 30 days, pursuant to Specification ~~6.9.2, a~~ 6.9.1.11, a Special Report that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions to be taken to reduce radioactive effluents so that the potential annual dose* to A MEMBER OF THE PUBLIC is less than the calendar year limits of Specifications 3.11.1.2, 3.11.2.2, and 3.11.2.3. When more than one of the radionuclides in Table 3.12-2 are detected in the sampling medium, this report shall be submitted if:

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

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 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.

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

See Insert AA

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

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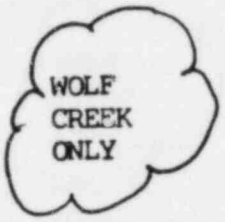
See insert AA

specific locations from which samples were unavailable may then be deleted from the monitoring program. In lieu of a Licensee Event Report and pursuant to Specification 6.9.1.12, identify the cause for the unavailability of samples and identify the new location(s) for obtaining replacement samples in the next Semiannual Radioactive Effluent Release Report and also include in the report a revised figure(s) and table for the ODCM reflecting the new location(s).

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 3.12.1.c

Justification -

Preoperational monitoring experience shows that, because samples are marginally available at some milk or leafy vegetable locations, it is a frequent occurrence for samples to be unavailable for a month or two, but not on a permanent basis. Reporting "new" locations within 30 days when samples are unavailable (only to have to change locations back again when samples are once more available at the old locations) is an unnecessary waste of effort, since this could occur many times in a year.

The licensee will instead identify an additional "alternate" sampling location in the ODCM for milk and leafy vegetable pathways; if a sample is temporarily unavailable at one of the required locations, the substitute sample will be used for that sampling period, noting the reason for the substitution in the Annual Radiological Environmental Operating Report. When changes in sampling locations are known to be permanent, the ODCM will be updated to reflect the new routine and alternative sampling locations, and this revision will be described in the Annual Radiological Environmental Operating Report.

Finally, any reporting concerning the Radiological Environmental Monitoring Program will appear in the Annual Radiological Environmental Operating Report, not in the Semiannual Radioactive Effluent Release Report.

WOLF CREEK ONLY

omit asterisk

TABLE 3.12-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS[a]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
1. Direct Radiation[b]	40 routine monitoring stations ~~(DR1-DR40) either~~ with two or more dosimeters ~~or with one instrument for measuring and recording dose rate continuously,~~ at each location placed as follows: approximately	Quarterly	Gamma dose quarterly.
	An inner ring of stations, one in each meteorological sector in the general area of the SITE BOUNDARY ~~(DR1-DR16);~~		
	An outer ring of stations, one in each meteorological sector in the ~~6- to 8-km~~ 3 to 5 mile range from the site ~~(DR17-DR32)~~;		
	~~The~~ balance of the stations ~~(DR33-DR40)~~ to be placed in special interest areas such as population centers, nearby residences, schools, and in 1 or 2 areas to serve as control stations.		

omit ~~*The number, media, frequency, and location of samples may vary from site to site. This table presents an acceptable minimum program for a site at which each entry is applicable. Local site characteristics must be examined to determine if pathways not covered by this table may significantly contribute to an individual's dose and should be included in the sampling program. The code letters in parentheses, e.g. DR1, A1, provide one way of defining generic sample locations in this specification that can be used to identify the specific locations in the map(s) and table in the ODCM.~~

WOLF CREEK ONLY

TABLE 3.12-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Omit asterisk

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS[a]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
2. Airborne Radioiodine and Particulates	Samples from five locations (A1-A5): three samples (A1-A3) from close to the three SITE BOUNDARY locations, in different sectors, of the highest calculated annual average ground level D/Q. (See Insert BB) one sample (A4) from the vicinity of a community having the highest calculated annual average ground-level D/Q. one sample (A5) from a control location, as for example 15-30 km 10 - 20 miles distant and in the least prevalent wind direction.[e]	Continuous sampler operation with sample collection weekly, or more frequently if required by dust loading.	Radioiodine Cannister: I-131 analysis weekly. Particulate Sampler: Gross beta radioactivity analysis following filter change;[c] Gamma isotopic analysis[ed] of composite (by location) quarterly.
3. Waterborne (See Insert CC) a. Surface[f]	~~one sample upstream (Wa1)~~ ~~one sample downstream (Wa2)~~	Composite sample over 1-month period[g]	Gamma isotopic analysis[ed] monthly. Composite for tritium analysis quarterly.
b. Ground	Samples from one or two sources ~~(Wb1, Wb2)~~, only if likely to be affected.[h]	Quarterly	Gamma isotopic[ed] and tritium analysis quarterly.
(See Insert DD) ~~c. Drinking~~	~~one sample of each of one to three (Wc1 - Wc3) of the nearest water supplies that could be affected by its discharge.~~ ~~one sample from a control location (Wc4).~~	~~Composite sample over 2-week period[g] 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.[i] Composite for gross beta and gamma isotopic analyses monthly. Composite for tritium analysis quarterly~~

WOLF CREEK ONLY

Insert BB

Three samples near the Site Boundary in the three sectors having the highest calculated annual average D/Q.

Insert CC

a.	Surface	one sample upstream one sample downstream[e]		monthly grab sample

Insert DD

c.	Drinking	- one sample from the nearest drinking water supply that could be affected by effluent discharge - one sample from a control location	Monthly composite[g] location	Monthly gross beta and gamma isotopic[d] analyses of composite sample; quarterly tritium analysis of 3-month composite

TABLE 3.12-1 (Continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

omit asterisk

WOLF CREEK ONLY

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS[a]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
d. Sediment from shoreline	~~A~~ One sample from downstream area with existing or potential recreational value ~~(Wd1)~~.	Semiannually	Gamma isotopic analysis[ed] semiannually.
4. Ingestion			
a. Milk	~~Samples~~ three from milking animals in ~~3~~ locations (Ia1 - Ia3) within 5 km distance having the highest dose potential. If there are none, then, ~~1 sample~~ from milking animals in each of ~~3~~ areas (Ia1 - Ia3) between 5 to 8 km distant where doses are calculated to be greater than 1 mrem per yr[1]. See Insert	Semimonthly when animals are on pasture, monthly at other times	Gamma isotopic[ed] and I-131 analysis semimonthly when animals are on pasture; monthly at other times.
	~~And~~ One milk sample from ~~1 sample from milking animals at~~ a control location ~~(Ia4)~~, preferably 10-20 miles ~~15-30 km~~ distant and in the least prevalent wind direction.		
b. Fish ~~and Invertebrates~~	~~A~~ One sample of game fish, one sample of rough fish ~~each commercially and recreationally important species~~ in vicinity of plant discharge area. ~~(Ib1 - Ib_)~~.	~~Sample in season, or~~ Semiannually ~~if they are not seasonal~~	Gamma isotopic analysis[ed] on edible portions.
	~~A sample of~~ Similar sample ~~game species~~ in areas not influenced by plant discharge ~~(Ib10 - Ib_)~~		
c. Food Products	~~A~~ sample of each principal class of food products from any area that is irrigated by water in which liquid plant wastes have been discharged ~~(Ie1 - Ie_)~~.	~~At time of harvest~~[j]	~~Gamma isotopic analyses[e] on edible portion~~

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Insert EE

Three milk samples as available from locations within 5 miles of the site representing the highest annual average D/Q.

TABLE 3.12-1 (Continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

omit asterisk

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS[a]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
c. Food Products (cont'd)	Samples ~~of 3 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 ~~(1c10 — 1c13)~~. (at the site boundary in the sector with the	Monthly when available	Gamma isotopic and I-131 analysis.
Control 10-20 miles	1 sample of ~~each of the~~ similar broad leaf vegetation grown ~~15-30 km~~ distant in the least prevalent wind direction if milk sampling is not performed ~~(1c20 — 1c23)~~. (preferably	Monthly when available	Gamma isotopic and I-131 analysis.

WOLF CREEK ONLY

Table 3.12-1

Justification -

1. Direct Radiation: The changes from the NRC version are mainly for clarification (specific location identifier numbers will be in the ODCM and distances are measured in miles); also, the reference to a continuous dose rate measuring instrument has been dropped since KG&E has decided to use TLDs for this pathway.

