

Attachment 2 to AEP:NRC:1093

Current Technical Specification Pages

for Donald C. Cook Nuclear Plant Units 1 and 2

Marked to Reflect Proposed Changes

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1.0 DEFINITIONS

SOURCE CHECK

This definition was moved to page 1-5
1.27 A SOURCE CHECK shall be the qualitative assessment of Channel as a result response when the Channel sensor is exposed to a radioactive source. of text sh

PROCESS CONTROL PROGRAM (PCP) *see attached page*

1.28 The ~~PROCESS CONTROL PROGRAM~~ shall contain the current formula, sampling, analysis, tests and determinations to be made to ensure that the processing and packaging of solid radioactive wastes will be accomplished in such a way as to assure compliance with 10 CFR 20, 10 CFR 71, Federal and State regulations and other requirements governing the shipment and disposal of radioactive waste.

SOLIDIFICATION Deleted

1.29 ~~SOLIDIFICATION~~ shall be the conversion of radioactive liquid, resin, and sludge wastes from liquid systems into a form that meets shipping and burial site requirements.

OFFSITE DOSE CALCULATION MANUAL (ODCM) *see attached page*

1.30 The ~~OFFSITE DOSE CALCULATION MANUAL~~ shall contain the methodology and parameters used in the calculation of offsite doses due to radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm/trip setpoints and the conduct of environmental radiological monitoring program.

GASEOUS RADWASTE TREATMENT SYSTEM

1.31 A GASEOUS RADWASTE TREATMENT SYSTEM is any system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system off-gases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

VENTILATION EXHAUST TREATMENT SYSTEM

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

PURGE-PURGING

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

VENTING

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

PROCESS CONTROL PROGRAM (PCP)

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

1.29 Deleted.

OFFSITE DOSE CALCULATION MANUAL (ODCM)

1.30 The OFFSITE DOSE CALCULATION MANUAL (ODCM) shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm/trip setpoints, and in the conduct of the Environmental Radiological Monitoring Program. The ODCM shall contain (1) the Radioactive Effluent Controls and Radiological Environmental Monitoring Programs required by Section 6.8.4 and (2) descriptions of the information that should be included in the Annual Radiological Environmental Operating and Annual Radioactive Effluent Release Reports required by Specifications 6.9.1.6 and 6.9.1.7.



TABLE 3.6
RADIATION MONITORING INSTRUMENTATION.
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4.3.3.1)

Reformat Page
PORTRAIT ORIENTATION

OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS OPERABLE	ALARM SETPOINT	TRIP SETPOINT	ACTION
1. Modes 1, 2, 3, & 4				
A) Area Monitors				
i) Upper Containment ⁺ (VRS 1101/1201)	1	N/A	≤54 mR/hr	21
ii) Containment - High Range (VRA 1310/1410)	2	≤10R/hr	N/A	22A
B) Process Monitors				
i) Particulate Channel ¹ (ERS 1301/1401)	1	N/A	≤2.52 uCi	20
ii) Noble Gas Channel ¹ (ERS 1305/1405)	1	N/A	≤4.4 x 10 ⁻³ $\frac{\text{uCi}}{\text{cc}}$	20
C) Noble Gas Effluent Monitors				
i) Unit Vent Effluent Monitor				
a) Low Range (VRS 1505)	1	N/A	N/A	22B
b) Mid Range (VRS 1507)	1	N/A	N/A	22B
c) High Range (VRS 1509)	1	N/A	N/A	22B
ii) Steam Generator PORV				
a) MRA 1601 (Loop 1)	1	N/A	N/A	22B
b) MRA 1602 (Loop 4)	1	N/A	N/A	22B
c) MRA 1701 (Loop 2)	1	N/A	N/A	22B
d) MRA 1702 (Loop 3)	1	N/A	N/A	22B

the ODCM
(See T/S Section 3.3.3.10)



TABLE 3.3.6 (Cont'd)
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4.3.3.1)

Reformat Page.
Portrait Orientation

OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS OPERABLE	ALARM SETPPOINT	TRIP SETPPOINT	ACTION
(iii) Gland Steam Condenser Vent Monitor				
a) Low Range (SRA 1805)	the ODCM (See T/S Section 3.3.3.10)	
(iv) Steam Jet Air Ejector Vent Monitor				
a) Low Range (SRA 1905)	the ODCM (See T/S Section 3.3.3.10)	
b) Mid Range (SRA 1907)	1	N/A	N/A	22B
c) High Range (SRA 1909)	1	N/A	N/A	22B
2. Mode 6				
A) Train A	any 2/3 channels			22
i) Containment Area Radiation ¹ Channel (VRS 1101)		N/A	≤ 54 mR/hr	
ii) Particulate Channel ¹ (ERS 1301)		N/A	≤ 2.52 qCi	
iii) Noble Gas Channel ¹ (ERS 1305)		N/A	≤ 4.4 × 10 ⁻³ $\frac{\mu\text{Ci}}{\text{cc}}$	
B) Train B	any 2/3 channels			22
i) Containment Area ¹ Radiation Channel (VRS 1201)		N/A	≤ 54 mR/hr	
ii) Particulate Channel ¹ (ERS 1401)		N/A	≤ 2.52 qCi	

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TABLE 3-3-6 (Cont'd)
 RADIATION MONITORING INSTRUMENTATION
 (OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4.3.3.1)

OPERATION MODE/INSTRUMENT	NINTHON CHANNELS OPERABLE	ALARM SETPPOINT	TRIP SETPPOINT	ACTION
iii) Noble Gas Channel ¹ (ERS 1405)		N/A	$\leq 4.4 \times 10^{-3}$ $\frac{\mu\text{Ci}}{\text{cc}}$	22
3. Mode ***				
A) Spent Fuel Storage (RRG-330)	1	15 mR/hr	≤ 15 mR/hr	21

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***With fuel in storage pool or building.
¹ This specification applies only during purge.

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RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

APPLICABLE
MODES FOR
WHICH SURVEILLANCE
REQUIRED

(EDITORIAL
CHANGE)

Operation Mode/Instrument

CHANNEL
CHECK

CHANNEL
CALIBRATION

CHANNEL
FUNCTIONAL
TEST

Reformat Page to
Portrait Orientation

1. Modes 1, 2, 3 & 4

A) Area Monitors

i) Upper Containment
(VRS 1101/1201)

S*

R

M

1, 2, 3, 4

ii) Containment - High Range
(VRS 1310/1410)

S

R

M

1, 2, 3, 4

B) Process Monitors

i) Particulate Channel
(ERS 1301/1401)

S*

R

M

1, 2, 3, 4

C) Noble Gas Effluent Monitors

1) Unit Vent Effluent Monitor

a) Low Range (VRS 1505) ----- (Sec ^{the ODCM} Table 4.3-9, Item 3.a, 4a, 5a) -----

b) Mid Range (VRS 1507)

S

R

N/A

1, 2, 3, 4

c) High Range (VRS 1509)

S*

R

N/A

1, 2, 3, 4

ii) Steam Generator PORV

a) HRA 1601 (Loop 1)

S*

R

M

1, 2, 3, 4

b) HRA 1602 (Loop 4)

S*

R

M

1, 2, 3, 4

c) HRA 1701 (Loop 2)

S*

R

M

1, 2, 3, 4

d) HRA 1702 (Loop 3)

S*

R

M

1, 2, 3, 4

TABLE 4.3.3 (Cont'd)
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

400K Nuclear Plant

Amendment No. 94-432

3/4 3-38

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Operation Mode/Instrument	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE REQUIRED
iii) Gland Steam Condenser Vent Monitor				
a) Low Range (SRA 1805) <i>the ODCM</i>		(See Table 4.3.9, Item 6.a)		
iv) Steam Jet Air Ejector Vent Monitor				
a) Low Range (SRA 1905) <i>the ODCM</i>		(See Table 4.3.9, Item 2.a)		
b) Mid Range (SRA 1907)	S	R	M	1, 2, 3, 4
c) High Range (SRA 1909)	S*	R	N/A	1, 2, 3, 4
2. Mode 6				
A) Train A				6
i) Containment Area Radiation Channel (VRS 1101)	S*	R	M	
ii) Particulate Channel (ERS 1301)	S*	R	M	
iii) Noble Gas Channel (ERS 1305)	S*	R	M	
B) Train B				6
i) Containment Area Radiation Channel (VRS 1201)	S*	R	M	
ii) Particulate Channel (ERS 1401)	S*	R	M	

TABLE 4.1.3 (Cont'd)
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Operation Mode/Instrument	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE REQUIRED
iii) Noble Gas Channel (ERS 1405)	S*	R	M	6
1. Mode**				
A) Spent Fuel Storage (RRG-110)	S	R	M	**

MOVE TO PAGE 3/4 3-38a

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* To include Source Check per T/S Section 1.27.
** With fuel in storage pool or building.

INSTRUMENTATION

Delete

RADIOACTIVITY LIQUID EFFLUENT INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.9 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.

APPLICABILITY: As shown in Table 3.3-12.

ACTION:

- a. With a radioactive liquid effluent monitoring instrumentation channel alarm/trip setpoint less conservative than a value which will ensure that the limits of 3.11.1.1 are met, without delay suspend the release of radioactive liquid effluents monitored by the affected channel, reset, or declare the channel inoperable.
- b. With one or more radioactive liquid effluent monitoring instrumentation channels inoperable, take the applicable ACTION shown in Table 3.3-12.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.9.1 The setpoints shall be determined in accordance with methodology as described in the ODCM and shall be recorded.

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

TABLE 3.3-12

Delete

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

<u>Instrument</u>	<u>Minimum Channels Operable</u>	<u>Applicability</u>	<u>Action</u>
1. Gross Radioactivity Monitors Providing Automatic Release Termination			
a. Liquid Radwaste Effluent Line (12-RRS-1001) ⁺	(1) [#]	At times of release	23
b. Steam Generator Blowdown Line (1-R-19)	(1)	At times of release	24
c. Steam Generator Blowdown Treatment Effluent (1-R-24)	(1)	At times of release	24
2. Gross Radioactivity Monitors Not Providing Automatic Release Termination			
a. Service Water System Effluent Line (1-R-20, 1-R-28)	(1) per craun	At all times	25
3. Continuous Composite Sampler Flow Monitor			
a. Turbine Building Sump Effluent Line	(1)	At all times	25
4. Flow Rate Measurement Devices			
a. Liquid Radwaste Line (RFT-285)	(1)	At times of release.	26
b. Discharge Pipes*	(1)	At all times	NA
c. Steam Generator Blowdown Treatment Effluent (1-DFI-352)	(1)	At times of release	26

* Pump curves and valve settings may be utilized to estimate flow; in such cases, Action Statement 26 is not applicable.

+ Monitor 1-R-18 may be used until 12-RRS-1001 is declared OPERABLE following initial installation.

* OPERABILITY of 12-RRS-1001 includes OPERABILITY of flow switch RFS-1010, which is an attendant instrument as defined by Specification 1.6.

Delete

TABLE 3.3-12 (Continued)
TABLE NOTATION

- Action 23 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases may be resumed for up to 30 days, provided that prior to initiating a release:
1. At least two independent samples are analyzed in accordance with Specification 4.11.1.1.2 and;
 2. At least two technically qualified members of the Facility Staff independently verify the discharge valving. Otherwise suspend release of radioactive effluents via this pathway.
- Action 24 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 analyzed for gross radioactivity (beta or gamma) at a limit of detection of at least 10^{-7} $\mu\text{Ci}/\text{gram}$:
1. At least once per 8 hours when the specific activity of the secondary coolant is >0.01 $\mu\text{Ci}/\text{gram}$ COSE EQUIVALENT I-131.
 2. At least once per 24 hours when the specific activity of the secondary coolant is ≤ 0.01 $\mu\text{Ci}/\text{gram}$ COSE EQUIVALENT I-131.
- Action 25 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 8 hours, grab samples are collected and analyzed for gross radioactivity (beta or gamma) at a lower limit of detection of at least 10^{-7} $\mu\text{Ci}/\text{ml}$.
- Action 25 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.

Delete

TABLE 4.3-8

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
1. Gross Beta or Gamma Radioactivity Monitors Providing Alarm and Automatic Isolation				
a. Liquid Radwaste Effluent Line (12-RRS-1001)	D*	P	R(3)	Q(5)
b. Steam Generator Blowdown Effluent Line	D*	M	R(3)	Q(1)
c. Steam Generator Blowdown Treatment Effluent Line	D*	M	R(3)	Q(1)
2. Gross Beta or Gamma Radioactivity Monitors Providing Alarm But Not Providing Automatic Isolation				
a. Service Water System Effluent Line	D	M	R(3)	Q(2)
3. Continuous Composite Samplers				
a. Turbine Building Sump Effluent Line	D	N/A	N/A	N/A
4. Flow Rate Monitors				
a. Liquid Radwaste Effluent	D(4)*	N/A	R	Q
b. Steam Generator Blowdown Treatment Line	D(4)*	N/A	N/A	N/A

*During Releases Via This Pathway

Delete

TABLE 4.3-8 (Cont)

TABLE NOTATION

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

1. Instrument indicates measured levels above the alarm/trip setpoint.
- **2. Circuit failure.*
- **3. Instrument indicates a downscale failure.*
- **4. Instrument control not set in operating mode.*

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

1. Instrument indicates measured levels above the alarm setpoint.
- **2. Circuit failure.
- **3. Instrument indicates a downscale failure.
- **4. Instrument controls not set in operating mode.

- (3) The initial CHANNEL CALIBRATION shall be performed using one or more sources with traceability back to the National Bureau of Standards. These sources 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 may be used.

- (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.

- (5) The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exists:

1. Instrument indicates measured levels above the alarm/trip setpoint.
- **2. Circuit failure.***
- **3. Instrument indicates a downscale failure.***
- **4. Instrument control not set in operating mode.*
- **5. Loss of sample flow.

* Instrument indicates, but does not provide for automatic isolation.

** As equipment becomes operational.

*** Instrument indicates, but does not necessarily cause automatic isolation; however, no credit is taken for automatic isolation on such occurrences.

Instrumentation

EXPLOSIVE GAS ~~Radioactive Gaseous Process and Effluent Monitoring Instrumentation~~

Limiting Condition for Operation

3.3.3.10⁹ The ~~radioactive gaseous process and effluent~~ ^{explosive gas} monitoring instrumentation channels shown in Table 3.3-13² shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of 3.11.2.1 are not exceeded.

APPLICABILITY: As shown in Table 3.3-13²

ACTION:

- a. With a ~~radioactive gaseous process or effluent~~ ^{an explosive gas} monitoring instrumentation channel alarm/trip setpoint less conservative than the above specification, ~~a value which will ensure that the limits of 3.11.2.1 are met, without delay suspend the release of radioactive gaseous effluents monitored by the affected channel, reset, or declare the channel inoperable~~ and take the ACTION shown in Table 3.3-12,
- b. ^{explosive gas} With less than the minimum number of ~~radioactive gaseous effluent~~ monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-13².
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.10.1 The setpoints shall be determined in accordance with methodology as described in the ODCM and shall be recorded.*

4.3.3.10.2⁹ Each ~~radioactive gaseous process or effluent~~ ^{explosive gas} monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 4.3-9². ^{analog}

* This surveillance requirement does not apply to the Waste Gas Holdup System Hydrogen and Oxygen Monitors, as their setpoints are not addressed in the ODCM.

Restore the inoperable instrumentation to OPERABLE status within 30 days. If unsuccessful, prepare and submit a SPECIAL REPORT to the Commission pursuant to Specification 6.9.2 to explain why this inoperability was not corrected in a timely manner.

12
TABLE 3.3-13

Explosive Gases
~~Radioactive Gaseous Effluent~~ Monitoring Instrumentation

<u>Instrument (Instrument #)</u>	<u>Minimum Channels</u> <u>Operable</u>	<u>Applicability</u>	<u>ACTION</u>
1. Waste Gas Holdup System Explosive Gas Monitoring System ¹			
a. Hydrogen Monitor (QC-1400)	(1)	**	30 23
b. Oxygen Monitor (QC-1400, QC-370)	(2)	**	29 24
2. Condenser Evacuation System			
a. Noble Gas Activity Monitor (SRA-1905)	(1)	****	28
b. Flow Rate Monitor (SFR-401)	(1)	****	27
(1-MR-054 and/or SRA-1910)	(1)	****	27
3. Unit Vent. Auxiliary Building Ventilation System			
a. Noble Gas Activity Monitor (VRS-1505)	(1)	*	28
b. Iodine Sampler Cartridge for VRS-1503	(1)	*	32
c. Particulate Sampler Filter for VRS-1501	(1)	*	32
d. Effluent System Flow Rate Measuring Device (VFR-315)	(1)	*	27
(1-MR-054 and/or VRS-1510)	(1)	*	27
e. Sampler Flow Rate Measuring Device (VFS-1521)	(1)	*	27
4. Containment Purge System			
a. Aux. Building Vent. System Noble Gas Activity Monitor (VRS-1505)	(1)	**** ¹	31
b. Aux. Building Vent. System Particulate Sampler for VRS-1501	(1)	****	32
5. Waste Gas Holdup System			
a. Noble Gas Activity Monitor Providing Alarm and Termination of Gas Decay Tank Releases (VRS-1505)	(1)	**** ²	33

~~TABLE 3.3-13 (Cont)~~

<u>Instrument (Instrument #)</u>	<u>Minimum Channels Operable</u>	<u>Applicability</u>	<u>ACTION</u>
6. Gland Seal Exhaust			
a. Noble Gas Activity Monitor (SRA-1805)	(1)	****	28
b. Flow Rate Monitor (SFR-201)	(1)	****	27
(1-MR-054 and/or SRA 1810)	(1)	****	27

* ~~At all times~~

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

**** ~~During releases via this pathway~~

¹ For purge purposes only. See Technical Specifications 3.3.3.10, Table 3.3-13 and Table 4.3-9 (Items 3.a, 5.a in both tables) for non-purging requirements associated with this instrument.

² For gas decay tank releases only, see Item 3 (Unit Vent, Auxiliary Building Ventilation System) for additional requirements.

³ The waste gas holdup system explosive gas monitoring system may be inoperable for up to 160 days on a one-time basis for the purpose of replacing one oxygen monitor. During this time grab samples for oxygen are to be taken and analyzed every 12 hours.

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TABLE 3.3-13 (Cont)

TABLE NOTATION

ACTION STATEMENTS

Action 27 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 28 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 8 hours and these samples are analyzed for gross activity within 24 hours.

Action 29²⁴ 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 30 days. With 2 channels inoperable, operation of this system may continue for up to 30 days, provided grab samples are taken and analyzed every 12 hours.

Action 30²³ With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of this system may continue for up to 14 days, provided grab samples are taken and analyzed every 12 hours.

Action 31 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirements, immediately suspend PURGING of radioactive effluents via this pathway.

Action 32 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via the affected pathway may continue for up to 30 days provided samples required for weekly analysis are continuously collected with auxiliary sampling equipment as required in Table 4.11-2.

Action 33 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:

- At least two independent samples of the tank's contents are analyzed and,
- At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge valve lineups;

otherwise, suspend release of radioactive effluents via this pathway.

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(OLD PAGE 3-63)

Explosive Gases

TABLE 4.3-8

Radioactive Gaseous Effluent Monitoring Instrumentation
Surveillance Requirements

<u>Instrument (Instrument #)</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
1. Waste Gas Holdup System Explosive Gas Monitoring System				
a. Hydrogen Monitor (QC-1400)	D***	NA	Q(3)	M
b. Oxygen Monitor (QC-1400)	D***	NA	Q(4)	M
c. Oxygen*** Monitor (Alt., QC-370)	D***	NA	Q(4)	M
2. Condenser Evacuation System				
a. Noble Gas Activity Monitor (SRA-1905)	D**	M	R(2)	Q(1)
b. System Effluent Flow Rate (SFR-401, 1-MR-054, SRA-1910)	D**	NA	R	Q
3. Auxiliary Building Ventilation System				
a. Noble Gas Activity Monitor (VRS-1505)	D*	M	R(2)	Q(1)
b. Iodine Sampler (For VRS-1503)	W*	NA	NA	NA
c. Particulate Sampler (For VRS-1501)	W*	NA	NA	NA
d. System Effluent Flow Rate Measurement Device (VFR-315, 1-MR-054, VRS-1510)	D*	NA	R	Q
e. Sampler Flow Rate Measurement Device (VFS-1521)	D*	NA	R	Q
4. Containment Purge System				
a. Aux. Building Vent. System Noble Gas Activity Monitor (VRS-1505)	D**	P	R(2)	Q(1)
b. Aux. Building Vent. System Particulate Sampler (For VRS-1501)	W**	NA	NA	NA

DELETE

~~TABLE A 3-9 (Continued).~~

<u>Instrument (Instrument #)</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
5. Waste Gas Holdup System				
a. Noble Gas Activity Monitor Providing Alarm & Termination of Gas Decay Tank Releases (VRS-1505)	P**	P	R(2)	Q(5)
6. Gland Seal Exhaust				
a. Noble Gas Activity (SRA-1805)	D**	M	R(2)	Q(1)
b. System Effluent Flow Rate (SFR-201, 1-MR-054, SRA-1810)	D**	NA	R	Q

* ~~At all times.~~

** ~~During release via this pathway.~~

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

**** These surveillances are not required during the 160-day period in which this monitor is being replaced.

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TABLE 4.3-9 (Cont)

TABLE NOTATION

1) The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:

1. Instrument indicates measured levels above the alarm setpoint.
- =2. Circuit failure.
- =3. Instrument indicates a downscale failure.
- =4. Instrument controls not set in operate mode.