2. Airborne: Rewritten for clarity.

3. Waterborne:

   a. Surface water - Due to large dilution volume of the cooling lake, monthly grab samples will provide adequate representation of average liquid concentrations of radionuclides for this pathway.

   c. Drinking water - Table 5.2-5 of the Wolf Creek Environmental Report (Operating License Stage) shows that the maximum expected exposure to an individual from the drinking water pathway would be 0.08 mrem/yr to the liver of a child (not including radioactive decay, which would substantially reduce this value). Since this is much lower than the 1 mrem/yr described in NUREG-0472, I-131 analysis of 2-week composites has been deleted from the Wolf Creek Technical Specifications.

4. Ingestion:

   a. Milk - Rewritten to remove ambiguities from the method of determining milk sampling locations.

   b. Fish - Invertebrate sampling is not necessary since this is not a major ingestion pathway at freshwater locations. Due to the impracticality of obtaining samples of non-abundant species, fish sampling will be limited to abundant species of game and rough fish, which will be the most significant contributors to the ingestion pathway.

   c. Food Products - It cannot be specified in advance how many types of broadleaf vegetation will be available from a garden; different types of broadleaf vegetation will be sampled on a rotating basis as they are available. Water will not be taken from the Wolf Creek cooling lake for irrigation, therefore, this sample has been deleted.

TABLE 3.12-1 (Continued)

TABLE NOTATION

[a] 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~~ will occur 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.~~H~~. 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 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. In lieu of a Licensee Event Report and pursuant to Specification 6.9.1.~~H~~, ~~identify~~ the cause of the unavailability of samples for that pathway and ~~identify~~ the new location(s) for obtaining replacement samples will be identified in the next ~~Semiannual Radioactive Effluent Release Report~~ Annual Radiological Environmental Operating Report, and also include in the report a revised figure(s) and table for the ODCM reflecting the new location(s) will also be provided in the report.

[b] ~~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 dosimters. ~~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~~ will be selected to obtain optimum dose information with minimal fading.

~~[c] 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.~~

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TABLE 3.12-1 (Continued)

TABLE NOTATION

c 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 ten times the yearly mean of control samples, gamma isotopic analysis shall be performed on the individual samples.

d Gamma isotopic analysis means the identification and quantification of gamma-emitting radionuclides that may be attributable to the effluents from the facility.

e 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.~~

g A composite sample is one in which the quantity (aliquot) of liquid sampled is ~~proportional to the quantity of flowing liquid~~ constant over the sampling period and in which the method of sampling employed results in a specimen that is representative of the ~~by 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.

liquid composite (continuous)

f 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.

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

~~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.~~

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Table 3.12-1, Table Notation

Justifications -

a. (last sentence): To be consistent and to use time and effort more effectively, all information about the Radiological Environmental Monitoring Program will be put in a single document (the Annual Radiological Environmental Operating Report).

b. There are presently no plans for using pressurized ion chambers or film badges, so references to these have been removed.

e. Rewritten to reflect Wolf Creek site characteristics.

g. This note was modified due to the impracticality of obtaining samples proportional to the flow of the Neosho River, which may be highly viable, and because samples which are proportional to average liquid concentrations during the sampling period will more accurately reflect quantities of ingested radionuclides.

Previous note "i" - Milk sampling is performed continuously, therefore, this note is not applicable.

Previous note "j" - This note is deleted because the sample it refers to is deleted from the table.

WOLF CREEK - UNIT 1
PWR-SIS-REIS

TABLE 3.12-2

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES

Analysis	Water (pCi/ℓ)	Airborne Particulate or Gases (pCi/m³)	Fish (pCi/kg, wet)	Milk (pCi/ℓ)	Food Products (pCi/kg, wet)
		Reporting Levels			
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.

3/4 12-9

~~3/4/83~~

WOLF CREEK ONLY

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WOLF CREEK - UNIT 1
PWR-STS-RETS

3/4 12-10

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TABLE 4.12-1

DETECTION CAPABILITIES FOR ENVIRONMENTAL SAMPLE ANALYSIS[a,b]

LOWER LIMIT OF DETECTION (LLD)[c]

Analysis	Water (pCi/ℓ)	Airborne Particulate or Gas (pCi/m^3)	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[d]	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.

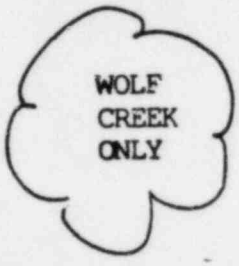

Table 3.12-2
Table 4.12-1

Justification -

Deletion of Zn-65: Wolf Creek's primary system does not contain zinc-based steel alloys (see SNUPPS FSAR, Section 4.5.1.1); therefore, there is no zinc available for activation to Zn-65.

WOLF CREEK ONLY

TABLE 4.12-1 (Continued)

TABLE NOTATION

aThis 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~~.

b~~Required~~ Recommended detection capabilities for thermoluminescent dosimeters used for environmental measurements are given in Regulatory Guide 4.13.

cThe LLD is defined, for purposes of these specifications, as the smallest concentration of radioactive material in a sample that will yeild 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 is the "a priori" lower limit of detection as defined above, as picroCuries per unit mass or volume,

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

E is the counting efficiency, as counts per disintegration,

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

2.22 is the number of disintegrations per minute per picroCurie,

Y is the fractional radiochemical yield, when applicable,

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

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

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

WOLF CREEK ONLY

TABLE 4.12-1 (Continued)

TABLE NOTATION

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.~~26~~.

[d] LLD for drinking water samples. If no drinking water pathway exists, the LLD of gamma isotopic analysis may be used.

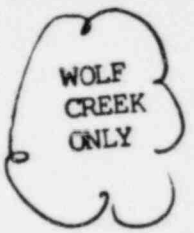

Table 4.12-1, Table Notation

Justification -

b. Modified to reflect the fact that Regulatory Guides are not requirements but guidelines.

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

APPLICABILITY: At all times.

ACTION:

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, in lieu of a Licensee Event Report, identify the new location(s) in the next Semiannual Radioactive Effluent Release Report, pursuant to Specification 6.9.1.~~12~~ 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 percent greater than at a location from which samples are currently being obtained in accordance with Specification 3.12.1, add the new location(s) to the radiological environmental monitoring program within 30 days. The sampling location(s), excluding the control station location, having the lowest calculated dose or dose commitment(s), via the same exposure pathway, may be deleted from this monitoring program after (October 31) of the year in which this land use census was conducted. In lieu of a Licensee Event Report and pursuant to Specification 6.9.1.~~12~~ 6, identify the new location(s) in the next ~~Semiannual Radioactive Effluent Release Report~~ Annual Radiological Environmental Operating Report and also include in the report a revised figure(s) and table for the ODCM reflecting the new location(s).

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

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 6.9.1.11.

*Broad leaf vegetation sampling of ~~at least three different kinds of~~ available vegetation will ~~may~~ be performed at the site boundary in ~~each of two different direction~~ the sectors with the highest predicted D/Qs in lieu of the garden census. Specifications for broad leaf vegetation sampling in Table 3.12-1.4c shall be followed, including analysis of control samples.

Specification 3.12.2

Justifications -

Parenthetical statement removed because all releases from Wolf Creek are ground releases.

ACTION b. Revised because any reporting concerning the Radiological Environmental Monitoring Program will appear in the Annual Radiological Environmental Operating Report, not in the Semiannual Radioactive Effluent Release Report.

The footnote to Specification was modified because samples from the site boundary in the highest D/Q sector are deemed to be sufficient.

~~DRAFT~~

WOLF CREEK ONLY

RADIOLOGICAL ENVIRONMENTAL MONITORING

3/4.12.3 INTERLABORATORY COMPARISON PROGRAM

LIMITING CONDITION FOR OPERATION

3.12.3 Analyses shall be performed on all radioactive materials, supplied as part of an Interlaboratory Comparison Program that has been approved by the Commission, that correspond to samples required by Table 3.12-1.

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.~~X~~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.~~X~~6.

or, if the analysis laboratory is a participant in the Environmental Protection Agency (EPA) crosscheck program, the EPA code designation

Specification 3.12.3

Justifications -

A description of the interlaboratory cross check program is not included in the ODCM since this function is performed by the analysis laboratory contracted by KG&E.

Adding the option to report the EPA progress code designation eliminates duplication of effort and allows KG&E greater flexibility in its program.