2) The initial CHANNEL CALIBRATION shall be performed using one or more sources with traceability back to the National Bureau of Standards. These sources 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 may be used.

Table Notation

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

1. One volume percent hydrogen, balance nitrogen, and
2. Four volume percent hydrogen, balance nitrogen.

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

1. One volume percent oxygen, balance nitrogen, and
2. Four volume percent oxygen, balance nitrogen.

5) The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exists:

1. Instrument indicates measured levels above the alarm/trip setpoint.
- =2. Circuit failure.*
- =3. Instrument indicates a downscale failure.*
- =4. Instrument controls not set in operate mode.*

* Instrument indicates, but does not provide automatic isolation.
* As equipment becomes operational.

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3/4.11 RADIOACTIVE EFFLUENTS

3/4.11.1 Liquid Effluents

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Concentration

Limiting Condition for Operation

3.11.1.1 The concentration of radioactive material released at any time from the site to unrestricted areas (see Figure 5.1-3) shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table II, Column 2, for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2×10^{-4} uci/ml total activity.

Applicability: At all times.

Action:

With the concentration of radioactive material released from the site exceeding the above limits, without delay restore the concentration to within the above limits.

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 result of radioactive analysis shall be used in accordance with the methods of the ODCM to assure that all concentrations at the point of release are maintained within the limits of Specification 3.11.1.1.

Delete

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 ^a of Detection (LLD) uci/ml
A. Batch Waste Release Tanks ^c	P	P	Principal Gamma Emitters ^e	5×10^{-7}
	Each Batch	Each Batch	I-131	1×10^{-5}
	P		Dissolved and Entrained Gases (Gamma Emitters)	1×10^{-5}
	One Batch/M	M		
	P	M	H-3	1×10^{-5}
	Each Batch	Composites ^b	Gross Alpha	1×10^{-7}
	P	Q ^b	Sr-89, Sr-90	5×10^{-5}
	Each Batch	Composites	Po-210	1×10^{-5}
B. Plant Continuous Releases ^d	Daily	W	Principal Gamma Emitters ^e	5×10^{-7}
		Composites ^b	I-131	1×10^{-5}
	M		Dissolved and Entrained Gases (Gamma Emitters)	1×10^{-5}
	Grab Sample	M		
	Daily	M	H-3	1×10^{-5}
		Composites ^b	Gross Alpha	1×10^{-7}
	Daily	Q ^b	Sr-89, Sr-90	5×10^{-5}
		Composites	Po-210	1×10^{-5}

Delete

TABLE 4.11-1 (Cont)

TABLE NOTATION

- a. The lower limit of detection (LLD) is defined in Table Notation a. of Table 4.12-1 of Specification 4.12.1.1.
- b. A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen which is representative of the liquids released.
- c. A batch release is the discharge of liquid wastes of a discrete volume. Prior to sampling for analysis, each batch shall be isolated and re-circulated to ensure thorough mixing.
- d. A continuous release is the discharge of liquid waste of a non-discrete volume; e.g. from a volume of system that has an input flow during the continuous release.
- e. The principal gamma emitters for which the LLD specification applies exclusively are the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141 and Ce-144. This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported.

RADIOACTIVE EFFLUENTS

Delete

DOSE

LIMITING CONDITION FOR OPERATION

3.11.1.2 The dose or dose commitment to an individual from radioactive material in liquid effluents released to unrestricted areas (see Figure 5.1-3) shall be limited:

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

APPLICABILITY: At all times.

ACTION:

- a. With the calculated dose from the release of radioactive materials in liquid effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which identifies the cause(s) for exceeding the limit(s) and defines the corrective actions taken to reduce the releases and the proposed corrective actions to be taken to assure that subsequent releases will be within the above limits. This Special Report shall also include (1) the results of radiological analyses of the drinking water source, and (2) the radiological impacts on finished drinking water supplies with regard to the requirements of 40 CFR 141, Safe Drinking Water Act. (Applicable only if drinking water supply is taken from the receiving water body.)
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.1.2 Dose Calculations: Cumulative dose contributions from liquid effluents shall be determined in accordance with the Offsite Dose Calculation Manual (ODCM) at least once per 31 days.



Delete

Radioactive Effluents

Liquid Waste Treatment

Limiting Condition For Operation

3.11.1.3 The liquid radwaste treatment system shall be used to reduce the radioactive materials in liquid wastes prior to their discharge when the projected doses due to the liquid effluent from the site (see Figure 3.1-3) when averaged over 31 days, would exceed 0.06 mrem to the total body or 0.2 mrem to any organ.

Applicability: At all times.

Action:

- a. With radioactive liquid waste being discharged without treatment and in excess of the above limits, in lieu of any other report required by Specification 6.9.1, prepare and submit to the Commission within 30 days pursuant to Specification 6.9.2 a Special Report which includes the following information:
 1. Identification of the inoperable equipment or subsystems and the reason for inoperability,
 2. Action(s) taken to restore the inoperable equipment to operable status, and
 3. Summary description of action(s) taken to prevent recurrence.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

Surveillance Requirements

4.11.1.3 Doses due to liquid releases to UNRESTRICTED AREAS shall be projected at least once per 31 days, in accordance with the ODCM, whenever liquid releases are being made without being processed by the liquid radwaste treatment system.

3/4, 11 Radioactive Effluents

Liquid Holdup Tanks*

Limiting Condition For Operation

3.11.1~~X~~ The quantity of radioactive material contained in each of the following tanks shall be limited to less than or equal to 10 curies, excluding tritium and dissolved or entrained noble gases.

- a. Outside temporary tanks.

Applicability: At all times.

Action:

- a. With the quantity of radioactive material in any of the above listed tanks exceeding the above limit, without delay suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4. are not applicable.

Surveillance Requirements

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

* 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.

Radioactive Effluents

3.11.2 Gaseous Effluents

Delete

Dose Rate

Limiting Condition For Operation

3.11.2.1 The dose rate due to radioactive materials released in gaseous effluents from the site (See Figure 3.1-3) shall be limited to the following:

- a. For noble gases: ≤ 500 mrem/yr to the total body and ≤ 3000 mrem/yr to the skin, and
- b. For all radioiodines and for all radioactive materials in particulate form and radionuclides (other than noble gases) with half-lives greater than 8 days: ≤ 1500 mrem/yr to any organ.

Applicability: At all times.

Action:

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

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 methods and procedures of the GCOM.

4.11.2.1.2 The dose rate due to radioactive materials, other than noble gases, in gaseous effluents shall be determined to be within the above limits in accordance with the methods and procedures of the GCOM by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in Table 4.11-2.

Delete

TABLE 4.11-2
RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

Gaseous Release Type	Frequency	Minimum Analysis Frequency	Type of Activity Analysis	Lower Limit of Detection (uci/ml) ^a
a. Waste Gas Storage Tank	P Each Tank Grab Sample	P Each Tank	Principal Gamma Emitters ^e	1×10^{-4}
b. Containment Purge	P	P	Principal Gamma Emitters ^e	1×10^{-4}
	Each Purge Grab Sample ^b	Each Purge ^b	H-3	1×10^{-6}
c. Condenser Evacuation System and Gland Seal Exhaust*	W Grab Sample ^b	M ^b Particulate Sample	Principal Gamma Emitters ^e	1×10^{-4}
		M ^b	H-3	1×10^{-6}
		M ^b Iodine Adsorbing/Media	I-131	1×10^{-12}
	Continuous ^d	Noble Gas Monitor	Noble Gases	1×10^{-6}
	Continuous ^d	W ^c Iodine Adsorbing/Media	I-131	1×10^{-12}
d. Auxiliary Building Vent		W ^c Particulate Sample	Principal Gamma Emitters ^e	1×10^{-11}
		M Composite Particulate Sample	Gross Alpha	1×10^{-11}
		M Composite	H-3	1×10^{-6}
		Q Composite Particulate Sample	Sr-89, Sr-90	1×10^{-11}
		Continuous ^d	Noble Gas Monitor	1×10^{-6}
e. Incinerated Oil ¹	P Each Batch ^g	P Each Batch ^g	Principal Gamma Emitters	5×10^{-7}

* As equipment becomes operational

Delete

TABLE 4.11-2 (cont)

TABLE NOTATION

- a. The lower limit of detection (LLD) is defined in Table Notation a. of Table 4.12-1 of Specification 4.12.1.1.
- b. Analyses shall also be performed following any operational occurrence which has altered the mixture of radionuclides as indicated by RCS analysis. (i.e., start-up.)
- c. Samples shall be changed at least once per 7 days and analyses shall be completed within 48 hours after changing. Analyses shall also be performed at least once per 24 hours for 7 days following each shutdown, startup or similar operational occurrence which lead to significant increases or decreases in radioiodine in the Reactor Coolant System. When samples collected for 24 hours are analyzed, the corresponding LLD's may be increased by a factor of 10.
- d. 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 Specification 3.11.2.1, 3.11.2.2, 3.11.2.3.
- e. The principal gamma emitters for which the LLD specification applies exclusively are the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133M, Xe-135 and Xe-138 for gaseous emissions and Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141 and Ce-144 for particulate emissions. This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported.
- f. Releases from incinerated oil are discharged through the Auxiliary Boiler System. Releases shall be accounted for based on pre-release grab sample data.
- g. Samples of waste oil to be incinerated shall be collected from the container in which the waste oil is stored (e.g., waste oil storage tank, 55 gal. drums) prior to transfer to the Auxiliary Boiler System and shall be representative of container contents.

RADIOACTIVE EFFLUENTS

Delete

DOSE, NOBLE GASES

LIMITING CONDITION FOR OPERATION

3.11.2.2 The air dose in UNRESTRICTED AREAS due to noble gases released in gaseous effluents shall be limited to the following:

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

APPLICABILITY: At all times.

ACTION:

- a. With the calculated air dose from radioactive noble gases in gaseous effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which identifies the cause(s) for exceeding the limit(s) and defines the corrective actions to be taken to reduce the releases and the proposed corrective actions to be taken to assure that subsequent releases will be within the above limits.
- b. The provisions of Specifications 3.8.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.2 Dose Calculations Cumulative dose contributions for the total time period shall be determined in accordance with the Offsite Dose Calculation Manual (ODCM) at least once every 31 days.

Delete

RADIOACTIVE EFFLUENTS

DOSES, RADIOIODINES, RADIOACTIVE MATERIAL IN PARTICULATE FORM, AND RADIONUCLIDES OTHER THAN NOBLE GASES

LIMITING CONDITION FOR OPERATION

3.11.2.3 The dose to A MEMBER OF THE PUBLIC from radioiodine, radioactive materials in particulate form, and radionuclides other than noble gases with half-lives greater than 8 days in gaseous effluents released to unrestricted areas shall be limited to the following:

- a. During any calendar quarter to less than or equal to 7.5 mrem to any organ;
- b. During any calendar year to less than or equal to 15 mrem to any organ;
- c. Less than 0.1% of the 3.11.2.3(a) and (b) limits as a result of burning contaminated oil.

APPLICABILITY: At all times.

ACTION:

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

SURVEILLANCE REQUIREMENTS

4.11.2.3 DOSE CALCULATIONS Cumulative dose contributions for the total time period shall be determined in accordance with the ODCM at least once every 31 days.

RADIOACTIVE EFFLUENTS

Delete

GASEOUS RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION

3.11.2.4 The gaseous radwaste treatment system and the ventilation exhaust treatment system shall be used to reduce the radioactive materials in gaseous waste prior to their discharge when the projected gaseous effluent air doses due to gaseous effluent releases to unrestricted areas (See Figure 5.1.3) when averaged over 31 days, would exceed 0.2 mrad for gamma radiation and 0.4 mrad for beta radiation. The ventilation exhaust treatment system shall be used to reduce radioactive materials in gaseous waste prior to their discharge when the projected doses due to gaseous effluent releases to unrestricted areas (See Figure 5.1-3) when averaged over 31 days would exceed 0.3 mrem to any organ.

APPLICABILITY: At all times.

ACTION:

- a. With gaseous waste being discharged without treatment and in excess of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which includes the following information:
 1. Identification of the inoperable equipment or subsystems and the reason for inoperability.
 2. Action(s) taken to restore the inoperable equipment to operable status.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.4 Doses due to gaseous releases to UNRESTRICTED AREAS shall be projected at least once per 31 days in accordance with the ODCM, whenever the gaseous waste treatment system or ventilation exhaust treatment system is not operational.



RADIOACTIVE EFFLUENTS

GASEOUS EFFLUENTS

EXPLOSIVE GAS MIXTURE

3/4.11.2

LIMITING CONDITION FOR OPERATION

3.11.2.1 The concentration of oxygen in the waste gas holdup system shall be limited to less than or equal to 3% by volume if the hydrogen in the system is greater than or equal to 4% by volume.

APPLICABILITY: At all times.

ACTION:

- a. With the concentration of oxygen in the waste gas holdup system greater than 3% by volume but less than or equal to 4% by volume and containing greater than or equal to 4% hydrogen, restore the concentration of oxygen to less than or equal to 3% or reduce the hydrogen concentration to less than 4% within 96 hours.
- b. With the concentration of oxygen in the waste gas holdup system or tank greater than 4% by volume and greater than 4% hydrogen by volume without delay suspend all additions of waste gases to the system or tank and reduce the concentration of oxygen to less than or equal to 3% or the concentration of hydrogen to less than or equal to 4% within 96 hours in the system or tank.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.1 The concentration of oxygen in the waste gas holdup system shall be determined to within the above limits by continuously monitoring the waste gases in the waste gas holdup system with the oxygen monitors required OPERABLE by Table 3.3-12 of Specification 3.3.3.10.

12

9

RADIOACTIVE EFFLUENTS

GAS STORAGE TANKS

LIMITING CONDITION FOR OPERATION

3.11.2.²/₈ The quantity of radioactivity contained in each gas storage tank shall be limited to 43,800 curies noble gas (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, without delay suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.²/₈ The quantity of radioactive material contained in each gas storage tank shall be determined to be within the above limit at least once per 4 days by analysis of the Reactor Coolant System noble gases.

RADIOACTIVE EFFLUENTS

Delete

3/4.11.3 SOLID RADIOACTIVE WASTE

LIMITING CONDITION FOR OPERATION

3.11.3 The solid radwaste system shall be used as applicable in accordance with a PROCESS CONTROL PROGRAM for the SOLIDIFICATION and packaging of radioactive wastes to ensure meeting the requirements of 10 CFR Part 20 and of 10 CFR Part 71 prior to shipment of radioactive wastes from the site.

APPLICABILITY: At all times.

ACTION:

- a. With the packaging requirements of 10 CFR Part 20 and/or 10 CFR Part 71 not satisfied, suspend shipments of defectively packaged solid radioactive wastes from the site.
- b. With the solid radwaste system inoperable for more than 31 days, prepare and submit to the Commission within 30 days pursuant to Specification 6.9.2 a Special Report which includes the following information:
 1. Identification of the inoperable equipment or subsystems and the reason for inoperability,
 2. Action(s) taken to restore the inoperable equipment to operable status,
 3. A description of the alternative used for SOLIDIFICATION and packaging of radioactive wastes, and
 4. Summary description of action(s) taken to prevent a recurrence.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SOLID RADIOACTIVE WASTE

SURVEILLANCE REQUIREMENTS

Delete.

4.11.3.1 The solid radwaste system shall be demonstrated operable at least once per 92 days by:

- a. Operating the solid radwaste system at least once in the previous 92 days in accordance with the PROCESS CONTROL PROGRAM, or
- b. Verification of the existence of a valid contract for SOLIDIFICATION to be performed by a contractor in accordance with a PROCESS CONTROL PROGRAM.

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

- a. If any test specimen fails to verify SOLIDIFICATION, the SOLIDIFICATION of the batch under test shall be suspended until such time as additional test specimens can be obtained, alternative SOLIDIFICATION parameters can be determined in accordance with the PROCESS CONTROL PROGRAM, and a subsequent test verifies SOLIDIFICATION. SOLIDIFICATION of the batch may then be resumed using the alternative SOLIDIFICATION parameters determined by the PROCESS CONTROL PROGRAM.
- b. If the initial test specimen from a batch of waste fails to verify SOLIDIFICATION, the PROCESS CONTROL PROGRAM shall provide for the collection and testing of representative test specimens from each consecutive batch of the same type of wet waste until at least 3 consecutive initial test specimens demonstrate SOLIDIFICATION. The PROCESS CONTROL PROGRAM shall be modified as required, as provided in Specification 6.14 to assure SOLIDIFICATION of subsequent batches of waste.

RADIOACTIVE EFFLUENTS

Delete

3/4 11.4 TOTAL DOSE

LIMITING CONDITION FOR OPERATION

3.11.4 The dose or dose commitment to a real individual from all uranium fuel cycle sources is limited to less than or equal to 25 mrem to the total body or any organ (except the thyroid, which is limited to less than or equal to 75 mrem) over a period of 12 consecutive months.

APPLICABILITY: At all times.

ACTION:

- a. With the calculated doses from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of Specification 3.11.1.2.a, 3.11.1.2.b, 3.11.2.2.a, 3.11.2.2.b, 3.11.2.3.a, or 3.11.2.3.b, prepare and submit a Special Report to the Director, Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, within 30 days, which defines the corrective action to be taken to reduce subsequent releases to prevent recurrence of exceeding the limits of Specification 3.11.4. This Special Report shall include an analysis which estimates the radiation exposure (dose) to a member of the public from uranium fuel cycle sources (including all effluent pathways and direct radiation) for a 12 consecutive month period that includes the release(s) covered by this report. If the estimated dose(s) exceeds the limits of Specification 3.11.4, and if the release condition resulting in violation of 40 CFR 190 has not already been corrected, the Special Report shall include a request for a variance in accordance with the provisions of 40 CFR 190 and including the specified information of paragraph 190.11(b). Submission of the report is considered a timely request, and a variance is granted until staff action on the request is complete. The variance only relates to the limits of 40 CFR 190, and does not apply in any way to the requirements for dose limitation of 10 CFR Part 20, as addressed in other sections of this Technical Specification.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

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

Delete

3/4:12 RADIOLOGICAL ENVIRONMENTAL MONITORING

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: At all times.

ACTION:

- a. With the radiological environmental monitoring program not being conducted as specified in Table 3.12-1, prepare and submit to the Commission in the Annual Radiological Operating Report, a description of the reasons for not conducting the program as required and the plans for preventing a recurrence. (Deviations are permitted from the required sampling schedule if specimens are unobtainable due to hazardous conditions, seasonal unavailability, or to malfunction of automatic sampling equipment. If the latter, every effort shall be made to complete the corrective action prior to the end of the next sampling period.)
- b. With the level of radioactivity in an environmental sampling medium at one or more of the locations specified in Table 3.12-1 exceeding the limits of Table 3.12-2 when averaged over any calendar quarter, prepare and submit to the Commission within 30 days from the end of the affected calendar quarter, a Special Report which includes an evaluation of any release conditions, environmental factors or other aspects which caused the limits of Table 3.12-2 to be exceeded. 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. When more than one of the radionuclides in Table 3.12-2 are detected in the sampling medium, this report shall be submitted if:

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

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 an individual is equal to or greater than the calendar year limits of Specification 3.11.1.2, 3.11.2.2 and 3.11.2.3.

Delete

RADIOLOGICAL ENVIRONMENTAL MONITORING

LIMITING CONDITION FOR OPERATION (CONTINUED)

- c. With milk or fresh leafy vegetable samples unavailable from any of the sample locations required by Table 3.12-1, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which identifies the cause of the unavailability of samples and identifies locations for obtaining replacement samples. The locations from which samples were unavailable may then be deleted from Table 3.12-1 provided the locations from which the replacement samples were obtained are added to the environmental monitoring program as replacement locations, if available..
- d. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

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

Delete

TABLE 3.12-1
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

<u>Exposure Pathway and/or Samples</u>	<u>Sample Locations</u>	<u>Sampling and Collection Frequency</u>	<u>Type & Frequency of Analysis</u>
1. Airborne a. Radioiodine & Particulates	A1-A6 (Site) New Buffalo South Bend, Dowagiac, and Coloma are Background	Continuous operation of sampler with Sample Collection as required by Dust Loading but at least once per 7 days	Radioiodine canister Analyze: Weekly for I-131 Particulate sample Gross Beta Rad- ioactivity following Filter Change ^a composite (by loca- tion) for gamma isotopic quarterly
2. Direct Radiation	a) T1-T9 (Site) b) New Buffalo South Bend Dowagiac Coloma c) 10 TLD Monitor Locations in the Five Mile Radius	At least once per 92 days	Gamma Dose. At least once per 92 days
3. Waterborne a. Surface	L1, L2, L3	Composite* sample over one-month period	Gamma Isotopic Analysis monthly. Composite for tritium analysis- quarterly.
b. Ground	W1-W7	Quarterly	Gamma Isotopic and Tritium analysis quarterly.
c. Drinking	St. Joseph Lake Township	Composite* sample collected over a period of 31 days Composite sample over a 2-week period if I-131 analysis is performed	Gross Beta and Gamma Isotopic Analysis of each composite sample. Tritium Analysis of composite Quarterly. I-131 analysis on each composite when the dose calculated for the consumption of the water is greater than 1 mrem per year.