WOLF CREEK ONLY

3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING

BASES

3/4.12.1 MONITORING PROGRAM

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 plant 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 three 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 -

The deleted sentence duplicates information previously described in Note "C" to Table 4.12-1.

WOLF CREEK ONLY

3/4.12.2 LAND USE CENSUS

This specification is provided to ensure that changes in the use of areas at and beyond the SITE BOUNDARY are identified and that modifications to the radiological environmental monitoring program are made if required by the results of 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 a 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
~~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.

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Bases 3/4.12.2

Justification -

The second sentence was revised to correspond to Specification 4.12.2.

The last part of 3/4.12.2 was deleted because Wolf Creek will sample broadleaf vegetation at the site boundary in the sector with the highest D/Q in lieu of including gardens in the annual land use census.

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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~~ by May 1 of each year. The initial report shall be submitted ~~prior to~~ by 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 activites for the report period, including a comparison with preoperational studies, with operational controls as appropriate, and with previous environmental surveillance reports, and an assessment of the observed impacts of the plant operation on the environment. The reports shall also include the results of land use censuses required by Specification 3.12.2.

The Annual Radiological Environmental Operating Reports shall include the results of analysis of all radiological environmental samples and of all 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, required by Specification 3.12.3; discussion of all deviations from the sampling schedule of Table 3.12-1; and discussion of all analyses in which the LLD required by Table 4.12-1 was not achievable.

revisions to sampling locations in accordance with Specification 3.12.2,

~~* 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.~~

or the applicable Environmental Protection Agency (EPA) code designation if the analysis laboratory is participating in the EPA crosscheck program,

Section 6.9.1.6

Justification -

Changing "prior to" to "by" conforms with guidance provided in the Radiological Assessment Branch Technical Position, Revision 1, November 1979.

The reference to the format of the Annual Radiological Environmental Operating Report and the description of the maps to be included were deleted; KG&E intends to provide reports of monitoring results that are adequately meaningful and descriptive, but feels that it is inappropriate and unnecessarily limiting to outline format of specific portions of the report in this section.

Adding the option to report the EPA program code designation eliminates duplication of effort and allows KG&E greater flexibility in its program.

WOLF CREEK ONLY

Operation." Acceptable methods for calculating the dose contribution from liquid and gaseous effluents are given in Regulatory Guide 1.109, Rev. 1, October 1977.

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

a. Container volume,

b. Total Curie quantity (specify whether determined by measurement or estimate),

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

d. Source of waste and processing employed (e.g., dewatered spent resin, compacted dry waste, evaporator bottoms),

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

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

The Radioactive Effluent Release Reports shall include a list 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, as well as a listing of new locations for dose calculations ~~and/or environmental monitoring~~ identified by the land use census pursuant to Specification 3.12.2.

MONTHLY OPERATING REPORT

6.9.1.8 Routine reports of operating statistics and shutdown experience, including documentation of all challenges to the PORVs or 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.

REPORTABLE OCCURRENCES

6.9.1.9 The REPORTABLE OCCURRENCES of Specifications 6.9.1.10 and 6.9.1.11 below, including corrective ACTIONS and measures to prevent recurrence, shall be reported to the NRC. Supplemental reports may be required to fully describe final resolution of occurrence. In case of corrected or supplemental reports, a Licensee Event Report shall be completed and reference shall be made to the original report date.

Section 6.9.1.7

Justification -

All information concerning the Radiological Environmental Monitoring Program will be included in the Annual Radiological Environmental Operating Report to eliminate duplication of effort.

ENCLOSURE III

CALLAWAY SPECIFIC RADIOLOGICAL EFFLUENT TECHNICAL SPECIFICATIONS

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 Effluent Line	1	28
b. Steam Generator Blowdown Effluent Line	1	29
c. Turbine Building (Floor Drains) Sumps Effluent Line	1	29
2. Radioactivity Monitors Providing Alarm But Not Providing Automatic Termination of Release		
a. Service Water System Effluent Line	1	30
b. Component Cooling Water System Effluent Line	1	30
3. Continuous Composite Samplers and Sampler Flow Monitor		
a. Steam Generator Blowdown Effluent Line (alternate to Item 1.b)	1	29
b. Turbine Building Sumps Effluent Line (alternate to Item 1.c)	1	29
4. Flow Rate Measurement Devices		
a. Liquid Radwaste Effluent Line	1	31
b. Steam Generator Blowdown Effluent Line	1	31
c. Discharge Canal	1	31

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Insert 04

TABLE 3.3-12 (Continued)

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	ACTION
5. ~~Radioactivity Recorders*~~		
a. Liquid Radwaste ~~Effluent Line~~	1	28
~~b.~~ Steam Generator Blowdown Effluent Line	1	32

~~*Required only if Alarm/Trip Setpoint is based on recorder-controller.~~

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TABLE 3.3-12

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	MINIMUM CHANNELS OPERABLE	ACTION
1. GROSS RADIOACTIVITY MONITORS PROVIDING AUTOMATIC TERMINATION OF RELEASE		
a. Liquid Radwaste Discharge Monitor (HB-RE-18)	(1)	28
b. Steam Generator Blowdown Discharge Monitor (BM-RE-52)	(1)	29
c. Turbine Building Drain Monitor (LE-RE-59)	(1)	30
d. Secondary Liquid Waste System Monitor (HF-RE-45)	(1)	31
2. FLOW RATE MEASUREMENT DEVICES		
a. Liquid Radwaste Discharge Line		
(1) Waste Monitor Tank A Discharge Line	(1)	32
(2) Waste Monitor Tank B Discharge Line	(1)	32
b. Cooling Tower Blowdown Line	(1)	32
c. Steam Generator Blowdown Effluent Lines	(1)	32
d. Secondary Liquid Waste System Discharge Line	(1)	32

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TABLE 3.3-12

JUSTIFICATION:

The generic standard tech spec tables do not reflect the SNUPPS Plant design. The table has been revised to reflect actual site specific design in regard to release pathways and liquid effluent radioactivity monitors.

Liquid effluent Radioactivity monitors are identified and described in Section 11.5.2.2.3 of the SNUPPS FSAR. Table 3.3-12 has been revised to incorporate these monitors. The monitors listed cover all actual and potential liquid effluent release pathways during normal plant operations.

Since SNUPPS does not have effluent Radioactivity monitors that provide alarm and no automatic termination of the release, no monitors in this category were listed.

Continuous composite samplers and sampler flow monitors are not included in the SNUPPS plant design. Online radioactivity monitors provide the capability for real time assessment and control of liquid effluents being discharged and are considered more desirable than only composite samplers which provide only an 'after the fact' sample. Since online monitors with automatic isolation features are provided in lieu of composite samplers for the indicated pathways, the composite sampler category is deleted.

Flow rate measurement devices are listed as required by the standard RETS.

Radioactivity recorders are not applicable to SNUPPS since monitor set points are not based upon record-controller devices. Therefore, this category is not included in Table 3.3-12.

TABLE 4.3-12

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 Effluent Line	D	P	R(3)	Q(1)
b. Steam Generator Blowdown Effluent Line	D	M	R(3)	Q(1)
c. Turbine Building (Floor Drains) Sumps Effluent Line	D	M	R(3)	Q(1)
2. Radioactivity Monitors Providing Alarm But Not Providing Automatic Termination of Release				
a. Service Water System Effluent Line	D	M	R(3)	Q(2)
b. Component Cooling Water System Effluent Line	D	M	R(3)	Q(2)
3. Continuous Composite Samplers and Sampler Flow Monitor				
a. Steam Generator Blowdown Effluent Line (alternate to Item 1 b)	D	N.A.	R	Q
b. Turbine Building Sumps Effluent Line (alternate to Item 1.c)	D	N.A.	R	Q

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TABLE 4.3-12 (Continued)

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST
~~4. Flow Rate Measurement Devices~~				
~~a. Liquid Radwaste Effluent Line~~	~~D(4)~~	~~N.A.~~	~~R~~	~~Q~~
~~b. Steam Generator Blowdown Effluent Line~~	~~D(4)~~	~~N.A.~~	~~R~~	~~Q~~
~~c. Discharge Canal~~	~~D(4)~~	~~N.A.~~	~~R~~	~~Q~~
~~5. Radioactivity Recorders*~~				
~~a. Liquid Radwaste Effluent Line~~	~~D~~	~~N.A.~~	~~R~~	~~Q~~
~~b. Steam Generator Blowdown Effluent Line~~	~~D~~	~~N.A.~~	~~R~~	~~Q~~

~~*Required only if Alarm/Trip Setpoint is based on recorder-controller.~~

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TABLE 4.3-12

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. GROSS BETA OR GAMMA RADIOACTIVITY MONITORS PROVIDING ALARM AND AUTOMATIC 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	P	R(2)	Q(1)
2. FLOW RATE MEASUREMENT DEVICES				
a. Liquid Radwaste Discharge Line	D(3)	N.A.	R	Q
(1) Waste Monitor Tank A Discharge Line	D(3)	N.A.	R	Q
(2) Waste Monitor Tank B Discharge Line	D(3)	N.A.	R	Q
b. Steam Generator Blowdown Discharge Line	D(3)	N.A.	R	Q
c. Cooling Tower Blowdown Line	D(3)	N.A.	R	Q
d. Secondary Liquid Waste System Discharge Line	D(3)	N.A.	R	Q

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TABLE 4.3-12

JUSTIFICATION:

The generic standard tech spec tables do not reflect the SNUPPS Plant design. The table has been revised to reflect actual site specific design in regard to release pathways and liquid effluent radioactivity monitors.