* Composite samples shall be collected by collecting an aliquot
at intervals not exceeding 24 hours.

Delete

TABLE 3.12-1 (Cont)

d. Sediment from Shoreline	L2, L3	2/year	Gamma Isotopic Analyses Semi-Annually.
4. Ingestion	Each indicator	At least once per	Gamma Isotopic
a. Milk	Farm and a background farm*	15 days when animals are on Pasture. At Least Once Per 31 Days at Other Times.	and I-131 Analysis of Each Sample.
b. Fish	Plant Site Off-Site	2/year	Gamma Isotopic Analysis on Edible Portion.
c. Food Products	Plant Site Off-Site (approx. 20 mi)	At time of Harvest One Sample of Each of the Following Classes of Food Products: 1. Grapes	Gamma Isotopic Analysis on Edible Portion.

^a Particulate sample filters should be analyzed for gross beta 24 hours or more after sampling to allow for radon and thoron daughter decay. If gross beta activity in air or water is greater than 10 times the yearly mean of control samples for any medium, gamma isotopic analysis should be performed on the individual samples.

* An indicator farm is defined as the nearest milk producer in each of the land sectors within 8 miles of the plant site who is willing to participate in the radiological environmental monitoring program. A background farm is defined as a milk producer in one of the less prevalent wind directions at a distance greater than 15 miles but less than 25 miles who is willing to participate in the radiological environmental monitoring program. If at least three indicator milk samples and one background milk sample cannot be obtained, vegetation sampling will be performed as a replacement for the milk sampling and no milk samples will be required.

Delete

TABLE 3.12-1 (Cont)

Plant Site

At time of Harvest
One sample of Broad
Leaf Vegetation

Gamma Isotopic
Analysis.

3 indicator samples
of broad leaf
vegetation grown
nearest to the
offsite locations of
highest calculated
annual average ground
level D/Q if at least
three indicator milk
samples and one back-
ground milk sample
cannot be obtained.

Monthly when
available

Gamma Isotopic and
I-131 monthly when
available

1 background sample
of each of the
similar vegetation
grown 15-25 miles
distant and in one
of the less
prevalent wind
directions if at
least three indicator
milk samples and one
background milk sample
cannot be obtained.

Monthly when
available

Gamma Isotopic and
I-131 monthly when
available

Delete

TABLE 3.12-2

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN
ENVIRONMENTAL SAMPLES

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

TABLE 4.12-1

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

Analysis	Water (pCi/l)	Airborne Particulate or Gas (pCi/m ³)	Fish (pCi/kg) wet	Milk (pCi/l)	Food Prod (pCi/kg, wet)	Sediment (pCi/kg, c)
Gross Beta	4 ^b	1×10^{-2}				
H-3	2000					
Mn-54	15		130			
Fe-59	30		260			
Co-58, 60	15		130			
Zn-65	30		260			
Zr-95	30					
NB-95	15					
I-131	1	7×10^{-2}		1	60	
Cs-134	15	5×10^{-2}	130	15	60	150
Cs-137	18	6×10^{-2}	150	18	60	180
Ba-140	60			60		
La-140	15			15		

Delete

TABLE 4.12-1 (Cont)
TABLE NOTATION

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

For a particular measurement system (which may include 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 pci per unit mass or volume),

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

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

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

2.22 is the number of transformation per minute per picocurie,

Y is the fractional radiochemical yield (when applicable),

λ is the radioactive decay constant for the particular radionuclide and

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

The volume of s_b used in the calculation of the LLD for a detection system shall be based on the actual observed variance of the background counting rate or of the counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance. In calculating the LLD for a radionuclide determined by gamma-ray spectrometry, the background shall include the typical contributions of other radionuclides normally present in the samples (e.g., potassium - 40 in milk samples).

Delete

Table 4.12-1 (Cont)
Table Notation

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

- b. LLD for drinking water.
- c. Other peaks which are measurable and identifiable, together with the radionuclides in Table 4.12-1, shall be identified and reported.

Delete

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 the location of the nearest milk animal, the nearest residence and the nearest garden* of greater than 500 square feet producing fresh leafy vegetables in each of the 9 land covering meteorological sectors within a distance of five miles.

APPLICABILITY: At all times.

ACTION:

- a. With a land use census identifying a location(s) which yields a calculated dose or dose commitment greater than the values currently being calculated in Specification 4.11.2.3, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which identifies the new location(s).
- b. With a land use census identifying a location(s) which 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, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which identifies the new location. The new location shall be added to the radiological environmental monitoring program within 30 days, if possible. The sampling location having the lowest calculated dose or dose commitment (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.
- 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 at least once per 12 months between the dates of June 1 and October 1, by door-to-door survey, aerial survey, or by consulting local agriculture authorities.

* Broad leaf vegetation sampling may be performed at the site boundary in the direction sector with the highest D/Q in lieu of the garden census.

Delete

Radiological Environment Monitoring

3/4 12.3 Interlaboratory Comparison Program

Limiting Condition For Operation

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

Applicability: At all times.

Action:

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

Surveillance Requirements

4.12.3 A summary of the results obtained as part of the above required Interlaboratory Comparison Program and in accordance with the ODCM (or participants in the EPA crosscheck program shall provide the EPA program code designation for the unit) shall be included in the Annual Radiological Environmental Operating Report.

INSTRUMENTATION

BASES

Radiation Monitoring Instrumentation (Continued)

<u>INSTRUMENT</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE*</u>
6) Noble Gas Unit Vent Monitors	<i>See the ODCM</i>	<i>(Editorial Changes)</i>
a) Low Range (VRS 1505)	<i>See Bases Section</i> 3/4 3.3 10	$5.8 \times 10^{-7} \mu\text{Ci/cc}$ to $2.7 \times 10^{-2} \mu\text{Ci/cc}$
b) Mid Range (VRS 1507)	Not Applicable**	$1.3 \times 10^{-3} \mu\text{Ci/cc}$ to $7.5 \times 10^{-2} \mu\text{Ci/cc}$
c) High Range (VRS 1509)	Not Applicable**	$2.9 \times 10^{-4} \mu\text{Ci/cc}$ to $1.6 \times 10^{-4} \mu\text{Ci/cc}$
7) Gland Steam Condenser Vent Noble Gas Monitor	<i>See the ODCM</i>	
a) Low Range (SRA 1805)	<i>See Bases Section</i> 3/4 3.3 10	$5.8 \times 10^{-7} \mu\text{Ci/cc}$ to $2.7 \times 10^{-2} \mu\text{Ci/cc}$
8) Steam Jet Air Ejector Vent Noble Gas Monitor	<i>See the ODCM</i>	
a) Low Range (SRA 1905)	<i>See Bases Section</i> 3/4 3.3 10	$5.8 \times 10^{-7} \mu\text{Ci/cc}$ to $2.7 \times 10^{-2} \mu\text{Ci/cc}$.
b) Mid Range (SRA 1907)	Not applicable.**	$1.3 \times 10^{-3} \mu\text{Ci/cc}$ to $7.5 \times 10^{-2} \mu\text{Ci/cc}$.
c) High Range (SRA 1909)	Not Applicable.**	$2.9 \times 10^{-2} \mu\text{Ci/cc}$ to $1.6 \times 10^{-4} \mu\text{Ci/cc}$.
9) Spent Fuel Storage (RRC-330)	The monitor setpoint is selected to alarm and trip consistent with 10 CFR 70.24(a) (2)	$1 \times 10^{-1} \text{ mR/hr}$ to $1 \times 10^{-4} \text{ mR/hr}$

* This is minimum sensitivity of the instrument for normal operation, to follow the course of an accident, and/or take protective actions. Values of the instrument above or below this minimum sensitivity range are acceptable.

** These monitors are used to provide data to assist in post-accident off-site dose assessment.

INSTRUMENTATION

BASES

3/4.3.3.9 RADIOACTIVE LIQUID EFFLUENT INSTRUMENTATION

3/4.3.3.9 The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases. The alarm/trip setpoints for these instruments shall be calculated in accordance with NRC approved methods in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria specified in Section 11.3 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.

3/4.3.3.10 RADIOACTIVE GASEOUS EFFLUENT INSTRUMENTATION

3/4.3.3.10 The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases. The alarm/trip setpoints for these instruments shall be calculated in accordance with NRC approved methods in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. This instrumentation also includes provisions for monitoring 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 specified in Section 11.3 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.

3/4.3.3.9 EXPLOSIVE GAS MONITORING INSTRUMENTATION

This instrumentation includes provisions for monitoring the concentrations of potentially explosive gas mixtures in the Waste Gas Holdup System. The OPERABILITY and use of this instrumentation is consistent with the requirement of General Design Criteria specified in Section 11.3 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.



3/4.11 RADIOACTIVE EFFLUENTS

Delete

BASES

3/4.11.1 LIQUID EFFLUENTS

~~Insert Attached page~~

3/4.11.1.1 CONCENTRATION. This specification is provided to ensure that the concentration of radioactive materials released in liquid waste effluents from the site to UNRESTRICTED AREAS will be less than the concentration levels specified in 10 CFR part 20, Appendix B, Table II. This limitation provides additional assurance that the levels of radioactive materials in bodies of water outside the site will not result in exposures within (1) the Section II.A design objectives of Appendix I, 10 CFR Part 50, to an individual and (2) the limits of 10 CFR Part 20.106(a) to the population. The concentration limit for 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 the International Commission on Radiological protection (ICRP) Publication 2.

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 releases of radioactive material in liquid effluents will be kept "as low as is reasonable achievable." Also, for fresh water sites with drinking water supplies which 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 141.

The dose calculations in the ODCM implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated. The equations specified in the ODCM for calculating the doses due to the actual release rates of radioactive materials in liquid effluents will be consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977, and Regulatory Guide 1.113, "Estimating Aquatic Dispersion of Effluents from Accidental and Routine Reactor Releases for the Purpose of Implementing Appendix I," April 1977. NUREG-0133 provides methods for dose calculations consistent with Regulatory Guide 1.109 and 1.113.

This specification applies to the release of liquid effluents from each reactor at the site. The liquid effluents from the shared system are proportioned among the units sharing the system.

RADIOACTIVE EFFLUENTS

BASES

3/4.11.1.3 LIQUID WASTE TREATMENT. 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 requirements that the appropriate portions of this system be used when specified provide 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 Criteria Section 11.1 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant, and design objective Section II.D of Appendix I to 10 CFR Part 50. The specified limits governing the use of appropriate portions of the liquid radwaste treatment system were specified as a suitable fraction of the dose design objectives set forth in Section II.A of Appendix I, 10 CFR Part 50, for liquid effluents.

3/4.11.1.4 LIQUID HOLDUP TANKS. 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.

This specification, being applicable to outside temporary tanks, does not apply to the refueling water storage tank, primary water storage tank, or the condensate storage tank, since they are a part of the permanent plant design.

3/4.11.2 GASEOUS EFFLUENTS

3/4.11.2.1 DOSE RATE. This specification is provided to ensure that the dose rate at any time at the SITE BOUNDARY from gaseous effluents from all units on the site will be within the annual dose limits of 10 CFR Part 20 for UNRESTRICTED AREAS. The annual dose limits are the doses associated with the concentrations of 10 CFR Part 20, Appendix B, Table II. These limits provide reasonable assurance that radioactive material discharged in gaseous effluents will not result in the exposure of an individual in an UNRESTRICTED AREA, to annual average concentrations exceeding the limits specified in Appendix B, Table II of 10 CFR Part 20 (10 CFR Part 20.106(b)). For individuals who may at times be within the SITE BOUNDARY the occupancy of the individual will be sufficiently low to compensate for any increase in the atmospheric diffusion factor above that for the SITE BOUNDARY. The specified release rate limits restrict, at all times, the corresponding gamma and beta dose rates above background to an individual at or beyond the site boundary to less than or equal to 500 mrem/year to the total body or to less than or equal to 3000 mrem/year to the skin. These release rate limits also restrict, at all times, the corresponding thyroid dose rate above background to a child via inhalation pathway to less than or equal to 1500 mrem/year. Iodine adsorbing media refers to silver zeolite cartridges in Table 4.11-2 or the industry standard.

This specification applies to the release of gaseous effluents from all reactors at the site. The gaseous effluents from the shared system are proportioned among the units sharing that system.

RADIOACTIVE EFFLUENTS

BASES

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 will be kept "as low as is reasonable achievable". The Surveillance Requirements implement the requirements in Section III.A of Appendix I that conform with the guides of Appendix I to be shown by calculational procedures based on models and data such that the actual exposure of an individual through the appropriate pathways is unlikely to be substantially underestimated. The dose calculations established in the ODCM for calculating the doses due to the actual release rates of radioactive noble gases in gaseous effluents will be consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977 and Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," Revision 1, July 1977. The ODCM equations provided for determining the air doses at the site boundary will be based upon the historical average atmospheric conditions. NUREG-0133 provides methods for dose calculations consistent with Regulatory Guides 1.109 and 1.111.

3/4.11.2.3 DOSE, RADIOIODINES, RADIOACTIVE MATERIAL IN PARTICULATE FORM AND RADIONUCLIDES OTHER THAN NOBLE GASES. This specification is provided to implement the requirements of Sections II.C, III.A and IV.A of Appendix I, 10 CFR Part 50. The Limiting Conditions for Operation are the guides set forth in Section 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 will be kept "as low as is reasonably achievable." The ODCM calculational methods specified in the surveillance requirements implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated. The ODCM calculational methods approved by the NRC for calculating the doses due to the actual release rates of the subject materials are required to be consistent with the methodology provided in Regulatory Guide 1.109, "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

BASES

Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," Revision 1, July 1977. These equations also provide for determining the actual doses based upon the historical average atmospheric conditions. The release rate specifications for radioiodines, radioactive material in particulate form and radionuclides other than noble gases are dependant on the existing radionuclide pathways to man, in the unrestricted area. The pathways which are examined in the development of these calculations are: 1) individual inhalation of airborne radionuclides, 2) deposition of radionuclides onto green leafy vegetation with subsequent consumption by man, 3) deposition onto grassy areas where milk animals and meat producing animals graze with consumption of the milk and meat by man, and 4) deposition on the ground with subsequent exposure of man.

3/4.11.2.4 GASEOUS WASTE TREATMENT

The operability of the gaseous radwaste treatment system and the ventilation exhaust treatment systems ensures that the systems will be available for use whenever gaseous effluents require treatment prior to release to the environment. The requirement that the appropriate portions of these systems be used when specified provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonably achievable." This specification implements the requirements of 10 CFR Part 50.36a, General Design Criterion Section II.1 of the Final Safety Analysis Report for The Donald C. Cook Nuclear Plant and design objective 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 guide set forth in Sections II.B and II.C of Appendix I, 10 CFR Part 50, for gaseous effluents.

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 treatment system is maintained below the flammability limits of hydrogen and oxygen mixtures. Maintaining the concentration of hydrogen or oxygen below their flammability limits provides that the releases of radioactive materials will be controlled in conformance with the requirements of the General Design Criterion specified in Section II.1 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.

3/4 11.2.6 Gas Storage Tanks

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

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3/4.11.3 SOLID RADIOACTIVE WASTE

The operability of the solid radwaste system ensures that the system will be available for use whenever solid radwastes require processing and packaging prior to shipment offsite. This specification implements the requirements of 10 CFR Part 50.36a and General Design Criterion specified in Section 11.1 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant. The process parameters included in establishing the PROCESS CONTROL PROGRAM may include, but are not limited to waste type, waste pH, waste/liquid/solidification agent/catalyst ratios, waste oil content, waste principal chemical constituents, mixing and curing time.

3/4.11.4 TOTAL DOSE

The specification is provided to meet the dose limitations of 40 CFR 190. The specification requires the preparation and submittal of a Special Report whenever the calculated doses from plant radioactive effluents exceed twice the design objective doses of Appendix I. For sites containing up to 4 reactors, it is highly unlikely that the resultant dose to a member of the public will exceed the dose limits of 40 CFR 190 if the individual reactors remain within the reporting requirement level. The Special Report will describe a course of action which should result in the limitations of dose to a member of the public for 12 consecutive months to within the 40 CFR 190 limits. For the purposes of the Special Report, it may be assumed that the dose commitment to the member of the public from other uranium fuel cycle sources is negligible, with the exception that dose contributions from other nuclear fuel cycle facilities at the same site or within a radius of 5 miles must be considered. If the dose to any member of the public is estimated to exceed the requirements of 40 CFR 190, the Special Report with a request for a variance (provided the release conditions resulting in violation of 40 CFR 190 have not already been corrected), in accordance with the provision of 40 CFR 190.11 is considered to be a timely request and fulfills the requirements of 40 CFR 190 until NRC staff action is completed. An individual is not considered a member of the public during any period in which he/she is engaged in carrying out any operation which is part of the nuclear fuel cycle.



BASES

~~1 This section is intentionally deleted.~~
3/4.12.1 MONITORING PROGRAM

The radiological monitoring program required by this specification provides measurements of radiation and radioactive materials in those exposure pathways and for those radionuclides which lead to the highest potential radiation exposures of individuals resulting from the station operation. This monitoring program thereby supplements the radiological effluent monitoring program by verifying that the measurable concentration of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and modeling of the environmental exposure pathways. 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 detection capabilities required by Table 4.12-1 are the state-of-the art 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 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, unavoidably small sample sizes, the presence of interfering nuclides, or other uncontrollable circumstances may render these LLDs unachievable. In such cases, the contributing factors will be identified and described in the Annual Radiological Environmental Operating Report.

3/4.12.2 LAND USE CENSUS

This specification is provided to ensure that changes in the use of unrestricted areas are identified and that modifications to the monitoring program are made if required by the results of this census. This census satisfies the requirements of Section IV.8.3 of Appendix I to 10 CFR Part 50. Restricting the census to gardens of greater than 500 square feet 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 (25 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 used, 1) that 20% of the garden was used for growing broad leaf vegetation (i.e. similar to lettuce and cabbage), and 2) a vegetation field of 2 kg/square meter.

3/4.12.3 INTERLABORATORY COMPARISON PROGRAM

The requirement for participation in an Interlaboratory Comparison Program is provided to ensure that independent checks on the precision and accuracy of the measurements of radioactive material in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring in order to demonstrate that the results are reasonably valid.



ADMINISTRATIVE CONTROLS

TECHNICAL REVIEW AND CONTROL (continued)

plan and implementing procedures shall be reviewed pursuant to the requirements of Specifications 6.5.1.6 and 6.5.2.7 and approved by the Plant Manager. NRC approval shall be obtained as appropriate.

- g. Recommended changes to the Security Plan and implementing procedures shall be reviewed pursuant to the requirements of Specifications 6.5.1.6 and 6.5.2.7 and approved by the Plant Manager. NRC approval shall be obtained as appropriate.

6.5.3.2 Records of the above activities shall be provided to the Plant Manager, PNSRC and/or the NSDRC as necessary for required reviews.

6.6 REPORTABLE EVENT ACTION

6.6.1 The following actions shall be taken for REPORTABLE EVENTS:

- a. The Commission shall be notified and a report submitted pursuant to the requirements of 10 CFR 50.73, and
- b. Each REPORTABLE EVENT shall be reviewed by the PNSRC, and the results of this review shall be submitted to the NSDRC and the Vice President - Nuclear Operations.

6.7 SAFETY LIMIT VIOLATION

6.7.1 The following actions shall be taken in the event a safety limit is violated:

- a. The NRC Operations Center shall be notified by telephone as soon as possible and in all cases within 1 hour. The Chairman of the NSDRC shall be notified within 24 hours.
- b. A Safety Limit Violation Report shall be prepared. The report shall be reviewed by the PNSRC. This report shall describe (1) applicable circumstances preceding the violation; (2) effects of the violation upon facility components, systems or structures; and (3) corrective action taken to prevent recurrence.
- c. The Safety Limit Violation Report shall be submitted to the Commission, the Chairman of the NSDRC and the Vice President - Nuclear Operations within 14 days of the violation.
- d. Operation of the unit shall not be resumed until authorized by the Commission.

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(editorial change)

6.8 PROCEDURES AND PROGRAMS

6.8.1 Written procedures shall be established, implemented and maintained covering the activities referenced below:



ADMINISTRATIVE CONTROLS

- a. The applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Rev. 2, February 1978.
- b. Security Plan implementation.
- c. Emergency Plan implementation.
- d. PROCESS CONTROL PROGRAM implementation.
- e. OFFSITE DOSE CALCULATION MANUAL implementation.
- f. Quality Assurance Program for effluent and environmental monitoring using the guidance in Regulatory Guide 1.21, Rev. 1, June 1974, and Regulatory Guide 4.1, Rev. 1, April 1975.

6.8.2 Each procedure and administrative policy of Specification 6.8.1 above, and changes thereto, including temporary changes, shall be reviewed prior to implementation as set forth in Specification 6.5 above.

6.8.3 A plant program for post-accident sampling shall be established, implemented, and maintained which will ensure the capability to obtain and analyze reactor coolant samples, containment atmosphere noble gas samples, and unit vent gaseous effluent samples for iodines and particulates under accident conditions. The program will include the following:

- a. Training of personnel,
- b. Procedures for sampling and analysis,
- c. Provisions for maintenance of sampling and analysis equipment.

6.9 REPORTING REQUIREMENTS

ROUTINE REPORTS

6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the Regional Administrator unless otherwise noted.

STARTUP REPORT

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.

6.9.1.2 The startup report shall address each of the tests identified in the FSAR and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.

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and

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6.8.4 The following programs shall be established, implemented, and maintained:

a. Radioactive Effluent Controls Program

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

- 1) Limitations on the operability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM,
- 2) Limitations on the concentrations of radioactive material released in liquid effluents to UNRESTRICTED AREAS conforming to 10 CFR Part 20, Appendix B, Table II, Column 2,
- 3) Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.106 and with the methodology and parameters in the ODCM,
- 4) Limitations on the annual and quarterly doses or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released from each unit to UNRESTRICTED AREAS conforming to Appendix I to 10 CFR Part 50,
- 5) Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days,
- 6) Limitations on the operability and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a 31-day period would exceed 2 percent of the guidelines for the annual dose or dose commitment conforming to Appendix I to 10 CFR Part 50,
- 7) Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the SITE BOUNDARY conforming to the dose associated with 10 CFR Part 20, Appendix B, Table II, Column 1,
- 8) Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50,

- 9) Limitations on the annual and quarterly doses to a MEMBER OF THE PUBLIC from Iodine -131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10CFR Part 50, and
- 10) Limitations on the annual dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.

b. Radiological Environmental Monitoring Program

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

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

(editorial change)

ADMINISTRATIVE CONTROLS

→ STARTUP REPORT (Continued)

6.9.1.3 Startup reports shall be submitted within (1) 90 days following completion of the startup test program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of startup test program, and resumption or commencement of commercial power operation), supplementary reports shall be submitted at least every three months until all three events have been completed.

ANNUAL REPORTS¹

6.9.1.4 Annual reports covering the activities of the unit as described below for the previous calendar year shall be submitted prior to March 1 of each year. The initial report shall be submitted prior to March 1 of the year following initial criticality.

6.9.1.5 Reports required on an annual basis shall include:

- a. A tabulation on an annual basis of the number of station, utility and other personnel (including contractors) receiving exposures greater than 100 mrem/yr and their associated man rem exposure according to work and job functions, e.g., reactor operations and surveillance, in-service inspection, routine maintenance, special maintenance (describe maintenance), waste processing and refueling. The dose assignment to various duty functions may be estimates based on pocket dosimeter, TLD, or film badge measurements. Small exposures totalling less than 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole body dose received from external sources shall be assigned to specific major work functions.
- b. The complete results of steam generator tube in-service inspections performed during the report period (reference Specification 4.4.5.5.b).
- c. Documentation of all challenges to the pressurizer power operated relief valves (PORVs) or safety valves.
- d. Information regarding any instances when the I-131-specific activity limit was exceeded.

¹ A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station.

² This tabulation supplements the requirements of 20.407 of 10 CFR Part 20.

ADMINISTRATIVE CONTROLS

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT³

6.9.1.6 ~~Replace text with Attached "A"~~
Routine radiological environmental operating reports covering the operation of the unit during the previous calendar year shall be submitted prior to May 1 of each year.

6.9.1.7 The annual radiological environmental operating reports shall include summaries, interpretations, and statistical evaluation of the results of the radiological environmental surveillance activities for the report period, including a comparison with preoperational studies, operational controls (as appropriate), and previous environmental surveillance reports and an assessment of the observed impacts of the plant operation on the environment. The reports shall also include the results of the land-use census required by Specification 3.12.2. If harmful effects or evidence of irreversible damage are detected by the monitoring, the report shall provide an analysis of the problem and a planned course of action to alleviate the problem.

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The annual radiological environmental operating reports shall include summarized and tabulated results in the format of 3.12.2 of all radiological environmental samples taken during the report period. In the event that some results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted as soon as possible in a supplementary report.

The reports shall also include the following: a summary description of the radiological environmental monitoring program including sampling methods for each sample type, size, and physical characteristics of each sample type, sample preparation methods, analytical methods, and measuring equipment used, a map of all sample locations keyed to a table giving distances and directions from one reactor, the result of land-use census required by the Specification 3.12.2; and the results of participation in the Interlaboratory Comparison Program required by Specification 3.12.3.

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT³

6.9.1.8 ~~Replace text with Attached "B"~~
Routine radioactive effluent release report covering the operation of the unit during the previous 12 months of operation shall be submitted within 90 days after January 1 of each year.

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6.9.1.9 The radioactive effluent release report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the units as outlined in Regulatory guide 1.21, "Measuring, Evaluating and Reporting in Solid Wastes and Releases of Radioactive

³
A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station; however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material for each unit.

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ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT³

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

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ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT³

6.9.1.7 The Annual Radioactive Effluent Release Report covering the operation of the unit during the previous 12 months of operations shall be submitted within 90 days after January 1 of each year. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be (1) consistent with the objectives outlined in the ODCM and PCP and (2) in conformance with 10 CFR 50.36a and Section IV.B.1 of Appendix I to 10 CFR Part 50.



ADMINISTRATIVE CONTROLS

Materials in Liquid and Gaseous Effluents from Light-Water Cooled Nuclear Power Plants," with data summarized on a quarterly basis, following the format of Appendix B, thereof.

The radioactive effluent release report to be submitted 90 days after January 1 of each year shall include a quarterly summary of hourly meteorological data collected during the reporting period. This summary may be either in the form of an hour-by-hour listing of wind speed, wind direction, atmospheric stability, and precipitation (if measured) on magnetic tape, or in the form of joint frequency distributions of wind speed, wind direction and atmospheric stability. The report submitted 90 days after January 1 shall include an assessment of the radiation doses due to the radioactive liquid and gaseous effluents released from the unit or station during the previous calendar year. This report shall include an assessment of the radiation doses from radioactive liquid and gaseous effluents to members of the public due to their activities inside the site boundary (Figure 5.1-3) during the reporting period. All assumptions used in making these assessments (i.e., specific activity, exposure time, and location) shall be included in this report. The meteorological conditions concurrent with the time of release of radioactive materials in gaseous effluents (as determined by sampling frequency and measurement) shall be used for determining the gaseous pathway doses. The assessment of radiation doses shall be performed in accordance with the Offsite Dose Calculation Manual (ODCM).

The radioactive effluent release report to be submitted 90 days after January 1 of each year shall also include an assessment of radiation doses to the likely most exposed member of the public from reactor releases and other nearby uranium fuel cycle sources (including doses from primary effluent pathways and direct radiation) for the previous 12 consecutive months to show conformance with 40 CFR 190, Environmental Radiation Protection Standards for Nuclear Power Operation. Acceptable methods for calculating the dose contribution from liquid and gaseous effluents are given in Regulatory Guide 1.109, Rev. 1.

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

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

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ADMINISTRATIVE CONTROLS

- ~~d. Type of waste (e.g., spent resin, compacted dry waste, evaporator bottoms),~~
~~e. Type of container (e.g., LSA, Type A, Type B, Large Quantity), and~~
~~f. Solidification agent (e.g., cement).~~

~~The radioactive effluent release report shall include unplanned releases from the site to unrestricted areas of radioactive materials in gaseous and liquid effluent on a quarterly basis.~~

~~The radioactive effluent release report shall include any change to the PROCESS CONTROL PROGRAM (PCP) and the OFFSITE DOSE CALCULATION MANUAL (ODCM) made during the reporting period.~~

MONTHLY REACTOR OPERATING REPORT

6.9.1.1³ 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 U.S. Nuclear Regulatory Commission (Attn: Document Control Desk), Washington, D.C. 20555, with a copy to the Regional Office no later than the 15th of each month following the calendar month covered by the report.

CORE OPERATING LIMITS REPORT

6.9.1.1⁹ Core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT before each reload cycle or any remaining part of a reload cycle for the following:

- a. Moderator Temperature Coefficient Limits for Specification 3/4.1.1.4,
- b. Rod Drop Time Limits for Specification 3/4.1.3.3,
- c. Shutdown Rod Insertion Limits for Specification 3/4.1.3.4,
- d. Control Rod Insertion Limits for Specification 3/4.1.3.5,
- e. Axial Flux Difference for Specification 3/4.2.1,
- f. Heat Flux Hot Channel Factor for Specification 3/4.2.2,
- g. Nuclear Enthalpy Rise Hot Channel Factor for Specification 3/4.2.3, and
- h. Allowable Power Level for Specification 3/4.2.6. .

6.9.1.1⁹ The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC in:

- a. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985 (Westinghouse Proprietary),

ADMINISTRATIVE CONTROLS

CORE OPERATING LIMITS REPORT (Continued)

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- b. WCAP-8385, "Power Distribution Control and Load Following Procedures - Topical Report," September 1974 (Westinghouse Proprietary),
- c. WCAP-10216-P-A, Part B, "Relaxation of Constant Axial Offset Control/F_Q Surveillance Technical Specification," June 1983 (Westinghouse Proprietary),
- d. WCAP-10266-P-A Rev. 2, "The 1981 Version of Westinghouse Evaluation Mode Using BASH Code," March 1987 (Westinghouse Proprietary).

6.9.1.1.3⁹ The core operating limits shall be determined so that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis are met.

6.9.1.1.4⁹ The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance, for each reload cycle, to the NRC document control desk with copies to the Regional Administrator and Resident Inspector.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the attention of the document control desk - U.S. Nuclear Regulatory Commission (Washington, D.C. 20555), with copies to the Region III Administrator and the Resident Inspector at the Cook Nuclear Plant within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

- a. Inoperable Seismic Monitoring Instrumentation, Specification 3.3.3.3.
- b. Seismic Monitoring Instrumentation Actuated, Specification 4.3.3.3.2.
- c. Inoperable Meteorological Monitoring Instrumentation, Specification 3.3.3.4.
- d. High Specific Activity in RCS Coolant, Specification 3.4.8.
- e. RCS Pressure Transient Mitigated By RHR Safety Valve or RCS Vent(s), Specification 3.4.9.3.
- f. Moderator Temperature Coefficient, Specification 3.1.1.4.

ADMINISTRATIVE CONTROLS

SPECIAL REPORTS (Continued)

- MOVE TO PAGE 6-18
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- g. Sealed Source Leakage in Excess of Limits, Specification 4.7.7.1.3.
 - h. ECCS Actuation, Specifications 3.5.2 and 3.5.3.
 - i. Excessive Releases in Radioactivity, Specifications 3.11.1.2, 3.11.1.3, 3.11.2.2, 3.11.2.3, 3.11.2.4, and 3.11.4.
 - j. Inoperable Solid Radwaste System, Specification 3.11.3.
 - k. Excessive Level of Radioactivity in Quarterly Environmental Sample, Specification 3.12.1 (Action b).
 - l. Milk and Vegetable Samples Not Available, Specification 3.12.1 (Action c).
 - m. Greater Calculated Dose or Dose Commitment Identified by Land Census, Specification 3.12.2 (Actions a & b).
 - n. Violation of Safety Limit, Specification 6.7.1.

6.10 RECORD RETENTION

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

- a. Records and logs of unit operation covering time interval at each power level.
- b. Records and logs of principal maintenance activities, inspections, repair and replacement of principal items of equipment related to nuclear safety.
- c. All REPORTABLE EVENTS submitted to the Commission.
- d. Records of surveillance activities, inspections and calibrations required by these Technical Specifications.
- e. Records of changes made to the procedures required by Specification 6.8.1.
- f. Records of sealed source and fission detection leak tests and results.
- g. Records of annual physical inventory of all sealed source material on record.

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ADMINISTRATIVE CONTROLS

RECORD RETENTION (continued)

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

- a. Records and drawing changes reflecting unit design modifications made to systems and equipment described in the Final Safety Analysis Report.
- b. Records of new and irradiated fuel inventory, fuel transfers and assembly burnup histories.
- c. Records of radiation exposure for all individuals entering radiation control areas.
- d. Records of gaseous and liquid radioactive material released to the ~~environs~~. environment. (editorial change)
- e. Records of transient or operational cycles for those facility components identified in Table 5.9-1.
- f. Records of reactor tests and experiments.
- g. Records of training and qualification for current members of the Plant Staff.
- h. Records of in-service inspections performed pursuant to these Technical Specifications.
- i. Records of Quality Assurance activities required by the QA Manual.
- j. Records of reviews performed for changes made to procedures or equipment or review of tests and experiments pursuant to 10 CFR 50.59.
- k. Records of meetings of the PNSRC and the NSDRG.
- l. Records of radioactive shipments.
- m. Records of the service lives of hydraulic snubbers including the date at which service life commences and associated installation and maintenance records.
- n. Records of reviews performed for changes made to the OFFSITE DGE CALCULATION MANUAL and the PRECESS CONTROL PROGRAM.

6.11 RADIATION PROTECTION PROGRAM

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

6.12 HIGH RADIATION AREA

6.12.1 In lieu of the "control device" or "alarm signal" required by paragraph 20.203(c)(2) of 10 CFR 20, each high radiation area in which the intensity of radiation is 1000 mrem/hr or less shall be barricaded and .

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conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit. Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

- a. A radiation monitoring device which continuously indicates the radiation dose rate in the area.
- b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made aware of it.
- c. An individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device. This individual shall be responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the facility Health Physicist in the Radiation Work Permit.

6.12.2 The requirements of 6.12.1 shall also apply to each high radiation area in which the intensity of radiation is greater than 1000mrem/hr. When possible, locked doors shall be provided to prevent unauthorized entry into such areas, and the keys shall be maintained under the administrative control of the Shift Supervisor on duty and/or the Plant Health Physicist (Plant Radiation Protection Supervisor). Doors shall remain locked except during periods of access by personnel under an approved RWP which shall specify the dose rate levels in the immediate work areas. In the event that it is not possible or practicable to provide locked doors due to area size or configuration, the area shall be roped off, conspicuously posted and a flashing light shall be activated as a warning device.

~~6.13 DELETED~~

¹³ 6.14¹³ PROCESS CONTROL PROGRAM (PCP)

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

6.14.2 Licensee initiated changes to the PCP:

1. Shall be submitted to the Commission in the semi-annual Radioactive Effluent Release Report for the period in which the change(s) was made. This submittal shall contain:

- a. Sufficiently detailed information to totally support the rationale for the change without benefit of additional or supplemental information;

*Health Physics (Radiation Protection) personnel shall be exempt from the RWP issuance requirement during the performance of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas.

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REPLACE WITH
ATTACHED TEXT (6.13)

ADMINISTRATIVE CONTROLS

REPLACE WITH ATTACHED TEXT
(continued) (6.13.)

- b. ~~A determination that the change did not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes; and~~
- c. ~~Documentation of the fact that the change has been reviewed and found acceptable by the PNSRC.~~

2. ~~Shall become effective upon review and acceptance by the PNSRC.~~

¹⁴
6.15 OFFSITE DOSE CALCULATION MANUAL (ODCM)

REPLACE WITH ATTACHED TEXT
(6.14.)

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

6.15.2 Licensee initiated changes to the ODCM:

1. Shall be submitted to the Commission in the Semi-annual Radioactive Effluent Release Report in the next report after the report period the change(s) was made effective. This submittal shall contain:
 - a. Sufficiently detailed information to totally support the rationale for the change without benefit of additional or supplemental information. Information submitted should consist of a package of those pages of the ODCM to be changed with each page numbered and provided with an approval and date box, together with appropriate analyses or evaluations justifying the change(s);
 - b. A determination that the change will not reduce the accuracy or reliability of dose calculations or setpoint determinations; and
 - c. Documentation of the fact that the change has been reviewed and found acceptable by the PNSRC.

2. Shall become effective upon review and acceptance by the PNSRC.

6.15.3 Commission initiated changes:

1. Shall be determined by the PNSRC to be applicable to the facility after consideration of facility design.
2. The licensee shall provide the Commission with written notification of their determination of applicability including any necessary revisions to reflect facility design.

6.16 MAJOR CHANGES TO RADIOACTIVE WASTE TREATMENT SYSTEMS (Liquid, Gaseous, and Solid)

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

DELETE

6.13 PROCESS CONTROL PROGRAM (PCP)

6.13.1 Changes to the PCP:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.n. This documentation shall contain:
 - 1. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and
 - 2. A determination that the change will maintain the overall conformance of the solidified waste product to existing requirements of Federal, State, or other applicable regulations.
- b. Shall become effective after review and acceptance by the PNSRC and the approval of the Plant Manager.

6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

6.14.1 Changes to the ODCM:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.n. This documentation shall contain:
 1. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and
 2. A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.
- b. Shall become effective after review and acceptance by the PNSRC and the approval of the Plant Manager.
- c. Shall be submitted to the Commission in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Annual Radioactive Effluent Release Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g., month/year) the change was implemented.

ADMINISTRATIVE CONTROLS

6.16 MAJOR CHANGES TO RADIOACTIVE WASTE TREATMENT SYSTEMS (Liquid, Gaseous, and Solid) (Continued)

1. Shall be reported to the Commission in the Annual Operating Report for the period in which the evaluation was reviewed by the (PNSRC). The discussions of each change shall contain:
 - a. A summary of the evaluation that led to the determination that the change could be made in accordance with 10 CFR 50.59;
 - b. Sufficient detailed information to totally support the reason for the change without benefit of additional or supplemental information;
 - c. A detailed description of the equipment, components and processes involved and the interfaces with other plant systems;
 - d. An evaluation of the change which shows the predicted releases of radioactive materials in liquid and gaseous effluents and/or quantity of solid waste that differ from those previously predicted in the license application and amendments thereto;
 - e. An evaluation of the change which shows the expected maximum exposure to individuals in the unrestricted area and to the general population that differ from those previously estimated in the license application and amendments thereto;
 - f. A comparison of the predicted releases of radioactive materials, in liquid and gaseous effluents and in solid waste, to the actual releases for the period prior to when the changes are to be made;
 - g. An estimate of the exposure to plant operation personnel as a result of the change; and
 - h. Documentation of the fact that the change was reviewed and found acceptable by the PNSRC.
2. Shall become effective upon review and acceptance by the PNSRC.

6.16.2 Commission initiated changes:

1. The applicability of the change to the facility shall be determined by the (PNSRC) after consideration of the facility design.
2. The licensee shall provide the Commission with written notification of its determination of applicability including any necessary revisions to reflect facility design.

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DEFINITIONS

PHYSICS TESTS

1.25 PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation and 1) described in Chapter 13.0 of the FSAR, 2) authorized under the provisions of 10 CFR 50.59, or 3) otherwise approved by the Commission.

\bar{E} - AVERAGE DISINTEGRATION ENERGY

1.26 \bar{E} shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

SOURCE CHECK

1.27 A SOURCE CHECK shall be the qualitative assessment of Channel response when the Channel sensor is exposed to a radioactive source.

PROCESS CONTROL PROGRAM (PCP)

See attached page

~~1.28 The PROCESS CONTROL PROGRAM shall contain the current formula, sampling, analysis, tests and determinations to be made to ensure that the processing and packaging of solid radioactive wastes will be accomplished in such a way as to assure compliance with 10 CFR 20, 10 CFR 71, Federal and State regulations and other requirements governing the shipment and disposal of radioactive waste.~~

PROCESS CONTROL PROGRAM

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

DEFINITIONS

SOLIDIFICATION

~~1.29 ^{DELETED} SOLIDIFICATION shall be the conversion of radioactive liquid, resin and sludge wastes from liquid systems into a form that meets shipping and burial site requirements.~~

OFFSITE DOSE CALCULATION MANUAL (ODCM)

~~1.30 ^{Insert Definition from Attached Page} The OFFSITE DOSE CALCULATION MANUAL shall contain the methodology and parameters used in the calculation of offsite doses due to radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm/trip setpoints and the conduct of environmental radiological monitoring program.~~

GASEOUS RADWASTE TREATMENT SYSTEM

1.31 A GASEOUS RADWASTE TREATMENT SYSTEM is any system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system off-gases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

VENTILATION EXHAUST TREATMENT SYSTEM

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

PURGE-PURGING

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

VENTING

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

OFFSITE DOSE CALCULATION MANUAL

1:30 The OFFSITE DOSE CALCULATION MANUAL (ODCM) shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm/trip setpoints, and in the conduct of the Environmental Radiological Monitoring Program. The ODCM shall contain (1) the Radioactive Effluent Controls and Radiological Environmental Monitoring Programs required by Section 6.8.4 and (2) descriptions of the information that should be included in the Annual Radiological Environmental Operating and Semi-annual Radioactive Effluent Release Reports required by Specifications 6.9.1.6 and 6.9.1.7.