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TABLE 4.11-1 (Continued)

TABLE NOTATION

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

For a particular measurement system, which may include radiochemical separation:

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

Where:

LLD is the "a priori" lower limit of detection as defined above, as microCuries per unit mass or volume,

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

E is the counting efficiency, as counts per disintegration,

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

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

Y is the fractional radiochemical yield, when applicable,

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

Δt for plant effluents is the elapsed time between the midpoint of sample collection and the time of counting.

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.

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

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TABLE 4.11-1 (Continued)

TABLE NOTATION

[c] The principal gamma emitters for which the LLD specification applies exclusively are the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, ~~Zn-65~~, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144. This list does not mean that only these nuclides are to be 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.~~12~~.7.

[d] A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen that is representative of the liquids released.

[e] A continuous release is the discharge of liquid wastes of a nondiscrete volume, e.g., from a volume of a system that has an input flow during the continuous release.

~~[f] 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.~~

[f] The specified sampling and analysis requirements are applicable only after radioactivity analysis of secondary coolant in accordance with Specification 3.7.1.4 confirms concentrations of any individual principle gamma emitter to exceed the LLD specified in Table 4.11-1.

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.

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TABLE 4.11-1 TABLE NOTATION

JUSTIFICATION:

(1) footnote b: 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.

(2) footnote c: 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 Callaway and Wolf Creek Tech Specs.

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

(3) footnote f: This section was deleted since it is applicable to continuous composite samplers which are not included in the SNUPPS Plant design.

(4) proposed footnote f: The SNUPPS design is such that it precludes the introduction of radioactive materials into these systems. Accordinly, these are normally considered to be nonradioactive release points, unless installed radiation monitors or laboratory analysis indicates otherwise.

The Steam Generator Blowdown System (SGBS) is discussed in the Snupps FSAR, Section 10.4.8. As described, the SGBS is a nonradioactive secondary system with full processing capabilities. Filters, screens, mixed bed demineralizers, and heat exchangers are provided in this system for processing of the blowdown.

Normally, the processed blowdown will meet the water purity and radioactivity standards for return to the condensor, but may also be sent to the condensate storage tank or discharged to the environment. Steam generator blowdown discharges are monitored by a radiation monitor which has alarm and automatic isolation functions. The discharge is also automatically terminated upon low dilution flow.

Although normally considered to be non-radioactive, it is possible that the blowdown will become contaminated with radioactive materials during periods of primary-to-secondary leakage. It is therefore appropriate that sampling and analysis be conducted only during such periods as the secondary system is contaminated (i.e. during periods of primary-to-secondary leakage).

The potentially radioactive secondary liquid waste (LRW) and the potentially oily waste (OW) subsystems collectively comprise the Turbine Building Drain network. These subsystems are described in the SNUPPS FSAR, Section 9.3.3.2.

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The LRW subsystem collects normally nonradioactive but potentially radioactive Turbine Building drains and portions of the Auxilliary Building drains which do not normally house radioactive components. The system normally discharges collected effluent to the secondary liquid waste processing system for recycle within the plant or discharge, but can also be directed, based on operator judgement, to the OW subsystem.

The OW subsystem collects nonradioactive liquid wastes from the Turbine Building and other areas. Radiation monitoring and automatic system isolation is provided in the discharge line to preclude the discharge of radioactive fluid from the power block.

Six-inch curbs are provided between the OW/LRW subsystem drainage areas to assure that proper segragation of equipment leakages is maintained. The sump pump discharge lines for the two subsystems have independent discharge line isolation valves and a valved connection, permitting the discharge of one subsystem through the other.

The LRW subsystem collects three sumps: the Auxilliary Feedwater Pump rooms sump, the Condensor Pit Sump (South) and the Condensor Pit Sump (North). These sumps are not normally radioactive, but are potentially radioactive during periods when the secondary system becomes contaminated (i.e. during periods of primary-to-secondary leakage).

It is therefore apparent that releases of radioactivity through the specified continuous release points can only occur when a primary-to-secondary leak has introduced a significant amount of radioactive contamination into the secondary system. Thus, it is entirely appropriate that radiological sampling and analysis be performed only when there is the possibility that these systems contain radioactive materials, i.e. when the secondary coolant becomes contaminated.

The proposed modification provides criteria for sampling and analysis of these release points contigent upon the determination of detectable levels of radioactivity in the secondary coolant, as provided by Technical Specification 4.7.1.4 requirements and the LLD for the principal gamma emitters as per Table 4.11-1.

This graded approach of liquid waste sampling and analysis will assure that releases from these potential liquid radioactive release points are adequately monitored and maintained within the limits of 10CFR20 and Technical Specification 3.11.1.1.

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TABLE 4.11-2

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

GASEOUS, RELEASE TYPE	SAMPLING FREQUENCY	MINIMUM ANALYSIS FREQUENCY	TYPE OF ACTIVITY ANALYSIS	LOWER LIMIT OF DETECTION (LLD)[a] (μCi/ml)
A. Waste Gas ~~Storage~~ Decay Tank	P Each Tank Grab Sample	P Each Tank	Principal Gamma Emitters[b]	2×10^{-4}
B. Containment PURGE ~~or VENT~~	P Each PURGE[k] Grab Sample	P Each PURGE[k]	Principal Gamma Emitters[b,c]	2×10^{-4}
		M	H-3	1×10^{-6}
C.1 ~~Plant~~ Vent Unit	M[k,d] Grab Sample	M	Principal Gamma Emitters[b,e]	1×10^{-4}
			H-3	1×10^{-6}
~~C.2 Fuel Storage Area Ventilation~~	~~M[e] Grab Sample~~	~~M~~	~~Principal Gamma Emitters[b]~~	~~1×10^{-4}~~
			~~H-3~~	~~1×10^{-6}~~
C.2 ~~Auxiliary Bldg, Radwaste Area, SGB Vent, Others~~ Radwaste Building Ventilation	M Grab Sample	M	Principal Gamma Emitters[b]	1×10^{-4}
D. All Release Types as listed in A,B, C above.	Continuous[k,e]	W[f] Charcoal Sample	I-131	1×10^{-12}
			~~I-133~~	~~1×10^{-10}~~ 1×10^{-12}
	Continuous[k,e]	W[f] Particulate Sample	Principal Gamma Emitters[b]	1×10^{-11}
	Continuous[k,e]	M Composite Particulate Sample	Gross Alpha	1×10^{-11}
	Continuous[k,e]	Q Composite Particulate Sample	Sr-89, Sr-90	1×10^{-11}
	Continuous[k,e]	Noble Gas Monitor	Noble Gases Gross Beta ~~or Gamma~~	1×10^{-6}

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TABLE 4.11-2

JUSTIFICATION

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

Footnote c 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.

"or Gamma" was deleted for the Noble Gas Monitor since the detectors for the gas monitors are beta sensitive, plastic scintillators (FSAR section 11.5.2.3.1.3).

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TABLE 4.11-2 TABLE NOTATION

JUSTIFICATION

(1) Footnote b: 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 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 Callaway Tech Specs.