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4.3.3.1)

Reformat Page to
PORTRAIT Orientation

<u>OPERATION MODE/INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>ALARM SETPOINT</u>	<u>TRIP SETPOINT</u>	<u>ACTION</u>
1. Modes 1, 2, 3, & 4				
A) Area Monitors				
i) Upper Containment [†] (VRS 2101/2201)	1	N/A	≤54 mR/hr	21
ii) Containment - High Range (VRA 2310/2410)	2	≤10R/hr	N/A	22A
B) Process Monitors				
i) Particulate Channel [†] (ERS 2301/2401)	1	N/A	≤2.52 μCi	20
ii) Noble Gas Channel [†] (ERS 2305/2405)	1	N/A	≤4.4 x 10 ⁻³ $\frac{\mu\text{Ci}}{\text{cc}}$	20
C) Noble Gas Effluent Monitors				
i) Unit Vent Effluent Monitor				
a) Low Range (VRS 2505)	1	N/A	N/A	22B
b) Mid Range (VRS 2507)	1	N/A	N/A	22B
c) High Range (VRS 2509)	1	N/A	N/A	22B
ii) Steam Generator PORV				
a) MRA 2601 (Loop 1)	1	N/A	N/A	22B
b) MRA 2602 (Loop 4)	1	N/A	N/A	22B
c) MRA 2701 (Loop 2)	1	N/A	N/A	22B
d) MRA 2702 (Loop 3)	1	N/A	N/A	22B

the ODCM
(See T/S Section 3.3.3.10)

TABLE 1.1 (Cont'd)
 RADIATION MONITORING INSTRUMENTATION
 (OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4.3.3.1)

OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS OPERABLE	ALARM SETPOINT	TRIP SETPOINT	ACTION
(iii) Gland Steam Condenser Vent Monitor a) Low Range (SRA 2805)		the ODCM (See P/S Section 1.3.3.10)		
(iv) Steam Jet Air Ejector Vent Monitor a) Low Range (SRA 2905) b) Mid Range (SRA 2907) c) High Range (SRA 2909)	1 1 1	the ODCM (See P/S Section 1.3.3.10) N/A N/A	N/A N/A	22B 22B
2. Mode 6				
A) Train A	any 2/3 channels			22
i) Containment Area Radiation ¹ Channel (VRS 2101)		N/A	≤ 54 mR/hr	
ii) Particulate Channel ¹ (ERS 2301)		N/A	≤ 2.52 uCi	
iii) Noble Gas Channel ¹ (ERS 2305)		N/A	≤ 4.4 x 10 ⁻³ $\frac{\text{uCi}}{\text{cc}}$	
B) Train B	any 2/3 channels			22
i) Containment Area ¹ Radiation Channel (VRS 2201)		N/A	≤ 54 mR/hr	
ii) Particulate Channel ¹ (ERS 2401)		N/A	≤ 2.52 uCi	

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2. G. GEEK - UNIT 2

3/4 3-35a

Amendment No. 80, 179.

(editorial
correction)

TABLE 3.3.6 (Cont'd)
 RADIATION MONITORING INSTRUMENTATION
 (OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4.3.3.1)

OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS 'OPERABLE'	ALARM SETPOINT	TRIP SETPOINT	ACTION
iii) Noble Gas Channel (ERS 2405)		N/A	$\leq 4.4 \times 10^{-3}$ $\frac{\mu\text{Ci}}{\text{cc}}$	22
B. Mode ***				
A) Spent Fuel Storage (RRG-330)	1	≤ 15 mR/hr	≤ 15 mR/hr	21

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 PAGE 3/4 3-35b

***With fuel in storage pool or building.
 This specification applies only during purge.

TABLE 4.3-3
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

REFORMAT GO TO
PORTRAIT ORIENTATION

Operation Mode/Instrument	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	Modes for which surveillance is required <u>APPLICABLE</u> <u>MODES</u> (Editorial change)
1. Modes 1, 2, 3 & 4				
A) Area Monitors				
i) Upper Containment (VRS 2101/2201)	S*	R	M	1, 2, 3, 4
ii) Containment - High Range (VRS 2310/2410)	S	R	M	1, 2, 3, 4
B) Process Monitors				
i) Particulate Channel (ERS 2301/2401)	S*	R	M	1, 2, 3, 4
C) Noble Gas Effluent Monitors				
i) Unit Vent Effluent Monitor				
a) Low Range (VRS 2505)-----				
(See Table 4.3-9, Item 3.a, 4a, 5a the ODCM)				
b) Mid Range (VRS 2507)	S	R	N/A	1, 2, 3, 4
c) High Range (VRS 2509)	S*	R	N/A	1, 2, 3, 4
ii) Steam Generator PORV				
a) MRA 2601 (Loop 1)	S*	R	M	1, 2, 3, 4
b) MRA 2602 (Loop 4)	S*	R	M	1, 2, 3, 4
c) MRA 2701 (Loop 2)	S*	R	M	1, 2, 3, 4
d) MRA 2702 (Loop 3)	S*	R	M	1, 2, 3, 4

REFORMAT PAGE TO
PORTRAIT ORIENTATION

TABLE 4.3.3 (Cont'd)
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Operation Mode/Instrument	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES FOR WHICH SURVEILLANCE REQUIRED APPLICABLE MODES
iii) Gland Steam Condenser Vent Monitor				
a) Low Range (SRA 2805)				
iv) Steam Jet Air Ejector Vent Monitor				
a) Low Range (SRA 2905)				
b) Mid Range (SRA 2907)	S	R	M	1, 2, 3, 4
c) High Range (SRA 2909)	S*	R	N/A	1, 2, 3, 4

the ODCM

the ODCM

(EDITORIAL
CHANGE)

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2. Mode 6

A) Train A

6

i) Containment Area Radiation Channel (VRS 2101)	S*	R	M
ii) Particulate Channel (ERS 2301)	S*	R	M
iii) Noble Gas Channel (ERS 2305)	S*	R	M

B) Train B

6

i) Containment Area Radiation Channel (VRS 2201)	S*	R	M
ii) Particulate Channel (ERS 2401)	S*	R	M

COOLING SYSTEM
UNIT 2

3/4 3-37a

Amendment No. 80.149

TABLE 4.3.1 (Cont'd)
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>Operation Mode/Instrument</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES FOR WHICH SURVEILLANCE REQUIRED</u>
iii) Noble Gas Channel (ERS 2405)	S*	R	M	6
3. Mode**				
A) Spent Fuel Storage (RRC-330)	S	R	M	**

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- * To include Source Check per T/S Section 1.27.
 ** With fuel in storage pool or building.

Delete

INSTRUMENTATION

RADIOACTIVE LIQUID EFFLUENT INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.9 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.

APPLICABILITY: As shown in Table 3.3-12.

ACTION:

- a. With a radioactive liquid effluent monitoring instrumentation channel alarm/trip setpoint less conservative than a value which will ensure that the limits of 3.11.1.1 are met, without delay suspend the release of radioactive liquid effluents monitored by the affected channel, reset, or declare the channel inoperable.
- b. With one or more radioactive liquid effluent monitoring instrumentation channels inoperable, take the applicable ACTION shown in Table 3.3-12.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.9.1 The setpoints shall be determined in accordance with methodology as described in the ODCM and shall be recorded.

4.3.3.9.2 Each radioactive liquid effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 4.3-3.

Delete

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

<u>Instrument</u>	<u>Minimum Channels Operable</u>	<u>Applicability</u>	<u>Action</u>
1. Gross Radioactivity Monitors Providing Automatic Release Termination			
a. Liquid Radwaste Effluent Line (12-RRS-1001)*	(1)#	At times of release	23
b. Steam Generator Blowdown Line (2-R-19)	(1)	At times of release	24
c. Steam Generator Blowdown Treatment Effluent (2-R-24)	(1)	At times of release	24
2. Gross Radioactivity Monitors Not Providing Automatic Release Termination			
a. Service Water System Effluent Line (2-R-20, 2-R-28)	(1)per train	At all times	25
3. Continuous Composite Sampler Flow Monitor			
a. Turbine Building Sump Effluent Line	(1)	At all times	25
4. Flow Rate Measurement Devices			
a. Liquid Radwaste Line(RFI-285)	(1)	At times of release	26
b. Discharge Pipes*	(1)	At all times	NA
c. Steam Generator Blowdown Treatment Effluent (2-DFT-352)	(1)	At times of release	26

* Pump curves and valve settings may be utilized to estimate flow; in such cases, Action Statement 26 is not applicable.

+ Monitor 2-R-18 may be used until 12-RRS-1001 is declared OPERABLE following initial installation.

* OPERABILITY of 12-RRS-1001 includes OPERABILITY of flow switch RFS-1010, which is an attendant instrument as defined by Specification 1.6.

Delete

TABLE 3.3-12 (Continued)
TABLE NOTATION

Action 23

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

1. At least two independent samples are analyzed in accordance with Specification 4.11.1.1.3 and;
2. At least two technically qualified members of the Facility Staff independently verify the discharge valving. Otherwise suspend release of radioactive effluents via this pathway.

Action 24

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 analyzed for gross radioactivity (beta or gamma) at a limit of detection of at least 10^{-4} $\mu\text{Ci}/\text{gram}$:

1. At least once per 8 hours when the specific activity of the secondary coolant is >0.01 $\mu\text{Ci}/\text{gram}$ CGSE EQUIVALENT I-131.
2. At least once per 24 hours when the specific activity of the secondary coolant is ≤ 0.01 $\mu\text{Ci}/\text{gram}$ CGSE EQUIVALENT I-131.

Action 25

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 8 hours, grab samples are collected and analyzed for gross radioactivity (beta or gamma) at a lower limit of detection of at least 10^{-4} $\mu\text{Ci}/\text{ml}$.

Action 26

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.

TABLE 4.3-8

Delete

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
1. Gross Beta or Gamma Radioactivity Monitors providing Alarm and Automatic Isolation				
a. Liquid Radwaste Effluent Line (12-RRS-1001)	D*	P	R(3)	Q(5)
b. Steam Generator Blowdown Effluent Line	D*	M	R(3)	Q(1)
c. Steam Generator Blowdown Treatment Effluent Line	D*	M	R(3)	Q(1)
2. Gross Beta or Gamma Radioactivity Monitors Providing Alarm But Not Providing Automatic Isolation				
a. Service Water System Effluent Line	D	M	R(3)	Q(2)
3. Continuous Composite Samplers				
a. Turbine Building Sump Effluent Line	D	N/A	N/A	N/A
4. Flow Rate Monitors				
a. Liquid Radwaste Effluent	D(4)*	N/A	R	Q
b. Steam Generator Blowdown Treatment Line	D(4)*	N/A	N/A	N/A

*During Releases Via This Pathway

Delete

TABLE 4.3-8 (Cont)

TABLE NOTATION

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

1. Instrument indicates measured levels above the alarm/trip setpoint.
- **2. Circuit failure.*
- **3. Instrument indicates a downscale failure.*
- **4. Instrument control not set in operating mode.*

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

1. Instrument indicates measured levels above the alarm setpoint.
- **2. Circuit failure.
- **3. Instrument indicates a downscale failure.
- **4. Instrument controls not set in operating mode.

- (3) The initial CHANNEL CALIBRATION shall be performed using one or more sources with traceability back to the National Bureau of Standards. These sources 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 may be used.

- (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.

- (5) The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exists:

1. Instrument indicates measured levels above the alarm/trip setpoint.
- **2. Circuit failure.***
- **3. Instrument indicates a downscale failure.***
- **4. Instrument control not set in operating mode.*
- **5. Loss of sample flow.

* Instrument indicates, but does not provide for automatic isolation.

** As equipment becomes operational.

*** Instrument indicates, but does not necessarily cause automatic isolation; however, no credit is taken for automatic isolation on such occurrences.

Instrumentation

EXPLOSIVE GAS Radioactive-Gaseous-Process and Effluent Monitoring Instrumentation

Limiting Condition for Operation

3.3.3.10⁹ The ~~radioactive gaseous~~ ^{explosive gas} process and effluent monitoring instrumentation channels shown in Table 3.3-11² shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of 3.11.2.1 are not exceeded.

Applicability: As shown in Table 3.3-11².

Action:

- a. With a ~~radioactive gaseous~~ ^{an explosive gas} process or effluent monitoring instrumentation channel alarm/trip setpoint less conservative than ~~a value which will ensure that the limits of 3.11.2.1 are met, without delay suspend the release of radioactive gaseous effluents monitored by the affected channel, reset, or declare the channel inoperable and take the ACTION shown in Table 3.3-12.~~ ^{the above specification,}
- b. With less than the minimum number of ~~radioactive gaseous~~ ^{explosive gas} effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-11².
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

Surveillance Requirements

~~4.3.3.10.1 The setpoints shall be determined in accordance with methodology as described in the ODCM and shall be recorded.~~

4.3.3.10.2⁹ Each ~~radioactive gaseous~~ ^{explosive gas} process or effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of ~~the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION, and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 4.3-8.~~ ^{analog}

~~* This surveillance requirement does not apply to the Waste Gas Holdup System Hydrogen and Oxygen Monitors, as their setpoints are not addressed in the ODCM.~~

Restore the inoperable instrumentation to OPERABLE status within 30 days. If unsuccessful, prepare and submit a SPECIAL REPORT to the Commission pursuant to Specification 6.9.2 to explain why this inoperability was not corrected in a timely manner.

~~Explosive Gas~~ ¹² TABLE 3.3-13
Radioactive Gaseous Effluent Monitoring Instrumentation

<u>Instrument (Instrument #)</u>	<u>Minimum Channels Operable</u> ^{Chf}	<u>Applicability</u>	<u>ACTION</u>
1. Waste Gas Holdup System Explosive Gas Monitoring System			
a. Hydrogen Monitor (QC-1400)	(1)	**	23 30
b. Oxygen Monitor (QC-1400, QC-370)	(2)	**	24 29
2. Condenser Evacuation System			
a. Noble Gas Activity Monitor (SRA-2905)	(1)	****	28
b. Flow Rate Monitor (SFR-401)	(1)	****	27
(2-MR-054 and/or SRA-2910)	(1)	****	27
3. Unit Vent, Auxiliary Building Ventilation System			
a. Noble Gas Activity Monitor (VRS-2505)	(1)	*	28
b. Iodine Sampler Cartridge for VRS-2503	(1)	*	32
c. Particulate Sampler Filter for VRS-2501	(1)	*	32
d. Effluent System Flow Rate Measuring Device (VFR-315)	(1)	*	27
(2-MR-054 and/or VRS-2510)	(1)	*	27
e. Sampler Flow Rate Measuring Device (VFS-2521)	(1)	*	27
4. Containment Purge System			
a. Aux. Building Vent System Noble Gas Activity Monitor (VRS-2505)	(1)	**** ¹	31
b. Aux. Building Vent. System Particulate Sampler for VRS-2501	(1)	**** ¹	32
5. Waste Gas Holdup System			
a. Noble Gas Activity Monitor Providing Alarm and Termination of Gas Decay Tank Releases (VRS-2505)	(1)	**** ²	33

TABLE 3.3-13 (Cont)

<u>Instrument (Instrument #)</u>	<u>Minimum Channels Operable</u>	<u>Applicability</u>	<u>ACTION</u>
6. Gland Seal Exhaust			
a. Noble Gas Activity Monitor (SRA-2805)	(1)	****	28
b. Flow Rate Monitor (SFR-201)	(1)	****	27
(2-MR-054 and/or SRA 2810)	(1)	****	27

* At all times.

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

**** During releases via this pathway.

1 For purge purposes only, see Technical Specifications 3.3.3.10, Table 3.3-13 and Table 4.3.9 (Items 3 a, 5.a in both tables) for non-purging requirements associated with this instrument.

2 For gas decay tank releases only, see Item 3 (Unit Vent, Auxiliary Building Ventilation System) for additional requirements.

13 The waste gas holdup system explosive gas monitoring system may be inoperable for up to 160 days on a one-time basis for the purpose of replacing one oxygen monitor. During this time grab samples for oxygen are to be taken and analyzed every 12 hours.

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TABLE 3-3-13 (CONT)

TABLE NOTATION

Action 27 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 28 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 8 hours and these samples are analyzed for gross activity within 24 hours.

ACTION Statements

Action 29 24 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 30 days. With 2 channels inoperable, operation of this system may continue for up to 30 days, provided grab samples are taken and analyzed every 12 hours.

Action 30 23 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of this system may continue for up to 14 days, provided grab samples are taken and analyzed every 12 hours.

Action 31 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirements, immediately suspend PURGING of radioactive effluents via this pathway.

Action 32 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via the affected pathway may continue for up to 30 days provided samples required for weekly analysis are continuously collected with auxiliary sampling equipment as required in Table 4.11-2.

Action 33 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:

- At least two independent samples of the tank's contents are analyzed and,
- At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge valve lineups;

otherwise, suspend release of radioactive effluents via this pathway.

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(OLD PAGE 3-59)

Explosive Gases

TABLE 4.3-2

Radioactive Gaseous Effluent Monitoring Instrumentation
Surveillance Requirements

Instrument (Instrument #)	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. Waste Gas Holdup System Explosive Gas Monitoring System				
a. Hydrogen Monitor (QC-1400)	D**	NA	Q(3)	M
b. Oxygen Monitor (QC-1400)	D**	NA	Q(4)	M
c. Oxygen**** Monitor (Alt. QC-370)	D**	NA	Q(4)	M
2. Condenser Evacuation System				
a. Noble Gas Activity Monitor (SRA-2905)	D**	M	R(2)	Q(1)
b. System Effluent Flow Rate (SFR-401, 2-MR-054, SRA-2910)	D**	NA	R	Q
3. Auxiliary Building Ventilation System				
a. Noble Gas Activity Monitor (VRS-2505)	D*	M	R(2)	Q(1)
b. Iodine Sampler (For VRS-2503)	W*	NA	NA	NA
c. Particulate Sampler (For VRS-2501)	W*	NA	NA	NA
d. System Effluent Flow Rate Measure- ment Device (VFR-315, 2-MR-054, VRS-2510)	D*	NA	R	Q
e. Sampler Flow Rate Measurement Device (VFS-2521)	D*	NA	R	Q
4. Containment Purge System				
a. Aux. Building Vent. System Noble Gas Activity Monitor (VRS-2505)	D**	P	R(2)	Q(1)
b. Aux. Building Vent System Particulate Sampler (For VRS-2501)	W**	NA	NA	NA

TABLE 4.3-9 (Cont)

<u>Instrument (Instrument #)</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>
5. Waste Gas Holdup System a. Noble Gas Activity Monitor Providing Alarm & Termination of Gas Decay Tank Releases (VRS-2505)	P**	P	R(2)	Q(5)
6. Gland Seal Exhaust a. Noble Gas Activity (SRA-2805)	D**	M	R(2)	Q(1)
b. System Effluent Flow Rate (SFR-201, 2-MR-054, SRA-2810)	D**	NA	R	Q

* At all times

** During release via this pathway

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

**** These surveillances are not required during the 160-day period in which this monitor is being replaced.

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~~TABLE 4.3-9 (Cont.)~~

TABLE NOTATION

- 1) The CHANNEL FUNCTIONAL TEST shall also demonstrate that control room alarm annunciation occurs if any of the following conditions exists:
1. Instrument indicates measured levels above the alarm setpoint.
 - **2. Circuit failure.
 - **3. Instrument indicates a downscale failure.
 - **4. Instrument controls not set in operate mode.
- 2) The initial CHANNEL CALIBRATION shall be performed using one or more sources with traceability back to the National Bureau of Standards. These sources 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 may be used.

Table Notation

- 1 (X) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:
- a X. One volume percent hydrogen, balance nitrogen, and
 - b X. Four volume percent hydrogen, balance nitrogen.
- 2 (X) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:
- a X. One volume percent oxygen, balance nitrogen, and
 - b X. Four volume percent oxygen, balance nitrogen.

- 3) The CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exists:
1. Instrument indicates measured levels above the alarm/trip setpoint.
 - **2. Circuit failure.*
 - **3. Instrument indicates a downscale failure.*
 - **4. Instrument controls not set in operate mode.*

* Instrument indicates, but does not provide automatic isolation.
** As equipment becomes operational.

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(OLD PAGE 3-62)

INSTRUMENTATION

3/4.3.4 TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

3.3.4.1 At least one turbine overspeed protection system shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

- a. With one stop valve or one control valve per high pressure turbine steam lead inoperable or with one reheat stop valve or one reheat intercept valve per low pressure turbine steam lead inoperable, operation may continue for up to 72 hours provided the inoperable valve(s) is restored to OPERABLE status or at least one valve in the affected steam lead is closed; otherwise, isolate the turbine from the steam supply within the next 6 hours.
- b. With the above required turbine overspeed protection system otherwise inoperable, within 6 hours either restore the system to OPERABLE status or isolate the turbine from the steam supply.

SURVEILLANCE REQUIREMENTS

4.3.4.1.1 The provisions of Specification 4.0.4 are not applicable.

4.3.4.1.2 The above required turbine overspeed protection system shall be demonstrated OPERABLE:

- a. At least once per 7 days by cycling each of the following valves through at least one complete cycle from the running position.
 1. Four high pressure turbine stop valves:
 2. Four high pressure turbine control valves.
 3. Six low pressure turbine reheat stop valves.
 4. Six low pressure turbine reheat intercept valves.

INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

- b. At least once per 31 days by direct observation of the movement of each of the above valves through one complete cycle from the running position.
- c. At least once per 18 months by performance of a CHANNEL CALIBRATION on the turbine overspeed protection systems.
- d. At least once per 40 months by disassembling at least one of each of the above valves and performing a visual and surface inspection of valve seats, disks and stems and verifying no unacceptable flaws or corrosion.

3/4.11 RADIOACTIVE EFFLUENTS

3/4.11.1 Liquid Effluents

Delete

Concentration

Limiting Condition for Operation

3.11.1.1 The concentration of radioactive material released at any time from the site to unrestricted areas (see Figure 3.1-3) shall be limited to the concentrations specified in 10 CFR Part 20, Appendix 3, Table II, Column 2, for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2×10^{-4} $\mu\text{Ci/ml}$ total activity.

Applicability: At all times.

Action:

With the concentration of radioactive material released from the site exceeding the above limits, without delay restore the concentration to within the above limits.

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 result of radioactive analysis shall be used in accordance with the methods of the OGCN to assure that all concentrations at the point of release are maintained within the limits of Specification 3.11.1.1.

Delete

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 ^a of Detection (LLD) dci/ml
A. Batch Waste Release Tanks	P	P	Principal Gamma Emitters ^a	5×10^{-7}
	Each Batch	Each Batch	I-131	1×10^{-6}
	P		Dissolved and Entrained Gases (Gamma Emitters)	1×10^{-6}
	One Batch/M	M		
	P	M	H-3	5×10^{-6}
B. Plant Continuous Releases	Each Batch	Composites ^b	Gross Alpha	1×10^{-7}
	P	Q	Sr-90, Sr-90	5×10^{-6}
	Each Batch	Composites	Po-210	1×10^{-6}
	Daily	M	Principal Gamma Emitters ^a	5×10^{-7}
		Composites ^b	I-131	1×10^{-6}
	M		Dissolved and Entrained Gases (Gamma Emitters)	1×10^{-6}
	Grab Sample	M		
	Daily	M	H-3	5×10^{-6}
		Composites ^b	Gross Alpha	1×10^{-7}
	Daily	Q	Sr-90, Sr-90	5×10^{-6}
		Composites ^b	Po-210	1×10^{-6}

TABLE 4.11-1 (Cont)

Delete

TABLE NOTATION

- a. The lower limit of detection (LLD) is defined in Table Notation a. of Table 4.12-1 of Specification 4.12.1.1.
- b. A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen which is representative of the liquids released.
- c. A batch release is the discharge of liquid wastes of a discrete volume. Prior to sampling for analysis, each batch shall be isolated and recirculated to ensure thorough mixing.
- d. A continuous release is the discharge of liquid waste of a non-discrete volume; e.g. from a volume of system that has an input flow during the continuous release.
- e. The principal gamma emitters for which the LLD specification applies exclusively are the following radionuclides: Mn-54, Fe-55, Co-57, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Cs-141 and Cs-144. This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported.

Delete

RADIOACTIVE EFFLUENTS

DOSE

LIMITING CONDITION FOR OPERATION

3.11.1.2 The dose or dose commitment to an individual from radioactive material in liquid effluents released to unrestricted areas (see Figure 5.1-3) shall be limited: .

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

APPLICABILITY: At all times.

ACTION:

- a. With the calculated dose from the release of radioactive materials in liquid effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which identifies the cause(s) for exceeding the limit(s) and defines the corrective actions taken to reduce the releases and the proposed corrective actions to be taken to assure that subsequent releases will be within the above limits. This Special Report shall also include (1) the results of radiological analyses of the drinking water source, and (2) the radiological impacts on finished drinking water supplies with regard to the requirements of 40 CFR 141, Safe Drinking Water Act. (Applicable only if drinking water supply is taken from the receiving water body.)
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.1.2 Dose Calculations: Cumulative dose contributions from liquid effluents shall be determined in accordance with the Offsite Dose Calculation Manual (ODCM) at least once per 31 days.

Delete

Radioactive Effluents

Liquid Waste Treatment

Limiting Condition For Operation

3.11.1.3 The liquid radwaste treatment system shall be used to reduce the radioactive materials in liquid wastes prior to their discharge when the projected doses due to the liquid effluent from the site (see Figure 5.1-3) when averaged over 31 days, would exceed 0.06 mrem to the total body or 0.2 mrem to any organ.

Applicability: At all times.

Action:

- a. With radioactive liquid waste being discharged without treatment and in excess of the above limits, prepare and submit to the Commission within 30 days pursuant to Specification 6.9.2 a Special Report which includes the following information:
 1. Identification of the inoperable equipment or subsystems and the reason for inoperability,
 2. Action(s) taken to restore the inoperable equipment to operable status, and
 3. Summary description of action(s) taken to prevent recurrence.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

Surveillance Requirements

4.11.1.3 Doses due to liquid releases to UNRESTRICTED AREAS shall be projected at least once per 31 days, in accordance with the ODCM, whenever liquid releases are being made without being processed by the liquid radwaste treatment system.

3/4.11 Radioactive Effluents

Liquid Holdup Tanks*

Limiting Condition For Operation

3.11.1~~X~~ The quantity of radioactive material contained in each of the following tanks shall be limited to less than or equal to 10 curies, excluding tritium and dissolved or entrained noble gases.

- a. Outside temporary tanks.

Applicability: At all times.

Action:

- a. With the quantity of radioactive material in any of the above listed tanks exceeding the above limit, without delay suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

Surveillance Requirements

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

* 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.

Radioactive Effluents

3/4.11.2 Gaseous Effluents

Delete

Dose Rate

Limiting Condition For Operation

3.11.2.1 The dose rate due to radioactive materials released in gaseous effluents from the site (See Figure 3.1-3) shall be limited to the following:

- a. For noble gases: ≤ 500 mrem/yr to the total body and ≤ 3000 mrem/yr to the skin, and
- b. For all radioiodines and for all radioactive materials in particulate form and radionuclides (other than noble gases) with half-lives greater than 8 days: ≤ 1500 mrem/yr to any organ.

Applicability: At all times.

Action:

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

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 methods and procedures of the CECM.

4.11.2.1.2 The dose rate due to radioactive materials, other than noble gases, in gaseous effluents shall be determined to be within the above limits in accordance with the methods and procedures of the CECM by co-taining representative samples and performing analyses in accordance with the sampling and analysis program specified in Table 4.11-2.

Delete
TABLE 4.11-2
RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

Gaseous Release Type	Frequency	Minimum Analysis Frequency	Type of Activity Analysis	Lower Limit of Detection (uci/ml) ^a
a. Waste Gas Storage Tank	P Each Tank Grab Sample	P Each Tank	Principal Gamma Emitters ^c	1 X 10 ⁻⁴
	P	P	Principal Gamma Emitters ^c	1 X 10 ⁻⁴
b. Containment Purge	Each Purge Grab Sample ^b	Each Purge ^b	H-3	1 X 10 ⁻⁶
c. Condenser Evacuation System and Gland Seal Exhaust*	W Grab Sample ^b	M ^b Particulate Sample	Principal Gamma Emitters ^c	1 X 10 ⁻⁴
		M ^b	H-3	1 X 10 ⁻⁶
		M ^b Iodine Adsorbing/Media	I-131	1 X 10 ⁻¹²
	Continuous ^d	Noble Gas Monitor	Noble Gases	1 X 10 ⁻⁶
		W ^c Iodine Adsorbing/Media	I-131	1 X 10 ⁻¹²
d. Auxiliary Building Vent	Continuous ^d	W ^c Particulate Sample	Principal Gamma Emitters ^c	1 X 10 ⁻¹¹
	Continuous ^d	M Composite Particulate Sample	Gross Alpha	1 X 10 ⁻¹¹
	Continuous ^d	M Composite	H-3	1 X 10 ⁻⁶
	Continuous ^d	Q Composite Particulate Sample	Sr-89, Sr-90	1 X 10 ⁻¹¹
	Continuous ^d	Noble Gas Monitor	Noble Gases	1 X 10 ⁻⁶
e. Incinerated Oil	P Each Batch ^g	P Each Batch ^g	Principal Gamma Emitters	5 X 10 ⁻⁷

* As equipment becomes operational

Delete

TABLE 4.11-2 (cont)

TABLE NOTATION

- a. The lower limit of detection (LLD) is defined in Table Notation "a" of Table 4.12-1 of Specification 4.12.1.1.
- b. Analyses shall also be performed following any operational occurrence which has altered the mixture of radionuclides as indicated by RCS analysis. (i.e., start-up.)
- c. Samples shall be changed at least once per 7 days and analyses shall be completed within 48 hours after changing. Analyses shall also be performed at least once per 24 hours for 7 days following each shutdown, startup or similar operational occurrence which lead to significant increases or decreases in radioiodine in the Reactor Coolant System. When samples collected for 24 hours are analyzed, the corresponding LLD's may be increased by a factor of 10.
- d. 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 Specification 3.11.2.1, 3.11.2.2, 3.11.2.3.
- e. The principal gamma emitters for which the LLD specification applies exclusively are the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133M, Xe-135 and Xe-138 for gaseous emissions and Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141 and Ce-144 for particulate emissions. This list does not mean that only these nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, shall also be identified and reported.
- f. Releases from incinerated oil are discharged through the Auxiliary Boiler System. Releases shall be accounted for based on pre-release grab sample data.
- g. Samples of waste oil to be incinerated shall be collected from the container in which the waste oil stored (e.g., waste oil storage tank, 55 gal. drums) prior to transfer to the Auxiliary Boiler System and shall be representative of container contents.

RADIOACTIVE EFFLUENTS

Delete

DOSE, NOBLE GASES

LIMITING CONDITION FOR OPERATION

3.11.2.2 The air dose in UNRESTRICTED AREAS due to noble gases released in gaseous effluents shall be limited to the following:

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

APPLICABILITY: At all times.

ACTION:

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

SURVEILLANCE REQUIREMENTS

4.11.2.2 Dose Calculations Cumulative dose contributions for the total time period shall be determined in accordance with the Offsite Dose Calculation Manual (ODCM) at least once every 31 days.

Delete

RADIOACTIVE EFFLUENTS

DOSES, RADIOIODINES, RADIOACTIVE MATERIAL IN PARTICULATE FORM, AND RADIONUCLIDES OTHER THAN NOBLE GASES

LIMITING CONDITION FOR OPERATION

3.11.2.3 The dose to A MEMBER OF THE PUBLIC from radioiodines, radioactive materials in particulate form, and radionuclides other than noble gases with half-lives greater than 8 days in gaseous effluents released to unrestricted areas shall be limited to the following:

- a. During any calendar quarter to less than or equal to 7.5 mrem to any organ;
- b. During any calendar year to less than or equal to 15 mrem to any organ;
- c. Less than 0.1% of the 3.11.2.3(a) and (b) limits as a result of burning contaminated oil.

APPLICABILITY: At all times.

ACTION:

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

SURVEILLANCE REQUIREMENTS

4.11.2.3 DOSE CALCULATIONS Cumulative dose contributions for the total time period shall be determined in accordance with the ODCM at least once every 31 days.

RADIOACTIVE EFFLUENTS

GASEOUS RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION

3.11.2.4 The gaseous radwaste treatment system and the ventilation exhaust treatment system shall be used to reduce the radioactive materials in gaseous waste prior to their discharge when the projected gaseous effluent air doses due to gaseous effluent releases to unrestricted areas (See Figure 5.1.3) when averaged over 31 days, would exceed 0.2 mrad for gamma radiation and 0.4 mrad for beta radiation. The ventilation exhaust treatment system shall be used to reduce radioactive materials in gaseous waste prior to their discharge when the projected doses due to gaseous effluent releases to unrestricted areas (See Figure 5.1-3) when averaged over 31 days would exceed 0.3 mram to any organ.

APPLICABILITY: At all times.

ACTION:

- a. With gaseous waste being discharged without treatment and in excess of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which includes the following information:
 1. Identification of the inoperable equipment or subsystems and the reason for inoperability.
 2. Action(s) taken to restore the inoperable equipment to operable status.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.4 Doses due to gaseous releases to UNRESTRICTED AREAS shall be projected at least once per 31 days in accordance with the ODCM, whenever the gaseous waste treatment system or ventilation exhaust treatment system is not operational.

RADIOACTIVE EFFLUENTS

3/4 11.2 GASEOUS EFFLUENTS
EXPLOSIVE GAS MIXTURE

LIMITING CONDITION FOR OPERATION

3.11.2 ¹X The concentration of oxygen in the waste gas holdup system shall be limited to less than or equal to 3% by volume if the hydrogen in the system is greater than or equal to 4% by volume.

APPLICABILITY: At all times.

ACTION:

- a. With the concentration of oxygen in the waste gas holdup system greater than 3% by volume but less than or equal to 4% by volume and containing greater than or equal to 4% hydrogen, restore the concentration of oxygen to less than or equal to 3% or reduce the hydrogen concentration to less than 4% within 96 hours.
- b. With the concentration of oxygen in the waste gas holdup system or tank greater than 4% by volume and greater than 4% hydrogen by volume without delay suspend all additions of waste gases to the system or tank and reduce the concentration of oxygen to less than or equal to 3% or the concentration of hydrogen to less than or equal to 4% within 96 hours in the system or tank.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2 ¹X The concentration of 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 oxygen monitors required OPERABLE by Table 3.3-~~11~~ of Specification 3.3.3.~~10~~.

RADIOACTIVE EFFLUENTS

GAS STORAGE TANKS

LIMITING CONDITION FOR OPERATION

3.11.2.²~~X~~ The quantity of radioactivity contained in each gas storage tank shall be limited to 43,800 curies noble gas (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, without delay suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.²~~X~~ The quantity of radioactive material contained in each gas storage tank shall be determined to be within the above limit at least once per 4 days by analysis of the Reactor Coolant System noble gases.

RADIOACTIVE EFFLUENTS

Delete

3/4.11.3 SOLID RADIOACTIVE WASTE

LIMITING CONDITION FOR OPERATION

3.11.3 The solid radwaste system shall be used as applicable in accordance with a PROCESS CONTROL PROGRAM for the SOLIDIFICATION and packaging of radioactive wastes to ensure meeting the requirements of 10 CFR Part 20 and of 10 CFR Part 71 prior to shipment of radioactive wastes from the site.

APPLICABILITY: At all times.

ACTION:

- a. With the packaging requirements of 10 CFR Part 20 and/or 10 CFR Part 71 not satisfied, suspend shipments of defectively packaged solid radioactive wastes from the site.
- b. With the solid radwaste system inoperable for more than 31 days, prepare and submit to the Commission within 30 days pursuant to Specification 6.9.2 a Special Report which includes the following information:
 1. Identification of the inoperable equipment or subsystems and the reason for inoperability,
 2. Action(s) taken to restore the inoperable equipment to operable status,
 3. A description of the alternative used for SOLIDIFICATION and packaging of radioactive wastes, and
 4. Summary description of action(s) taken to prevent a recurrence.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SOLID RADIOACTIVE WASTE

SURVEILLANCE REQUIREMENTS

Delete

4.11.3.1 The solid radwaste system shall be demonstrated operable at least once per 92 days by:

- a. Operating the solid radwaste system at least once in the previous 92 days in accordance with the PROCESS CONTROL PROGRAM, or
- b. Verification of the existence of a valid contract for SOLIDIFICATION to be performed by a contractor in accordance with a PROCESS CONTROL PROGRAM.

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

- a. If any test specimen fails to verify SOLIDIFICATION, the SOLIDIFICATION of the batch under test shall be suspended until such time as additional test specimens can be obtained, alternative SOLIDIFICATION parameters can be determined in accordance with the PROCESS CONTROL PROGRAM, and a subsequent test verifies SOLIDIFICATION. SOLIDIFICATION of the batch may then be resumed using the alternative SOLIDIFICATION parameters determined by the PROCESS CONTROL PROGRAM.
- b. If the initial test specimen from a batch of waste fails to verify SOLIDIFICATION, the PROCESS CONTROL PROGRAM shall provide for the collection and testing of representative test specimens from each consecutive batch of the same type of wet waste until at least 3 consecutive initial test specimens demonstrate SOLIDIFICATION. The PROCESS CONTROL PROGRAM shall be modified as required, as provided in Specification 6.14 to assure SOLIDIFICATION of subsequent batches of waste.

RADIOACTIVE EFFLUENTS

Delete

3/4 11.4 TOTAL DOSE

LIMITING CONDITION FOR OPERATION

3.11.4 The dose or dose commitment to a real individual from all uranium fuel cycle sources is limited to less than or equal to 25 mrem to the total body or any organ (except the thyroid, which is limited to less than or equal to 75 mrem) over a period of 12 consecutive months.

APPLICABILITY: At all times.

ACTION:

- a. With the calculated doses from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of Specification 3.11.1.2.a, 3.11.1.2.b, 3.11.2.2.a, 3.11.2.2.b, 3.11.2.3.a, or 3.11.2.3.b, prepare and submit a Special Report to the Director, Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, within 30 days, which defines the corrective action to be taken to reduce subsequent releases to prevent recurrence of exceeding the limits of Specification 3.11.4. This Special Report shall include an analysis which estimates the radiation exposure (dose) to a member of the public from uranium fuel cycle sources (including all effluent pathways and direct radiation) for a 12 consecutive month period that includes the release(s) covered by this report. If the estimated dose(s) exceeds the limits of Specification 3.11.4, and if the release condition resulting in violation of 40 CFR 190 has not already been corrected, the Special Report shall include a request for a variance in accordance with the provisions of 40 CFR 190 and including the specified information of paragraph 190.11(b). Submittal of the report is considered a timely request, and a variance is granted until staff action on the request is complete. The variance only relates to the limits of 40 CFR 190, and does not apply in any way to the requirements for dose limitation of 10 CFR Part 20, as addressed in other sections of this Technical Specification.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

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

3.12.12 RADIOLOGICAL ENVIRONMENTAL MONITORINGLIMITING CONDITION FOR OPERATION

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

APPLICABILITY: At all times.

ACTION:

- a. With the radiological environmental monitoring program not being conducted as specified in Table 3.12-1, prepare and submit to the Commission in the Annual Radiological Operating Report, a description of the reasons for not conducting the program as required and the plans for preventing a recurrence. (Deviations are permitted from the required sampling schedule if specimens are unobtainable due to hazardous conditions, seasonal unavailability, or to malfunction of automatic sampling equipment. If the latter, every effort shall be made to complete the corrective action prior to the end of the next sampling period.)
- b. With the level of radioactivity in an environmental sampling medium at one or more of the locations specified in Table 3.12-1 exceeding the limits of Table 3.12-2 when averaged over any calendar quarter, prepare and submit to the Commission within 30 days from the end of the affected calendar quarter, a Special Report which includes an evaluation of any release conditions, environmental factors or other aspects which caused the limits of Table 3.12-2 to be exceeded. 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. When more than one of the radionuclides in Table 3.12-2 are detected in the sampling medium, this report shall be submitted if:

$$\frac{\text{concentration (1)}}{\text{limit level (1)}} - \frac{\text{concentration (2)}}{\text{limit level (2)}} \dots \geq 1$$

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 an individual is equal to or greater than the calendar year limits of Specification 3.11.1.2, 3.11.2.2 and 3.11.2.3.

Delete

RADIOLOGICAL ENVIRONMENTAL MONITORING

LIMITING CONDITION FOR OPERATION (CONTINUED)

- c. With milk or fresh leafy vegetable samples unavailable from any of the sample locations required by Table 3.12-1, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which identifies the cause of the unavailability of samples and identifies locations for obtaining replacement samples. The locations from which samples were unavailable may then be deleted from Table 3.12-1 provided the locations from which the replacement samples were obtained are added to the environmental monitoring program as replacement locations, if available.
- d. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

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

Delete
TABLE 3.12-1
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

<u>Exposure Pathway and/or Samples</u>	<u>Sample Locations</u>	<u>Sampling and Collection Frequency</u>	<u>Type & Frequency of Analysis</u>
1. Airborne a. Radiiodine & Particulates	Al-A6 (Site) New Buffalo South Bend, Dowagiac, and Coloma are Background	Continuous operation of sampler with Sample Collection as required by Dust Loading but at least once per 7 days	Radioiodine canister Analyze: Weekly for I-131 Particulate sample Gross Beta Rad- ioactivity following Filter Change ^a composite (by loca- tion) for gamma isotopic quarterly
2. Direct Radiation	a) T1-T9 (Site) b) New Buffalo South Bend Dowagiac Coloma c) 10 TLD Monitor Locations in the Five Mile Radius	At least once per 92 days	Gamma Dose. At least once per 92 days
3. Waterborne a. Surface	L1, L2, L3	Composite* sample over one-month period	Gamma Isotopic Analysis monthly. Composite for tritium analysis- quarterly.
b. Ground	W1-W7	Quarterly	Gamma Isotopic and Tritium analysis quarterly.
c. Drinking	St. Joseph Lake Township	Composite* sample collected over a period of 31 days Composite sample over a 2-week period if I-131 analysis is performed.	Gross Beta and Gamma Isotopic Analysis of each composite sample. Tritium Analysis of composite Quarterly. I-131 analysis on each composite when the dose calculated for the consumption of the water is greater than 1 mrem per year.

*Composite samples shall be collected by collecting an aliquot at intervals not exceeding 24 hours.



Delete

TABLE 3.12-1 (Cont)

d. Sediment from Shoreline	L2, L3	2/year	Gamma Isotopic Analyses Semi-Annually.
4. Ingestion	Each indicator farm and a background farm*	At least once per 15 days when animals are on Pasture. At Least Once Per 31 Days at Other Times.	Gamma Isotopic and I-131 Analysis of Each Sample.
a. Milk			
b. Fish	Plant Site Off-Site	2/year	Gamma Isotopic Analysis on Edible Portion.
c. Food Products	Plant Site Off-Site (approx. 20 mi)	At time of Harvest One Sample of Each of the Following Classes of Food Products: 1. Grapes	Gamma Isotopic Analysis on Edible Portion.

^a Particulate sample filters should be analyzed for gross beta 24 hours or more after sampling to allow for radon and thoron daughter decay. If gross beta activity in air or water is greater than 10 times the yearly mean of control samples for any medium, gamma isotopic analysis should be performed on the individual samples.