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

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

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

(4) Footnote e: It is proposed that the normal tritium sampling of the Unit Vent is sufficient to monitor the tritium concentration in the fuel pool area ventillation exhaust.

The SNUPPS Plant is designed such that the Fuel Building ventillation 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).

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.

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TABLE 4.11-2 TABLE NOTATION

JUSTIFICATION (Continued)

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.

(5) Footnote g: 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.

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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, in lieu of a Licensee Event Report, prepare and submit to the Commission, in the Annual Radiological Environmental Operating Report required by Specification 6.9.1.11, 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, in lieu of a Licensee Event Report, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions to be taken to reduce radioactive effluents so that the potential annual dose* to A MEMBER OF THE PUBLIC is less than the calendar year limits of Specifications 3.11.1.2, 3.11.2.2, and 3.11.2.3. When more than one of the radionuclides in Table 3.12-2 are detected in the sampling medium, this report shall be submitted if:

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

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 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.

c. With milk ~~or fresh leafy vegetable~~ (not including short term or temporary unavailability) samples unavailable from one or more of the sample locations required by Table 3.12-1, identify locations for obtaining replacement samples and add them to the Radiological Environmental Monitoring Program within 30 days. The

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

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Justification for Proposed Changes to Technical Specification 3/4.12.1, "Monitoring Program"

1. Changes to ACTION c.:

   a. Per the proposed deletion of the requirement to perform Food Products sampling, we propose to delete the phrase "or fresh leafy vegetables" from this ACTION item. (Refer to "Justification for Proposed Changes to Table 3.12-1, "Radiological Environmental Monitoring Program," item number 10.)

   b. In the interest of clarifying that this ACTION item is intended for permanent or semi-permanent changes in sampling locations, we propose the addition of the phrase, "(not including short term or temporary unavailability)," to this statement as indicated.

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specific locations from which samples were unavailable may then be deleted from the monitoring program. In lieu of a Licensee Event Report and pursuant to Specification 6.9.1.12, identify the cause for the unavailability of samples and identify the new location(s) for obtaining replacement samples in the next Semiannual Radioactive Effluent Release Report and also include in the report a revised figure(s) and table for the ODCM reflecting the new location(s).

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.

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TABLE 3.12-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS[a]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
1. Direct Radiation[b]	40 routine monitoring stations (DR1-DR40) either with two or more dosimeters or with one instrument for measuring and recording dose rate continuously, placed as follows: An inner ring of stations, one in each meteorological sector in the general area of the SITE BOUNDARY (DR1-DR16); An outer ring of stations, one in each meteorological sector in the 6- to 8-km range from the site (DR17-DR32); The balance of the stations (DR33-DR40) to be placed in special interest areas such as population centers, nearby residences, schools, and in 1 or 2 areas to serve as control stations.	Quarterly	Gamma dose quarterly.

*The number, media, frequency, and location of samples may vary from site to site. This table presents an acceptable minimum program for a site at which each entry is applicable. Local site characteristics must be examined to determine if pathways not covered by this table may significantly contribute to an individual's dose and should be included in the sampling program. The code letters in parentheses, e.g. DR1, A1, provide one way of defining generic sample locations in this specification that can be used to identify the specific locations in the map(s) and table in the ODCM.

TABLE 3.12-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS[a]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
2. Airborne			
Radioiodine and Particulates	Samples from ~~5~~ five locations	Continuous sampler operation with sample collection weekly, or more frequently if required by dust loading.	Radioiodine Cannister: I-131 analysis weekly.
	~~3~~ three samples from close to the ~~3~~ three SITE BOUNDARY locations, in different sectors, of the highest calculated annual average ground level D/Q.		Particulate Sampler: Gross beta radioactivity analysis following filter change;[d] Gamma isotopic analysis[e] of composite (by location) quarterly.
	~~1~~ One sample from the vicinity of a community having the highest calculated annual average ground-level D/Q.		
	~~1~~ One sample from a control location, as for example 15-30 km distant and in the least prevalent wind direction.		
3. Waterborne			
a. Surface[f]	~~1~~ One sample upstream ~~1~~ One sample downstream	Composite sample over 1-month period[g]	Gamma isotopic analysis[e] monthly. Composite for tritium analysis quarterly.
~~b. Ground~~	~~Samples from 1 or 2 sources only if likely to be affected.~~	~~Quarterly~~	~~Gamma isotopic[e] and tritium analysis quarterly.~~
c. Drinking	~~1~~ One sample ~~of each of 1 to 3~~ one three (Wc1 - Wc3) of the nearest water supplies that could be affected by its discharge.	~~Composite sample over 2-week period[g] 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.~~[1] Composite for gross beta and gamma isotopic analyses monthly. Composite for tritium analysis quarterly.
	~~1~~ One sample from a control location (Wc4).		

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TABLE 3.12-1 (Continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS[a]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
d. Sediment from shoreline	One sample from downstream area with existing or potential recreational value (Wd1).	Semiannually	Gamma isotopic analysis[e] semiannually.
4. Ingestion			
a. Milk	Samples from milking animals in three locations (Ia1 - Ia3) within 5 km distance having the highest dose potential. If there are none, then, one sample from milking animals in each of two areas (Ia1 - Ia3) between 5 to 8 km distant where doses are calculated to be greater than 1 mrem per yr[1].	Semimonthly when animals are on pasture, monthly at other times	Gamma isotopic[e] and I-131 analysis semimonthly when animals are on pasture; monthly at other times.
	One sample from milking animals at a control location (Ia4), 15-30 km distant and in the least prevalent wind direction.		
b. Fish and Invertebrates	One sample of each commercially and recreationally important species in vicinity of plant discharge area. (Ib1 - Ib_).	Sample in season, or semiannually if they are not seasonal	Gamma isotopic analysis[e] on edible portions.
	One sample of same species in areas not influenced by plant discharge (Ib10 - Ib_).		
~~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 (Ic1 - Ic_).~~	~~At time of harvest[j]~~	~~Gamma isotopic analyses[e] on edible portion.~~

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TABLE 3.12-1 (Continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS[a]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
~~c. Food Products (cont'd)~~	~~Samples of 3 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 (le10 - le13).~~	~~Monthly when available~~	~~Gamma isotopic[e] and I-131 analysis.~~
	~~1 sample of each of the similar broad leaf vegetation grown 15-30 km distnat in the least prevalent wind direction if milk sampling is not performed (le20 - le23).~~	~~Monthly when available~~	~~Gamma isotopic[e] and I-131 analysis~~

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TABLE 3.12-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS[a]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
1. Direct Radiation[b]	40 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 stations, one in each meteorological sector in the general area of the SITE BOUNDARY An outer ring of sixteen stations, one in each meteorological sector in the 6- to 8-km range from the site Eight stations to be placed in special interest areas such as population centers, nearby residences, schools, and in 1 or 2 areas to serve as control stations.	At least once per 92 days.	Gamma dose

TABLE 3.12-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

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EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS[a]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
2. Airborne			Radioiodine Canister:
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 15-30 km distant and in the least prevalent wind direction.[c]	Continuous operations of sampler with sample collection as required by dust loading but at least once per 7 days.	Analyze at least once per 7 days for I-131. Particulate Sampler: Analyze for gross beta radioactivity $\geq$ 24 hours following filter change. Perform gamma isotopic analysis[d] on those samples for which the gross beta activity is > 10 times the yearly mean of control samples. Perform gamma isotopic analysis [d] on composite samples (by location) at least once per 92 days.
3. Waterborne			
a. Surface[e]	One sample upstream One sample downstream	Composite sample[f] over a period of less than or equal to 31 days.	Gamma isotopic analysis[d] of each sample. Tritium analysis of composite sample at least once per 92 days.
b. Drinking	One sample of the nearest water supplies that could be affected by its discharge. One sample from a control location.	Grab sample collected at least once per 31 days. Composite sample[f] over a period of less than or equal to 31 days.	Gamma isotopic[d] and gross beta analyses of each sample. Tritium analyses of composite sample at least once per 92 days.