* An indicator farm is defined as the nearest milk producer in each of the land sectors within 8 miles of the plant site who is willing to participate in the radiological environmental monitoring program. A background farm is defined as a milk producer in one of the less prevalent wind directions at a distance greater than 15 miles but less than 25 miles who is willing to participate in the radiological environmental monitoring program. If at least three indicator milk samples and one background milk sample cannot be obtained, vegetation sampling will be performed as a replacement for the milk sampling and no milk samples will be required.

Delete

TABLE 3.12-1 (Cont.)

Plant Site

At time of Harvest
One sample of Broad
Leaf Vegetation

Gamma Isotopic
Analysis.

3 indicator samples
of broad leaf
vegetation grown
nearest to the
offsite locations of
highest calculated
annual average ground
level D/Q if at least
three indicator milk
samples and one back-
ground milk sample
cannot be obtained.

Monthly when
available

Gamma Isotopic and
I-131 monthly when
available

1 background sample
of each of the
similar vegetation
grown 15-25 miles
distant and in one
of the less
prevalent wind
directions if at
least three indicator
milk samples and one
background milk sample
cannot be obtained.

Monthly when
available

Gamma Isotopic and
I-131 monthly when
available

TABLE 3.12-2

Delete

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES

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

TABLE 4.12-1

Delete.

MAXIMUM VALUES FOR THE LOWER LIMITS OF
DETECTION (LLD) etc

Analysis	Water (pCi/l)	Airborne Particulate or Gas (pCi/m ³)	Fish (pCi/kg) wet	Milk (pCi/l)	Food Prod (pCi/kg, wet)	Sediments (pCi/kg, dry)
Gross Beta	10	1×10^{-2}				
H-3	2000					
Mn-54	15		130			
Fe-59	30		250			
Co-58, 60	15		130			
Zn-65	30		250			
Br-81	30					
-86	15					
I-131	1	7×10^{-2}		1	50	
Cs-134	15	6×10^{-2}	130	15	50	150
Cs-137	15	6×10^{-2}	150	15	50	150
Ba-140	50			50		
La-140	15			15		

Delete

TABLE 4.12-1 (Cont)

TABLE NOTATION

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

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

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

where

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

ϵ is the counting efficiency (as counts per transformation),

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

2.22 is the number of transformation per minute per picocurie,

Y is the fractional radiochemical yield (when applicable),

λ is the radioactive decay constant for the particular radionuclide and

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

The volume of s_b used in the calculation of the LLD for a detection system shall be based on the actual observed variance of the background counting rate or of the counting rate of the blank samples (as appropriate) rather than on an unverified theoretically predicted variance. In calculating the LLD for a radionuclide determined by gamma-ray spectrometry, the background shall include the typical contributions of other radionuclides normally present in the samples (e.g., cesium-137 in milk samples).

Table 4.12-1 (Cont)
Table Notation

Delete.

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

- b. LLD for drinking water.
- c. Other peaks which are measurable and identifiable, together with the radionuclides in Table 4.12-1, shall be identified and reported.



Date

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 the location of the nearest milk animal, the nearest residence and the nearest garden* of greater than 500 square feet producing fresh leafy vegetables in each of the 9 land covering meteorological sectors within a distance of five miles.

APPLICABILITY: At all times.

ACTION:

- a. With a land use census identifying a location(s) which yields a calculated dose or dose commitment greater than the values currently being calculated in Specification 4.11.2.3, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which identifies the new location(s).
- b. With a land use census identifying a location(s) which 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, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report which identifies the new location. The new location shall be added to the radiological environmental monitoring program within 30 days, if possible. The sampling location having the lowest calculated dose or dose commitment (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.
- 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 at least once per 12 months between the dates of June 1 and October 1, by door-to-door survey, aerial survey, or by consulting local agriculture authorities.

* Broad leaf vegetation sampling may be performed at the site boundary in the direction sector with the highest D/Q in lieu of the garden census.

Delete

Radiological Environment Monitoring

3/4 12.3 Interlaboratory Comparison Program

Limiting Condition For Operation

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

Applicability: At all times.

Action:

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

Surveillance Requirements

4.12.3 A summary of the results obtained as part of the above required Interlaboratory Comparison Program and in accordance with the ODCM (or participants in the EPA crosscheck program shall provide the EPA program code designation for the unit) shall be included in the Annual Radiological Environmental Operating Report.

INSTRUMENTATION

BASES

Radiation Monitoring Instrumentation (Continued)

<u>INSTRUMENT</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE*</u>
6) Noble Gas Unit Vent Monitors	<i>See the ODCM</i>	<i>(additional changes)</i>
a) Low Range (VRS 2505)	<i>See Bases Section 3/4.3.3.10</i>	$5.8 \times 10^{-7} \mu\text{Ci/cc}$ to $2.7 \times 10^{-2} \mu\text{Ci/cc}$
b) Mid Range (VRS 2507)	Not Applicable**	$1.3 \times 10^{-3} \mu\text{Ci/cc}$ to $7.5 \times 10^{-2} \mu\text{Ci/cc}$
c) High Range (VRS 2509)	Not Applicable**	$2.9 \times 10^{-2} \mu\text{Ci/cc}$ to $1.6 \times 10^{-4} \mu\text{Ci/cc}$
7) Gland Steam Condenser Vent Noble Gas Monitor	<i>See the ODCM</i>	
a) Low Range (SRA 2805)	<i>See Bases Section 3/4.3.3.10</i>	$5.8 \times 10^{-7} \mu\text{Ci/cc}$ to $2.7 \times 10^{-2} \mu\text{Ci/cc}$
8) Steam Jet Air Ejector Vent Noble Gas Monitor	<i>See the ODCM</i>	
a) Low Range (SRA 2905)	<i>See Bases Section 3/4.3.3.10</i>	$5.8 \times 10^{-7} \mu\text{Ci/cc}$ to $2.7 \times 10^{-2} \mu\text{Ci/cc}$
b) Mid Range (SRA 2907)	Not applicable.**	$1.3 \times 10^{-3} \mu\text{Ci/cc}$ to $7.5 \times 10^{-2} \mu\text{Ci/cc}$
c) High Range (SRA 2909)	Not Applicable.**	$2.9 \times 10^{-2} \mu\text{Ci/cc}$ to $1.6 \times 10^{-4} \mu\text{Ci/cc}$
9) Spent Fuel Storage (RRC-330)	The monitor setpoint is selected to alarm and trip consistent with 10 CFR 70.24(a) (2)	$1 \times 10^{-1} \text{ mR/hr}$ to $1 \times 10^{-4} \text{ mR/hr}$

* This is minimum sensitivity of the instrument for normal operation, to follow the course of an accident, and/or take protective actions. Values of the instrument above or below this minimum sensitivity range are acceptable.

** These monitors are used to provide data to assist in post-accident off-site dose assessment.

INSTRUMENTATION
BASES

3/4.3.3.6 POST-ACCIDENT INSTRUMENTATION

The OPERABILITY of the post-accident instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables during and following an accident.

3/4.3.3.7 AXIAL POWER DISTRIBUTION MONITORING SYSTEM (APDMS)

OPERABILITY of the APDMS ensures that sufficient capability is available for the measurement of the neutron flux spatial distribution within the reactor core. This capability is required to 1) monitor the core flux patterns that are representative of the peak core power density and 2) limit the core average axial power profile such that the total power peaking factor F_q is maintained within acceptable limits.

3/4.3.3.8 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the fire detection instrumentation ensures that adequate warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early stages. Prompt detection of fires will reduce the potential for damage to safety-related equipment and is an integral element in the overall facility fire protection program.

In the event that a portion of the fire detection instrumentation is inoperable, the establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is restored to OPERABILITY. Use of containment temperature monitoring is allowed once per hour if containment fire detection is inoperable.

3/4.3.3.9 RADIOACTIVE LIQUID EFFLUENT INSTRUMENTATION

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the release of radioactive material in liquid effluents during actual or potential releases. The alarm/trip setpoints for these instruments shall be calculated in accordance with NRC approval methods in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria specified in Section 11.3 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.

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Amendment No. 61,115,119

3/4.3.3.9 EXPLOSIVE GAS MONITORING INSTRUMENTATION

This instrumentation includes provisions for monitoring 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 specified in Section 11.3 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.

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3/4.3 INSTRUMENTATION

BASES

3/4.3.3.10 RADIOACTIVE GASEOUS EFFLUENT INSTRUMENTATION

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The radioactive effluent gaseous instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases. The alarm/trip setpoints for these instruments shall be calculated in accordance with NRC approved methods in the OCDM 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 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 specified in Section 11.3 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.

3/4.3.4 TURBINE OVERSPEED PROTECTION

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

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3/4.11 RADIOACTIVE EFFLUENTS

BASES

3/4.11.1 LIQUID EFFLUENTS

3/4.11.1.1 CONCENTRATION. This specification is provided to ensure that the concentration of radioactive materials released in liquid waste effluents from the site to UNRESTRICTED AREAS will be less than the concentration levels specified in 10 CFR part 20, Appendix B, Table II. This limitation provides additional assurance that the levels of radioactive materials in bodies of water outside the site will not result in exposures within (1) the Section II.A design objectives of Appendix I, 10 CFR Part 50, to an individual and (2) the limits of 10 CFR Part 20.106(e) to the population. The concentration limit for 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 the International Commission on Radiological protection (ICRP) Publication 2.

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 releases of radioactive material in liquid effluents will be kept "as low as is reasonable achievable." Also, for fresh water sites with drinking water supplies which 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 141.

The dose calculations in the ODCM implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated. The equations specified in the ODCM for calculating the doses due to the actual release rates of radioactive materials in liquid effluents will be consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977, and Regulatory Guide 1.113, "Estimating Aquatic Dispersion of Effluents from Accidental and Routine Reactor Releases for the Purpose of Implementing Appendix I," April 1977. NUREG-0133 provides methods for dose calculations consistent with Regulatory Guide 1.109 and 1.113.

This specification applies to the release of liquid effluents from each reactor at the site. The liquid effluents from the shared system are proportioned among the units sharing the system.

BASES

3/4.11.1.3 LIQUID WASTE TREATMENT. 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 requirements that the appropriate portions of this system be used when specified provide 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 Criteria Section 11.1 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant, and design objective Section II.D of Appendix I to 10 CFR Part 50. The specified limits governing the use of appropriate portions of the liquid radwaste treatment system were specified as a suitable fraction of the dose design objectives set forth in Section II.A of Appendix I, 10 CFR Part 50, for liquid effluents.

3/4.11.1.X LIQUID HOLDUP TANKS. 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.

This specification, being applicable to outside temporary tanks, does not apply to the refueling water storage tank, primary water storage tank, or the condensate storage tank, since they are a part of the permanent plant design.

3/4.11.2 GASEOUS EFFLUENTS

3/4.11.2.1 DOSE RATE. This specification is provided to ensure that the dose rate at any time at the SITE BOUNDARY from gaseous effluents from all units on the site will be within the annual dose limits of 10 CFR Part 20 for UNRESTRICTED AREAS. The annual dose limits are the doses associated with the concentrations of 10 CFR Part 20, Appendix B, Table II. These limits provide reasonable assurance that radioactive material discharged in gaseous effluents will not result in the exposure of an individual in an UNRESTRICTED AREA, to annual average concentrations exceeding the limits specified in Appendix B, Table II of 10 CFR Part 20, (10 CFR Part 20.106(b)). For individuals who may at times be within the SITE BOUNDARY, the occupancy of the individual will be sufficiently low to compensate for any increase in the atmospheric diffusion factor above that for the SITE BOUNDARY. The specified release rate limits restrict, at all times, the corresponding gamma and beta dose rates above background to an individual at or beyond the site boundary to less than or equal to 500 mrem/year to the total body or to less than or equal to 3000 mrem/year to the skin. These release rate limits also restrict, at all times, the corresponding thyroid dose rate above background to a child via inhalation pathway to less than or equal to 1500 mrem/year. Iodine adsorbing media refers to silver zeolite cartridges in Table 4.11-2 or the industry standard.

This specification applies to the release of gaseous effluents from all reactors at the site. The gaseous effluents from the shared system are proportioned among the units sharing that system.

RADIOACTIVE EFFLUENTS

DELETE

BASES

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 will be kept "as low as is reasonable achievable". The Surveillance Requirements implement the requirements in Section III.A of Appendix I that conform with the guides of Appendix I to be shown by calculational procedures based on models and data such that the actual exposure of an individual through the appropriate pathways is unlikely to be substantially underestimated. The dose calculations established in the ODCM for calculating the doses due to the actual release rates of radioactive noble gases in gaseous effluents will be consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977 and Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," Revision 1, July 1977....The ODCM equations provided for determine the air doses at the site boundary will be based upon the historical average atmospherical conditions. NUREG-0133 provides methods for dose calculations consistent with Regulatory Guides 1.109 and 1.111.

3/4.11.2.3 DOSE, RADIOIODINES, RADIOACTIVE MATERIAL IN PARTICULATE FORM AND RADIONUCLIDES OTHER THAN NOBLE GASES This specification is provided to implement the requirements of Sections II.C, III.A and IV.A of Appendix I, 10 CFR Part 50. The Limiting Conditions for Operation are the guides set forth in Section 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 will be kept "as low as is reasonably achievable." The ODCM calculational methods specified in the surveillance requirements implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data such that the actual exposure of an individual through appropriate pathways is unlikely to be substantially underestimated. The ODCM calculational methods approved by the NRC for calculating the doses due to the actual release rates of the subject materials are required to be consistent with the methodology provided in Regulatory Guide 1.109, "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

BASES

Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," Revision 1, July 1977. These equations also provide for determining the actual doses based upon the historical average atmospheric conditions. The release rate specifications for radiocesium, radioactive materials in particulate form and radionuclides other than noble gases are dependent on the existing radionuclide pathways to man, in the unrestricted area. The pathways which are examined in the development of these calculations are: 1) individual inhalation of airborne radionuclides, 2) deposition of radionuclides onto green leafy vegetation with subsequent consumption by man, 3) deposition onto grassy areas where milk animals and meat producing animals graze with consumption of the milk and meat by man, and 4) deposition on the ground with subsequent exposure of man.

3/4.11.2.4 GASEOUS WASTE TREATMENT

The operability of the gaseous radwaste treatment system and the ventilation exhaust treatment systems ensures that the systems will be available for use whenever gaseous effluents require treatment prior to release to the environment. The requirement that the appropriate portions of these systems be used when specified provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept as low as is reasonably achievable." This specification implements the requirements of 10 CFR Part 50.15a, General Design Criterion Section 11.1 of the Final Safety Analysis Report for The Donald C. Cook Nuclear Plant and design objective Section 11.3 of Appendix 1 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 guide set forth in Sections 11.3 and 11.6 of Appendix 1, 10 CFR Part 50, for gaseous effluents.

3/4.11.2.5¹ Explosive Gas Mixture

This specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas treatment system is maintained below the flammability limits of hydrogen and oxygen mixtures. Maintaining the concentration of hydrogen or oxygen below their flammability limits provides that the releases of radioactive materials will be controlled in conformance with the requirements of the General Design Criterion specified in Section 11.1 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.

3/4.11.2.6² Gas Storage Tanks

Restricting the quantity of radioactivity contained in each gas storage tank provides assurance that in the event of an uncontrolled release of the tank's contents, the resulting total body exposure to an individual at the nearest site boundary will not exceed 0.3 rem. This is consistent with Standard Review Plan 15.7.1. "Waste Gas System Failure."

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3/4.11.3 SOLID RADIOACTIVE WASTE

The operability of the solid radwaste system ensures that the system will be available for use whenever solid radwastes require processing and packaging prior to shipment offsite. This specification implements the requirements of 10 CFR Part 50.36a and General Design Criterion specified in Section 11.1 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant. The process parameters included in establishing the PROCESS CONTROL PROGRAM may include, but are not limited to waste type, waste pH, waste/liquid/solidification agent/catalyst ratios, waste oil content, waste principal chemical constituents, mixing and curing time.

3/4.11.4 TOTAL DOSE

The specification is provided to meet the dose limitations of 40 CFR 190. The specification requires the preparation and submittal of a Special Report whenever the calculated doses from plant radioactive effluents exceed twice the design objective doses of Appendix I. For sites containing up to 4 reactors, it is highly unlikely that the resultant dose to a member of the public will exceed the dose limits of 40 CFR 190 if the individual reactors remain within the reporting requirement level. The Special Report will describe a course of action which should result in the limitations of dose to a member of the public for 12 consecutive months to within the 40 CFR 190 limits. For the purposes of the Special Report, it may be assumed that the dose commitment to the member of the public from other uranium fuel cycle sources is negligible, with the exception that dose contributions from other nuclear fuel cycle facilities at the same site or within a radius of 5 miles must be considered. If the dose to any member of the public is estimated to exceed the requirements of 40 CFR 190, the Special Report with a request for a variance (provided the release conditions resulting in violation of 40 CFR 190 have not already been corrected), in accordance with the provision of 40 CFR 190.11 is considered to be a timely request and fulfills the requirements of 40 CFR 190 until NRC staff action is completed. An individual is not considered a member of the public during any period in which he/she is engaged in carrying out any operation which is part of the nuclear fuel cycle.

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THIS SECTION

3/4.12.1 MONITORING PROGRAM

The radiological monitoring program required by this specification provides measurements of radiation and radioactive materials in those exposure pathways and for those radionuclides which lead to the highest potential radiation exposures of individuals resulting from the station operation. This monitoring program thereby supplements the radiological effluent monitoring program by verifying that the measurable concentration of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and modeling of the environmental exposure pathways. 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 detection capabilities required by Table 4.12-1 are the state-of-the art 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 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, unavoidably small sample sizes, the presence of interfering nuclides, or other uncontrollable circumstances may render these LLDs unachievable. In such cases, the contributing factors will be identified and described in the Annual Radiological Environmental Operating Report.

3/4.12.2 LAND USE CENSUS

This specification is provided to ensure that changes in the use of unrestricted areas are identified and that modifications to the monitoring program are made if required by the results of this census. 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 500 square feet 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 (25 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 used, 1) that 20% of the garden was used for growing broad leaf vegetation (i.e. similar to lettuce and cabbage), and 2) a vegetation field of 2 kg/square meter.

3/4.12.3 INTERLABORATORY COMPARISON PROGRAM

The requirement for participation in an Interlaboratory Comparison Program is provided to ensure that independent checks on the precision and accuracy of the measurements of radioactive material in environment sample matrices are performed as part of the quality assurance program for environmental monitoring in order to demonstrate that the results are reasonably valid.

Editorial
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ADMINISTRATIVE CONTROLS

TECHNICAL REVIEW AND CONTROL (continued)

plan and implementing procedures shall be reviewed pursuant to the requirements of Specifications 6.5.1.6 and 6.5.2.7 and approved by the Plant Manager. NRC approval shall be obtained as appropriate.

- g. Recommended changes to the Security Plan and implementing procedures shall be reviewed pursuant to the requirements of Specifications 6.5.1.6 and 6.5.2.7 and approved by the Plant Manager. NRC approval shall be obtained as appropriate.

6.5.3.2 Records of the above activities shall be provided to the Plant Manager, PNSRC and/or the NSDRC as necessary for required reviews.

6.6 REPORTABLE EVENT ACTION

6.6.1 The following actions shall be taken for REPORTABLE EVENTS:

- a. The Commission shall be notified and a report submitted pursuant to the requirements of 10 CFR 50.73, and
- b. Each REPORTABLE EVENT shall be reviewed by the PNSRC, and the results of this review shall be submitted to the NSDRC and the Vice President - Nuclear Operations.

6.7 SAFETY LIMIT VIOLATION

6.7.1 The following actions shall be taken in the event a safety limit is violated:

- a. The NRC Operations Center shall be notified by telephone as soon as possible and in all cases within 1 hour. The Chairman of the NSDRC shall be notified within 24 hours.
- b. A Safety Limit Violation Report shall be prepared. The report shall be reviewed by the PNSRC. This report shall describe (1) applicable circumstances preceding the violation; (2) effects of the violation upon facility components, systems or structures; and (3) corrective action taken to prevent recurrence.
- c. The Safety Limit Violation Report shall be submitted to the Commission, the Chairman of the NSDRC and the Vice President - Nuclear Operations within 14 days of the violation.
- d. Operation of the unit shall not be resumed until authorized by the Commission.

6.8 PROCEDURES AND PROGRAMS

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(editorial change)

6.8.1 Written procedures shall be established, implemented and maintained covering the activities referenced below:

ADMINISTRATIVE CONTROLS

- a. The applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Rev. 2, February 1978.
- b. Security Plan implementation.
- c. Emergency Plan implementation.
- d. PROCESS CONTROL PROGRAM implementation.
- e. OFFSITE DOSE CALCULATION MANUAL implementation.
- f. Quality Assurance Program for effluent and environmental monitoring using the guidance in Regulatory Guide 1.21, Rev. I, June 1974, and Regulatory Guide 4.1, Rev. 1, April 1975.

6.8.2 Each procedure and administrative policy of Specification 6.8.1 above, and changes thereto, including temporary changes, shall be reviewed prior to implementation as set forth in Specification 6.5 above.

6.8.3 A plant program for post-accident sampling shall be established, implemented, and maintained which will ensure the capability to obtain and analyze reactor coolant samples, containment atmosphere noble gas samples, and unit vent gaseous effluent samples for iodines and particulates under accident conditions: The program will include the following:

- a. Training of personnel,
- b. Procedures for sampling and analysis,
- c. Provisions for maintenance of sampling and analysis equipment.