Insert-21

TABLE 3.12-1 (Continued)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

EXPOSURE PATHWAY AND/OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS[a]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
4. Ingestion			
a. Milk	One sample from miling animals in each of two areas between 5 to 8 km distance where doses are calculated to be greater than 1 mrem per yr[g].	At least once per 15 days when animals are on pasture; at least once per 31 days at other times.	Gamma isotopic[d] and I-131 analysis of each sample.
	One sample from milking animals at a control location, 15-30 km distant and in the least prevalent wind direction.		
b. Fish	One sample of each of two species in the vicinity of plant discharge area.	One sample in season, or at least once per 184 days if not seasonal. One sample of each of the following:	Gamma isotopic analysis[d] on edible portions.
	One sample of similar type in areas not influenced by plant discharge.	1. Bottom Feeder Species 2. Predator Species	

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TABLE 3.12-1 (Continued)

TABLE NOTATION

[a] 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 unavilability, 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.~~12~~.7. 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 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. In lieu of a Licensee Event Report and pursuant to Specification 6.9.1.~~12~~.7 identify the cause of the unavailability of samples for that pathway and identify the new location(s) for obtaining replacement samples in the next Semiannual Radioactive Effluent Release Report and also include in the report a revised figure(s) and table for the ODCM reflecting the new location(s).

[b] 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 dosimters. 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.

[c] 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.

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TABLE 3.12-1 (Continued)

TABLE NOTATION

~~b. 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 ten times the yearly mean of control samples, gamma isotopic analysis shall be performed on the individual samples.~~

d c. Gamma isotopic analysis means the identification and quantification of gamma-emitting radionuclides that may be attributable to the effluents from the facility.

e f. 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. ~~"Upstram" 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.~~

~~d. 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.~~

~~h. 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.~~

g f. The dose shall be calculated for the maximum organ and age group, using the methodology and parameters in the ODCM.

~~i. 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.~~

f In this program, constant volume sample aliquots are collected at time intervals that are short (e.g. hourly) relative to the compositing period (e.g. monthly).

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Justification for Proposed Changes to Table 3.12-1, "Radiological Environmental Monitoring Program"

1. Deletion of sampling station numbers: Compliance with Specification 3.12.2 necessitates the possibility of changes in sampling station numbers. Therefore, owing to the relative ease of updating the ODCM by comparison to Technical Specification updates, we propose that this information be contained in the ODCM as opposed to the Technical Specifications.

2. Changes to frequency verbage: We propose the following changes 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

3. 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 (h).

4. 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.

5. Change in the Drinking Water sample collection methodology: Due to the relatively extreme distance (approxmiately 78 river miles downstream of the Callaway Plant dishcarge) of the nearest possible Drinking Water sampling location and therefore 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.

6. Deletion of Drinking Water I-131 analysis requirement: 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 Stage, 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/yr

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Justification for Proposed Changes to Table 3.12-1, "Radiological Environmental Monitoring Program" (continued)

6. Deletion of Drinking Water I-131 analysis requirement: (continued)

to an infant's liver. This dose is much lower than the 1 mrem/yr 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.

7. Reduction in the requirements regarding the number of Milk sampling stations: Exhaustive efforts have been able to identify only 2 sources of milking animals within the specified 8 km distance, neither of which is within 5 km of the plant. We therefore propose that the requirement be modified to 2 milk sampling locations and 1 control location.

8. Deletion of the sampling of 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 freshwater sites such as the Callaway Plant. We therefore propose that this requirement be deleted from the Technical Specifications.

9. Modification of the sampling requirements for Fish sampling: Section 2.2.2.8 of the Callaway Plant Environmental Report, Operating License Stage, identifies the four most abundant fish species in the Missouri River as: Gizzard Shad, River Carpsucker, Shortnose Gar, and Blue Catfish. Of these, the former two species are bottom feeders and the latter two species are predators. Although it is our intention to be as consistent as possible in the sampling of fish, due to natural variabilities in availability of different fish species between stations and between various times of the year, we propose the changes indicated.

10. Deletion of requirement to perform Food Products sampling: We propose to delete the requirement to perform Food Products sampling based on the following:

    a. Part 4 of Table 3.12-1 requires I-131 analysis of Milk.

    b. 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.

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Justification for Proposed Changes to Table 3.12-1, "Radiological Environmental Monitoring Program" (continued)

11. Deletion and modification of various Table 3.12-1 Notations:

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

c. Notation g: 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 h: We propose to delete this notation based on the deletion of the requirements to perform Ground Water sampling for the Callaway Plant (see 3, above).

e. Notation j: We propose to delete this notation based on the deletion of the requirements to perform Food Product sampling for the Callaway Plant (see 10, above).

12. 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.

CALLAWAY ~~WOLF CREEK~~ - UNIT 1

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TABLE 3.12-2

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES

ANALYSIS	WATER (pCi/ℓ)	AIRBORNE PARTICULATE OR GASES (pCi/m³)	FISH (pCi/kg, wet)	MILK (pCi/ℓ)	FOOD PRODUCTS (pCi/kg, wet)
	REPORTING LEVELS				
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.

** Total for parent and daughter.

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Justification for Proposed Changes to Table 3.12-2, "Reporting Levels for Radioactivity Concentration in Environmental Samples"

1. Addition of footnote: We propose the addition of this footnote in the interest of clarity.

2. 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.

CALLAWAY ~~WOLF CREEK~~ - UNIT 1

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TABLE 4.12-1

DETECTION CAPABILITIES FOR ENVIRONMENTAL SAMPLE ANALYSIS[a]

LOWER LIMIT OF DECTECTION (LLD)[b,c]

ANALYSIS	WATER (pCi/ℓ)	AIRBORNE PARTICULATE OR GAS (pCi/m^3)	FISH (pCi/kg, wet)	MILK (pCi/ℓ)	FOOD PRODUCTS (pCi/kg, wet)	SEDIMENT (pCi/kg, dry)
Gross Beta	4[d]	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[d]	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/1 may be used.

** Total for parent and daughter

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TABLE 4.12-1 (Continued)

TABLE NOTATION

[a] 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.~~11~~.7

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

[c] The LLD is defined, for purposes of these specifications, as the smallest concentration of radioactive material in a sample that will yeild 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 is the "a priori" lower limit of detection as defined above, as picroCuries per unit mass or volume,

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

E is the counting efficiency, as counts per disintegration,

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

2.22 is the number of disintegrations per minute per picroCurie,

Y is the fractional radiochemical yield, when applicable,

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

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

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

X

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TABLE 4.12-1 (Continued)

TABLE NOTATION

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.~~11~~.7

[d] LLD for drinking water samples. If no drinking water pathway exists, the LLD of gamma isotopic analysis may be used.

CAL ONLY

Justification for Proposed Changes to Table 4.12-1, "Detection Capabilities for Environmental Sample Analysis"

1. Addition of footnotes: We propose the addition of the indicated footnotes in the interest of clarity.

2. 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.

3. Changes to Footnote b:

   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.

   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.

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RADIOLOGICAL ENVIRONMENTAL MONITORING

3/4.12.2 LAND USE CENSUS

LIMITING CONDITION FOR OPERATION

3.12.2 A land use census shall be conducted and shall identify within a distance of 8 km (5 miles) the location in each of the 16 meteorological sectors of the nearest milk animal, the nearest residence, ~~and the nearest garden* of greater than 50 m^2 (500 ft^2) producing broad leaf vegetation. (For elevated releases as defined in Regulatory Guide 1.111, Revision 1, July 1977, the land use census shall also identify within a distance of 5 km (3 miles) the locations in each of the 16 meteorological sectors of all milk animals and all gardens of greater than 50 m^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, in lieu of a Licensee Event Report, identify the new location(s) in the next Semiannual Radioactive Effluent Release Report, pursuant to Specification 6.9.1.~~12~~.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 percent greater than at a location from which samples are currently being obtained in accordance with Specification 3.12.1, add the new location(s) to the radiological environmental monitoring program within 30 days. The sampling location(s), excluding the control station location, having the lowest calculated dose or dose commitment(s), via the same exposure pathway, may be deleted from this monitoring program after (October 31) of the year in which this land use census was conducted. In lieu of a Licensee Event Report and pursuant to Specification 6.9.1.~~12~~7 identify the new location(s) in the next Semiannual Radioactive Effluent Release Report and also include in the report a revised figure(s) and table for the ODCM reflecting the new location(s).

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

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.~~11~~.12

~~*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 3.12-1.4c shall be followed, including analysis of control samples.~~

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

1. Changes to Technical Specification 3.12.2:

   a. Per the proposed deletion of the requirement for Food Product sampling, we propose to delete the requirement for determining the nearest garden of greater than 50 m^2 producing broad leaf vegetation. We feel that this is particularly justified in that it relates to the basic design of the Callaway Plant and therefore is generally not subject to change.

   b. We propose to delete the statements relating to elevated releases, as the Callaway Plant has no elevated release points [per the definition of Elevated Release as given in Sections C.2.a and C.2.b of Regulatory Guide 1.111, Rev. 1 (July 1977)].

2. Changes to footnote at the bottom of the page: Per the deletion of the requirement for Food Products sampling, we propose to delete this footnote, as it is no longer applicable to the Callaway Plant.

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~~RADIOLOGICAL~~ ENVIRONMENTAL MONITORING

3/4.12.3 INTERLABORATORY COMPARISON PROGRAM

LIMITING CONDITION FOR OPERATION

3.12.3 Analyses shall be performed on radioactive materials supplied as part of an Interlaboratory Comparison Program 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.~~11~~.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.~~11~~.6.

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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.

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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).

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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.

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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 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.

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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.

2. Deletion of references to "gardens": Per the deletion of the requirement to sample Food Products, we propose to delete the references to "gardens," as indicated.

ENCLOSURE IV

MISCELLANEOUS TECHNICAL SPECIFICATION

SUBMITTALS

INSTRUMENTATION

ACCIDENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.6 The accident monitoring instrumentation channels shown in Table 3.3-10 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With the number of OPERABLE accident monitoring instrumentation channels less than the Required Number of Channels shown in Table 3.3-10, restore the inoperable channel(s) to OPERABLE status within 7 days, or be in at least HOT SHUTDOWN within the next 12 hours.

b. With the number of OPERABLE accident monitoring instrumentation channels less than the MINIMUM CHANNELS OPERABLE requirements of Table 3.3-10, restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.6 Each accident monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-7.

TABLE 3.3-10

ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT	REQUIRED NO. OF CHANNELS	MINIMUM CHANNELS OPERABLE
1. Containment Pressure - Dual Range	2	1
2. Reactor Coolant Outlet Temperature - T_{HOT} (Wide Range)	2	1
3. Reactor Coolant Inlet Temperature - T_{COLD} (Wide Range)	2	1
4. Reactor Coolant Pressure - Wide Range	2	1
~~5. Reactor Vessel Water Level - Narrow Range~~	~~2~~	~~1~~
~~6. Reactor Vessel Water Level - Wide Range~~	~~2~~	~~1~~
7. Pressurizer Water Level	2	1
8. Steam Line Pressure	2/steam generator	1/steam generator
9. Steam Generator Water Level - Narrow Range	1/steam generator	1/steam generator
10. Steam Generator Water Level - Wide Range	1/steam generator	1/steam generator
11. Refueling Water Storage Tank Water Level	2	1
12. Containment Hydrogen Concentration Level	2	1
13. Auxiliary Feedwater Flow Rate	1/steam generator	1/steam generator
14. Reactor Coolant System Subcooling Margin Monitor	2	1
15. PORV Position Indicator*	2/Valve	1/Valve
16. PORV Block Valve Position Indicator**	2/Valve	1/Valve
17. Safety Valve Position Indicator	2/Valve	1/Valve
18. Containment Water Level	2	1
19. Containment Radiation Level (High Range)	2	1
20. Thermocouple/Core Cooling Detection System	2	1

* Not applicable if the associated block valve is in the closed position.

** Not applicable if the block valve is verified in the closed position and power is removed.

TABLE 4.3-7

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION
1. Containment Pressure - Dual Range	M	R
2. Reactor Coolant Outlet Temperature - T_{HOT} (Wide Range)	M	R
3. Reactor Coolant Inlet Temperature - T_{COLD} (Wide Range)	M	R
4. Reactor Coolant Pressure - Wide Range	M	R
~~5. Reactor Vessel Water Level - Narrow Range~~	~~M~~	~~R~~
~~6. Reactor Vessel Water Level - Wide Range~~	~~M~~	~~R~~
7. Pressurizer Water Level	M	R
8. Steam Line Pressure	M	R
9. Steam Generator Water Level - Narrow Range	M	R
10. Steam Generator Water Level - Wide Range	M	R
11. Refueling Water Storage Tank Water Level	M	R
12. Containment Hydrogen Concentration Level	M	R
13. Auxiliary Feedwater Flow Rate	M	R
14. Reactor Coolant System Subcooling Margin Monitor	M	R
15. PORV Position Indicator*	M	N.A.
16. PORV Block Valve Position Indicator**	M	N.A.
17. Safety Valve Position Indicator	M	N.A.
18. Containment Water Level	M	R
19. Containment Radiation Level (High Range)	M	R
20. Thermocouple/Core Cooling Detection System	M	R

*Not applicable if the associated block valve is in the closed position.

**Not applicable if the block valve is verified in the closed position and power is removed.

TABLES 3.3-10 and 4.3-7

Justification:

SNUPPS has deleted the reactor vessel level indication system (RVLIS) from these two tables. The reasons for doing this are as follows:

1. The SNUPPS response to NRC Generic Letter 82-33 (Supplement 1 to NUREG-0737, Requirements for Emergency Response Capability) indicated that this sytem may not be operable at the time of fuel load. It is anticipated that this sytem may not be fully operational until the startup after the first refueling outage at Callaway and at Wolf Creek. Factors mitigating against an earlier commitment to operational status of the RVLIS are that (a) this instrument is developmental in nature and (b) the environmental qualification program has not yet been completed.

2. NRC Generic Letter 82-28 (Inadequate Core Cooling Instrumentation System) indicated that this instrumentation could be turned on prior to NRC final approval for the purposes of operator training and familiarization. This system should be used with prudence in relation to operator actions or decisions until the NRC approval is obtained and instructions for its use have been incorporated into approved emergency operating procedures. The final approval for the SNUPPS plants' RVLIS has not been received.

3. The RVLIS is, as of this time, unproven and untried. Currently, the reliability of the system is unknown. Experience at other plants has indicated that the sytem is difficult to calibrate.

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

a. At least once per 12 hours by verifying that the following valves are in the indicated positions with power to the valve operators removed:

Valve Number	Valve Function	Valve Position
a. BN-HV-8813	a. Safety Injection to RWST Isolation Vlv	a. Open
b. EM-HV-8802A(B)	b. SI Pump Discharge Hot Leg Iso Vlvs	b. Closed
c. EM-HV-8835	c. Safety Injection Cold Leg Iso Valve	c. Open
d. EF-HV-8840	d. RHR/SI Hot Leg Recirc Iso Valve	d. Closed
e. EJ-HV-8809A	e. RHR to Accum Inj Loops 1 & 2 Iso Vlv	e. Open
f. EJ-HV-8809B	f. RHR to Accum Inj Loops 3 & 4 Iso Vlv	f. Open

b. At least once per 31 days by:

~~1) Verifying that the ECCS piping is full of water by venting the ECCS pump casings and accessible discharge piping high points; and~~

2) Verifying that each valve (manual, power-operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.

c. By a visual inspection which verifies that no loose debris (rags, trash, clothing, etc.) is present in the containment which could be transported to the containment sump and cause restriction of the pump suctions during LOCA conditions. This visual inspection shall be performed:

1) For all accessible areas of the containment prior to establishing CONTAINMENT INTEGRITY; and

2) Of the areas affected within containment at the completion of each containment entry when CONTAINMENT INTEGRITY is established.

d. At least once per 18 months by:

1) Verifying automatic isolation and interlock action of the RHR System from the Reactor Coolant System by ensuring that:

a) with a simulated or actual Reactor Coolant System pressure signal greater than or equal to 425 psig the interlocks prevent the valves from being opened, and

b) with a simulated or actual Reactor Coolant System pressure signal, ~~less than or equal to 600~~ greater than or equal to 750 psig the interlocks will cause the valves to automatically close.

Specification: 4.5.2.b.1

Justification:

The required venting every 31 days exposes personnel to potential radioactive liquid, creates unnecessary liquid radwaste, and violates the ALARA concept. SNUPPS performs surveillance at required intervals on all ECCS pumps and valves. These surveillances should be sufficient to detect any problems leading to pump cavitation and overheating without relying on the 31 day venting criteria.

W

4.5.2.d.1

The change of this setpoint to 750 psig had been approved for TVA and documented in a letter from T. Novak, 1/16/80 (attached). This approval was based on the fact that the automatic closure interlock setpoint on RCS pressure for RHR pump suction does not protect the RHR system from over-pressurization events because of the relatively slow closure times of the valves. Overpressurization of the RHR system is prevented by the independent prevent-open interlock of the isolation valves set at 425 psig. The basis for the automatic closure interlock setpoint is to ensure the closure of both valves when ascending in power to an operating condition; thereby ensuring compliance with RCS pressure boundary isolation criteria. Because the proposed change in automatic closure interlock does not adversely affect protection against overpressurization of the RHR system, W recommends the change for the interlock setting to 750 psig.

The change in wording from "less than or equal to" to "greater than or equal to" does not change the intent of the surveillance requirement. This was changed in order to be consistant with 4.5.2.d.1.a.

W

NUCLEAR REGULATORY COMMISSION

JAN 16 1980

:et Nos.: 50-327/328

1EMORANDUM FOR: L. Rubenstein, Acting Chief, LWR #4, DPM

'ROM: T. Novak, Chief, Reactor Systems Branch, DSS

UBJECT: TECHNICAL SPECIFICATION - ISOLATION INTERLOCK

lant Name: Sequoyah
ocket Nos.: 50-327/328
icensing Stage: OL
esponsible Branch and Project Manager: LWR-4; C. Stahle
ystems Safety Branch Involved: Reactor Systems Branch
escription of Review: Tech Spec Change
equested Completion Date: January 11, 1980
iew Status: Complete

ie Reactor Systems Branch has reviewed the Sequoyah applicant's proposal
o change the automatic closure interlock setpoint on reactor coolant system
ressure for residual heat removal pump suction isolation valves from 600 psig
o 750 psig in the Technical Specifications for Sequoyah, Units 1 and 2. We
ind this change acceptable as discussed in the enclosure.

T. Novak, Chief
Reactor Systems Branch
Division of Systems Safety

closure:
stated

: w/enclosure
M. Rubin
F. Orr
C. Stahle
F. Schroeder
R. Denise
S. Varga
. Vassallo
. Mattson
M. Virgilio
P. Wagner

itact: Frank Orr, Ext. 27591

The applicant has proposed that the automatic closure interlock setpoint on reactor coolant system pressure for residual heat removal pump suction isolation valves be raised from 600 pounds per square inch gauge to 750 pounds per square inch gauge in the Technical Specifications for Sequoyah, Units 1 and 2. He has stated that the interlock does not protect the residual heat removal system from overpressurization events from shutdown or starting up conditions because of the relatively slow closure time of the valves. The applicant has identified that the reason for the automatic closure interlock is to ensure closure of both valves (rather than just one) when ascending in pressure to an operating condition, thereby ensuring compliance with reactor coolant pressure boundary isolation criteria. He has also pointed out that protection against overpressurization of the residual heat removal system while at full pressure or while depressurizing is provided by the independent prevent-open interlock of the isolation valves set at 425 pounds per square inch gauge. Because the proposed change in automatic closure interlock does not adversely affect protection against overpressurization of the residual heat removal system we find the Technical Specification change for the interlock setting (750 psig) acceptable.

In Safety Evaluation Report section 5.3.2 item 1 (page 5-14), last line, we identified the automatic closure interlock setting to be 600 pounds per square inch gauge. To maintain consistency with the Technical Specification setting this value should be amended to 750 pounds per square inch gauge.

(3) Rev. 1

PLANT SYSTEMS

AUXILIARY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:

a. Two motor-driven auxiliary feedwater pumps, each capable of being powered from separate emergency busses, and

b. One steam turbine-driven auxiliary feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one auxiliary feedwater pump inoperable, restore the required auxiliary feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With two auxiliary feedwater pumps inoperable, be in at least HOT STANDBY witin 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With three auxiliary feedwater pumps inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.7.1.2 Each auxiliary feedwater pump shall be demonstrated OPERABLE:

a. At least once per 31 days by:

1) Verifying that each motor-driven pump develops a discharge pressure of greater than or equal to 1535 psig on recirculation flow when tested pursuant to Specification 4.0.5;

2) Verifying that the steam turbine-driven pump develops a discharge pressure of greater than or equal to 1625 psig ~~at a flow of greater than or equal to ____ gpm when the secondary steam supply pressure is greater than ____ psig.~~ The provisions of Specification 4.0.4 are not applicable for entry into MODE 3;

on recirculation flow

(1)

Rev. 1

Specification: 4.7.1.2.a.2.b Page 3/4 7-4

Justification:

The turbine driven auxiliary feedwater pump is tested in the same manner as the motor driven pumps on recirculation flow and therefore the surveillance requirements should be the same.

The proper operation of a centrifugal pump can be verified by monitoring the developed discharge head when on a recirculation flow loop. This test will indicate if pump performance had degraded from the certified pump curve for the test RPM. The steam supply pressure is irrelevant, provide that the pump operates at the required speed. A very wide range of inlet pressures will produce the required BHP. Similarly, the flow rate during a recirculation flow test can vary significantly since the head/flow curve is relatively flat. However, a reduction in developed head does indicate a degraded pump.

B
Rev. 0

SURVEILLANCE REQUIREMENTS (Continued)

3) Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position; and

4) Verifying that each automatic valve in the flow path is in the fully open position whenever the Auxiliary Feedwater System is placed in automatic control or when above 10% RATED THERMAL POWER.

b. At least once per 18 months during shutdown by:

1) Verifying that each automatic valve in the ESW supply to the auxiliary feedwater pumps actuates to its full open position upon receipt of an Auxiliary Feedwater Pump Suction Pressure-Low test signal, and

2) Verifying that each auxiliary feedwater pump starts as designed automatically upon receipt of an Auxiliary Feedwater actuation test signal.

4.7.1.2.2 A flow path to each steam generator shall be demonstrated by verifying that flow exists to each steam generator following an extended COLD SHUTDOWN of greater than 60 days.

3) Verifying that each auxiliary feedwater motor operated discharge valve limits the flow from the motor driven pump to (LATER) gpm.

1> the number here is 500 but this needs to be backed up by a calculation

Specification: 4.7.1.2.b.(3) page 3/4 7-5

Justification:

During the design of the AFS it was determined that under certain conditions, namely accidents that would cause low steam pressures in the steam generators (e.g., MSLB), the auxiliary feedwater pumps could be subjected to run-out conditions. Therefore, it was decided to modify the AFS discharge valves to modulate valve stem position based on downstream header flow and limit flow from the pumps. The new design assures that flow will be below a preset value thoughout the full range of downstream operating pressures.

This surveillance is being added to Spec. 4.7.1.2.b because it is not contained in the Westinghouse STS.

CAL ONLY

PLANT SYSTEMS

3/4.7.5 ULTIMATE HEAT SINK

LIMITING CONDITION FOR OPERATION

3.7.5 The ultimate heat sink (UHS) shall be OPERABLE with:

a. A minimum water level at or above ~~10.5~~ 9.0 feet from the bottom of the UHS,

b. An average water temperature of less than or equal to 95°F, and

c. Two UHS cooling ~~tower~~s, trains (2 cells per train)

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With ~~one~~ the UHS ~~cooling tower~~ inoperable, restore ~~at least two UHS cooling towers~~ it to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIRMENTS

4.7.5.1 The UHS shall be determined OPERABLE at least once per 24 hours by verifying the average water temperature and water level to be within their limits.

4.7.5.2 The UHS cooling ~~tower~~s shall be demonstrated OPERABLE at least once per 31 days by verifying that each cooling tower fan operates for at least 15 minutes in both the slow and fast mode and at least once per 18 months by visually inspecting and verifying no breakage or abnormal degradation of the fill materials.

4.7.5.3 The UHS shall be determined OPERABLE at least once per 31 days by visually inspecting the UHS riprap for any abnormal degradation which might lead to blockage of the ESW pump suction.

SPECIFICATION: 3.7.5

JUSTIFICATION:

Minor revision to the wording of the action statement is provided to allow the action statement to encompass the LCOS for water level and temperature. The words proposed by the NRC only addressed the operability of the cooling tower. Also, a minor change to LCO 3.7.5.C is proposed to more clearly describe the cooling tower design. There is only one cooling tower which consists of 4 cells: 2 cells are associated with each of the 2 safety related trains of ESW.