6.9 REPORTING REQUIREMENTS

ROUTINE REPORTS

6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the Regional Administrator unless otherwise noted.

STARTUP REPORT

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.

6.9.1.2 The startup report shall address each of the tests identified in the FSAR and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.

ADD NEW
STEP 6.8.4

TO NEW
PAGES

6-13a
and
6-13b

(See Attached
Text)

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6.8.4 The following programs shall be established, implemented, and maintained:

a. Radioactive Effluent Controls Program

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

- 1) Limitations on the operability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM,
- 2) Limitations on the concentrations of radioactive material released in liquid effluents to UNRESTRICTED AREAS conforming to 10 CFR Part 20, Appendix B, Table II, Column 2,
- 3) Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.106 and with the methodology and parameters in the ODCM,
- 4) Limitations on the annual and quarterly doses or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released from each unit to UNRESTRICTED AREAS conforming to Appendix I to 10 CFR Part 50,
- 5) Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days;
- 6) Limitations on the operability and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a 31-day period would exceed 2 percent of the guidelines for the annual dose or dose commitment conforming to Appendix I to 10 CFR Part 50,
- 7) Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the SITE BOUNDARY conforming to the dose associated with 10 CFR Part 20, Appendix B, Table II, Column 1,
- 8) Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50,

- 9) Limitations on the annual and quarterly doses to a MEMBER OF THE PUBLIC from Iodine -131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10CFR Part 50, and
- 10) Limitations on the annual dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.

b. Radiological Environmental Monitoring Program

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

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

(editorial change)

ADMINISTRATIVE CONTROLS

STARTUP REPORT (continued)

6.9.1.3 Startup reports shall be submitted within (1) 90 days following completion of the startup test program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of startup test program, and resumption or commencement of commercial power operation), supplementary reports shall be submitted at least every three months until all three events have been completed.

ANNUAL REPORTS¹

6.9.1.4 Annual reports covering the activities of the unit as described below for the previous calendar year shall be submitted prior to March 1 of each year. The initial report shall be submitted prior to March 1 of the year following initial criticality.

6.9.1.5 Reports required on an annual basis shall include:

- a. A tabulation on an annual basis of the number of station, utility and other personnel (including contractors) receiving exposures greater than 100 mrem/yr and their associated man rem exposure according to work and job functions², e.g., reactor operations and surveillance, in-service inspection, routine maintenance, special maintenance (describe maintenance), waste processing and refueling. The dose assignment to various duty functions may be estimates based on pocket dosimeter, TLD, or film badge measurements. Small exposures totalling less than 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole body dose received from external sources shall be assigned to specific major work functions.
- b. The complete results of steam generator tube in-service inspections performed during the report period (reference Specification 4.4.5.5.b).
- c. Documentation of all challenges to the pressurizer power operated relief valves (PORVs) or safety valves.
- d. Information regarding any instances when the I-131 specific activity limit was exceeded.

¹A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station.

²This tabulation supplements the requirements of 20.407 of 10 CFR Part 20.

ADMINISTRATIVE CONTROLS

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT³

Replace text with Attached "A"

~~6.9.1.6 Routine radiological environmental operating reports covering the operation of the unit during the previous calendar year shall be submitted prior to May 1 of each year.~~

~~6.9.1.7 The annual radiological environmental operating reports shall include summaries, interpretations, and statistical evaluation of the results of the radiological environmental surveillance activities for the report period, including a comparison with preoperational studies, operational controls (as appropriate), and previous environmental surveillance reports and an assessment of the observed impacts of the plant operation on the environment. The reports shall also include the results of the land-use census required by Specification 3.12.2. If harmful effects or evidence of irreversible damage are detected by the monitoring, the report shall provide an analysis of the problem and a planned course of action to alleviate the problem.~~

~~The annual radiological environmental operating reports shall include summarized and tabulated results in the format of 3.12.2 of all radiological environmental samples taken during the report period. In the event that some results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted as soon as possible in a supplementary report.~~

~~The reports shall also include the following: a summary description of the radiological environmental monitoring program including sampling methods for each sample type, size, and physical characteristics of each sample type, sample preparation methods, analytical methods, and measuring equipment used; a map of all sample locations keyed to a table giving distances and directions from one reactor; the result of land-use census required by the Specification 3.12.2, and the results of participation in the Interlaboratory Comparison Program required by Specification 3.12.3.~~

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT³

Replace text with Attached "B"

~~6.9.1.8 Routine radioactive effluent release report covering the operation of the unit during the previous 12 months of operation shall be submitted within 90 days after January 1 of each year.~~

~~6.9.1.9 The radioactive effluent release report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the units as outlined in Regulatory guide 1.21, "Measuring, Evaluating and Reporting in Solid Wastes and Releases of Radioactive"~~

³ A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station; however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material for each unit.

Insert at "A"

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT³

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

Insert at "B"

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT³

6.9.1.7 The Annual Radioactive Effluent Release Report covering the operation of the unit during the previous 12 months of operations shall be submitted within 90 days after January 1 of each year. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be (1) consistent with the objectives outlined in the ODCM and PCP and (2) in conformance with 10 CFR 50.36a and Section IV.B.1 of Appendix I to 10 CFR Part 50.

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Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," with data summarized on a quarterly basis following the format of Appendix B, thereof.

The radioactive effluent release report to be submitted 90 days after January 1 of each year shall include a quarterly summary of hourly meteorological data collected during the reporting period. This summary may be either in the form of an hour-by-hour listing of wind speed, wind direction, atmospheric stability, and precipitation (if measured) on magnetic tape, or in the form of joint frequency distributions of wind speed, wind direction and atmospheric stability. The report submitted 90 days after January 1 shall include an assessment of the radiation doses due to the radioactive liquid and gaseous effluents released from the unit or station during the previous calendar year. This report shall include an assessment of the radiation doses from radioactive liquid and gaseous effluents to members of the public due to their activities inside the site boundary (Figure 5.1-3) during the reporting period. All assumptions used in making these assessments (i.e., specific activity, exposure time and location) shall be included in this report. The meteorological conditions concurrent with the time of release of radioactive materials in gaseous effluents (as determined by sampling frequency and measurement) shall be used for determining the gaseous pathway doses. The assessment of radiation doses shall be performed in accordance with the Offsite Dose Calculation Manual (ODCM).

The radioactive effluent release report to be submitted 90 days after January 1 of each year shall also include an assessment of radiation doses to the likely most exposed member of the public from reactor releases and other nearby uranium fuel cycle sources (including doses from primary effluent pathways and direct radiation) for the previous 12 consecutive months to show conformance with 40 CFR 190, Environmental Radiation Protection Standards for Nuclear Power Operation. Acceptable methods for calculating the dose contribution from liquid and gaseous effluents are given in Regulatory Guide 1.109, Rev. 1.

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

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

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ADMINISTRATIVE CONTROLS

- ~~d. Type of waste (e.g., spent resin, compacted dry waste, evaporator bottoms),~~
~~e. Type of container (e.g., LSA, Type A, Type B, Large Quantity), and~~
~~f. Solidification agent (e.g., cement).~~

~~The radioactive effluent release report shall include unplanned releases from the site to unrestricted areas of radioactive materials in gaseous and liquid effluent on a quarterly basis.~~

~~The radioactive effluent release report shall include any change to the PROCESS CONTROL PROGRAM (PCP) and the OFFSITE DOSE CALCULATION MANUAL (ODCM) made during the reporting period.~~

MONTHLY REACTOR OPERATING REPORT

⁸
6.9.1.10 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 U.S. Nuclear Regulatory Commission (Attn: Document Control Desk), Washington, D.C. 20555, with a copy to the Regional Office no later than the 15th of each month following the calendar month covered by the report.

CORE OPERATING LIMITS REPORT

⁹
6.9.1.11.1 Core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT before each reload cycle or any remaining part of a reload cycle for the following:

- a. Moderator Temperature Coefficient Limits for Specification 3/4.1.1.4,
- b. Rod Drop Time Limits for Specification 3/4.1.3.4,
- c. Shutdown Rod Insertion Limits for Specification 3/4.1.3.5,
- d. Control Rod Insertion Limits for Specification 3/4.1.3.6,
- e. Axial Flux Difference for Specification 3/4.2.1,
- f. Heat Flux Hot Channel Factor for Specification 3/4.2.2,
- g. Nuclear Enthalpy Rise Hot Channel Factor for Specification 3/4.2.3, and
- h. Allowable Power Level for Specification 3/4.2.6.

⁹
6.9.1.11.2 The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC in:

ADMINISTRATIVE CONTROLS

CORE OPERATING LIMITS REPORT (Continued)

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- a. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985 (Westinghouse Proprietary).
- b. WCAP-8385, "Power Distribution Control and Load Following Procedures - Topical Report," September 1974 (Westinghouse Proprietary),
- c. WCAP-10216-P-A, Part B, "Relaxation of Constant Axial Offset Control/F Surveillance Technical Specification," June 1983 (Westinghouse Proprietary),
- d. WCAP-10266-P-A Rev. 2, "The 1981 Version of Westinghouse Evaluation Mode Using BASH Code," March 1987 (Westinghouse Proprietary).

6.9.1.1.3 The core operating limits shall be determined so that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis are met.

6.9.1.1.4 The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance, for each reload cycle, to the NRC document control desk with copies to the Regional Administrator and Resident Inspector.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the attention of the document control desk - U.S. Nuclear Regulatory Commission (Washington, D.C. 20555), with copies to the Region III Administrator and the Resident Inspector at the Cook Nuclear Plant within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

- a. Inoperable Seismic Monitoring Instrumentation, Specification 3.3.3.3.
- b. Seismic Monitoring Instrumentation Actuated, Specification 4.3.3.3.2.
- c. Inoperable Meteorological Monitoring Instrumentation, Specification 3.3.3.4.
- d. High Specific Activity in RCS Coolant, Specification 3.4.8.
- e. RCS Pressure Transient Mitigated By RHR Safety Valve or RCS Vent(s), Specification 3.4.9.3.
- f. Moderator Temperature Coefficient, Specification 3.1.1.4.

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SPECIAL REPORTS (Continued)

- MOVE TO PAGE 6-13
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- g. Sealed Source Leakage in Excess of Limits, Specification 4.7.7.1.3.
 - h. ECCS Actuation, Specifications 3.5.2 and 3.5.3.
 - i. Excessive Releases in Radioactivity, Specifications 3.11.1.2, 3.11.1.3, 3.11.2.2, 3.11.2.3, 3.11.2.4, and 3.11.4.
 - j. Inoperable Solid Radwaste System, Specification 3.11.3.
 - k. Excessive Level of Radioactivity in Quarterly Environmental Sample, Specification 3.12.1 (Action b).
 - l. Milk and Vegetable Samples Not Available, Specification 3.12.1 (Action c).
 - m. Greater Calculated Dose or Dose Commitment Identified by Land Census, Specification 3.12.2 (Actions a & b).
 - n. Violation of Safety Limit, Specification 6.7.1.

6.10 RECORD RETENTION

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

- a. Records and logs of unit operation covering time interval at each power level.
- b. Records and logs of principal maintenance activities, inspections, repair and replacement of principal items of equipment related to nuclear safety.
- c. All REPORTABLE EVENTS submitted to the Commission.
- d. Records of surveillance activities, inspections and calibrations required by these Technical Specifications.
- e. Records of changes made to the procedures required by Specification 6.8.1.
- f. Records of sealed source and fission detection leak tests and results.
- g. Records of annual physical inventory of all sealed source material on record.

(editorial change)

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RECORD RETENTION (continued)

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

- a. Records and drawing changes reflecting unit design modifications made to systems and equipment described in the Final Safety Analysis Report.
- b. Records of new and irradiated fuel inventory, fuel transfers and assembly burnup histories.
- c. Records of radiation exposure for all individuals entering radiation control areas.
- d. Records of gaseous and liquid radioactive material released to the environs. Environment. (editorial change)
- e. Records of transient or operational cycles for those facility components identified in Table 5.7-1.
- f. Records of reactor tests and experiments.
- g. Records of training and qualification for current members of the Plant Staff.
- h. Records of in-service inspections performed pursuant to these Technical Specifications.
- i. Records of Quality Assurance activities required by the QA Manual.
- j. Records of reviews performed for changes made to procedures or equipment or review of tests and experiments pursuant to 10 CFR 50.59.
- k. Records of meetings of the PNSRC and the NSDRG.
- l. Records of radioactive shipments.
- m. Records of the service lives of hydraulic snubbers including the date at which service life commences and associated installation and maintenance records.

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

6.11 RADIATION PROTECTION PROGRAM

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

6.12 HIGH RADIATION AREA

6.12.1 In lieu of the "control device" or "alarm signal" required by paragraph 20.203(c)(2) of 10 CFR 20, each high radiation area in which the intensity of radiation is 1000 mrem/hr or less shall be barricaded and

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ADMINISTRATIVE CONTROLS

conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit. Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

- d (editorial change)
- a. A radiation monitoring device which continuously indicates the radiation dose rate in the area.
 - b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made aware of it.
 - c. An individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device. This individual shall be responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the facility Health Physicist in the Radiation Work Permit.

6.12.2 The requirements of 6.12.1 shall also apply to each high radiation area in which the intensity of radiation is greater than 1000mrem/hr. When possible, locked doors shall be provided to prevent unauthorized entry into such areas, and the keys shall be maintained under the administrative control of the Shift Supervisor on duty and/or the Plant Health Physicist (Plant Radiation Protection Supervisor). Doors shall remain locked except during periods of access by personnel under an approved RWP which shall specify the dose rate levels in the immediate work areas. In the event that it is not possible or practicable to provide locked doors due to area size or configuration, the area shall be roped off, conspicuously posted and a flashing light shall be activated as a warning device.

~~6.13 DELETED~~

~~6.14 PROCESS CONTROL PROGRAM (PCP)~~

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

~~6.14.2 Licensee initiated changes to the PCP:~~

- ~~1. Shall be submitted to the Commission in the semi-annual Radioactive Effluent Release Report for the period in which the change(s) was made. This submittal shall contain:~~

- ~~a. Sufficiently detailed information to totally support the rationale for the change without benefit of additional or supplemental information;~~

*Health Physics (Radiation Protection) personnel shall be exempt from the RWP issuance requirement during the performance of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas.

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- ~~b. A determination that the change did not reduce the overall conformance of the solidified waste product to existing criteria for solid wastes; and~~
- ~~c. Documentation of the fact that the change has been reviewed and found acceptable by the PNSRC.~~
2. Shall become effective upon review and acceptance by the PNSRC.

¹⁴
6.15 OFFSITE DOSE CALCULATION MANUAL (ODCM)

REPLACE WITH ATTACHED TEXT (6.15)

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

6.15.2 Licensee initiated changes to the ODCM:

1. Shall be submitted to the Commission in the Semi-annual Radioactive Effluent Release Report in the next report after the report period the change(s) was made effective. This submittal shall contain:
 - a. Sufficiently detailed information to totally support the rationale for the change without benefit of additional or supplemental information. Information submitted should consist of a package of those pages of the ODCM to be changed with each page numbered and provided with an approval and date box, together with appropriate analyses or evaluations justifying the change(s);
 - b. A determination that the change will not reduce the accuracy or reliability of dose calculations or setpoint determinations; and
 - c. Documentation of the fact that the change has been reviewed and found acceptable by the PNSRC.
2. Shall become effective upon review and acceptance by the PNSRC.

6.15.3 Commission initiated changes:

1. Shall be determined by the PNSRC to be applicable to the facility after consideration of facility design.
2. The licensee shall provide the Commission with written notification of their determination of applicability including any necessary revisions to reflect facility design.

6.16 MAJOR CHANGES TO RADIOACTIVE WASTE TREATMENT SYSTEMS (Liquid, Gaseous, and Solid)

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

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6.13 PROCESS CONTROL PROGRAM (PCP)

6.13.1 Changes to the PCP:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.n. This documentation shall contain:
 - 1. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and
 - 2. A determination that the change will maintain the overall conformance of the solidified waste product to existing requirements of Federal, State, or other applicable regulations.
- b. Shall become effective after review and acceptance by the PNSRC and the approval of the Plant Manager.

6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

6.14.1 Changes to the ODCM:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.n. This documentation shall contain:
 1. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and
 2. A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.
- b. Shall become effective after review and acceptance by the PNSRC and the approval of the Plant Manager.
- c. Shall be submitted to the Commission in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Annual Radioactive Effluent Release Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g., month/year) the change was implemented.

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6.16 MAJOR CHANGES TO RADIOACTIVE WASTE TREATMENT SYSTEMS (Liquid, Gaseous, and Solid) (Continued)

1. Shall be reported to the Commission in the Annual Operating Report for the period in which the evaluation was reviewed by the (PNSRC). The discussions of each change shall contain:
 - a. A summary of the evaluation that led to the determination that the change could be made in accordance with 10 CFR 50.59;
 - b. Sufficient detailed information to totally support the reason for the change without benefit of additional or supplemental information;
 - c. A detailed description of the equipment, components and processes involved and the interfaces with other plant systems;
 - d. An evaluation of the change which shows the predicted releases of radioactive materials in liquid and gaseous effluents and/or quantity of solid waste that differ from those previously predicted in the license application and amendments thereto;
 - e. An evaluation of the change which shows the expected maximum exposure to individuals in the unrestricted area and to the general population that differ from those previously estimated in the license application and amendments thereto;
 - f. A comparison of the predicted releases of radioactive materials, in liquid and gaseous effluents and in solid waste, to the actual releases for the period prior to when the changes are to be made;
 - g. An estimate of the exposure to plant operation personnel as a result of the change; and
 - h. Documentation of the fact that the change was reviewed and found acceptable by the PNSRC.
2. Shall become effective upon review and acceptance by the PNSRC.

6.16.2 Commission initiated changes:

1. The applicability of the change to the facility shall be determined by the (PNSRC) after consideration of the facility design.
2. The licensee shall provide the Commission with written notification of its determination of applicability including any necessary revisions to reflect facility design.

Attachment 3 to AEP:NRC:1093

Proposed, Revised Technical Specification Pages
for Donald C. Cook Nuclear Plant Units 1 and 2

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DEFINITIONS

FREQUENCY NOTATION

1.21 The FREQUENCY NOTATION specified for the performance of Surveillance Requirements shall correspond to the intervals defined in Table 1.2.

REACTOR TRIP SYSTEM RESPONSE TIME

1.22 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.

ENGINEERED SAFETY FEATURE RESPONSE TIME

1.23 The ENGINEERED SAFETY FEATURE RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays where applicable.

AXIAL FLUX DIFFERENCE

1.24 AXIAL FLUX DIFFERENCE shall be the difference in normalized flux signals between the top and bottom halves of a two section excore neutron detector.

PHYSICS TESTS

1.25 PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation and 1) described in Chapter 13.0 of the FSAR, 2) authorized under the provisions of 10 CFR 50.59, or 3) otherwise approved by the Commission.

\bar{E} - AVERAGE DISINTEGRATION ENERGY

1.26 \bar{E} shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

SOURCE CHECK

1.27 A SOURCE CHECK shall be the qualitative assessment of Channel response when the Channel sensor is exposed to a radioactive source.

DEFINITIONS

PROCESS CONTROL PROGRAM (PCP)

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

1.29 Deleted.

OFFSITE DOSE CALCULATION MANUAL (ODCM)

1.30 The OFFSITE DOSE CALCULATION MANUAL (ODCM) shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm/trip setpoints, and in the conduct of the Environmental Radiological Monitoring Program. The ODCM shall contain (1) the Radioactive Effluent Controls and Radiological Environmental Monitoring Programs required by Section 6.8.4 and (2) descriptions of the information that should be included in the Annual Radiological Environmental Operating and Annual Radioactive Effluent Release Reports required by Specifications 6.9.1.6 and 6.9.1.7.

GASEOUS RADWASTE TREATMENT SYSTEM

1.31 A GASEOUS RADWASTE TREATMENT SYSTEM is any system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system off-gases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

VENTILATION EXHAUST TREATMENT SYSTEM

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

PURGE-PURGING

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

VENTING

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

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4 3.3.1)

<u>OPERATION MODE/INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>ALARM SETPOINT</u>	<u>TRIP SETPOINT</u>	<u>ACTION</u>
1. Modes 1, 2, 3 & 4				
A. Area Monitors				
i. Upper Containment ⁺ (VRS 1101/1201)	1	N/A	≤ 54 mR/hr	21
ii. Containment High Range (VRA 1310/1410)	2	≤ 10R/hr	N/A	22A
B. Process Monitors				
i. Particulate Channel ⁺ (ERS 1301/1401)	1	N/A	≤ 2.52 μCi	20
ii. Noble Gas Channel ⁺ (ERS 1305/1405)	1	N/A	≤ 4.4×10 ⁻³ $\frac{\mu\text{Ci}}{\text{cc}}$	20
C. Noble Gas Effluent Monitors				
i. Unit Vent Effluent Monitors				
a. Low Range (VRS 1505)	-----	(see the ODCM)	-----	
b. Mid Range (VRS 1507)	1	N/A	N/A	22B
c. High Range (VRS 1509)	1	N/A	N/A	22B
ii. Steam Generator PORV				
a. MRA 1601 (Loop 1)	1	N/A	N/A	22B
b. MRA 1602 (Loop 4)	1	N/A	N/A	22B
c. MRA 1701 (Loop 2)	1	N/A	N/A	22B
d. MRA 1702 (Loop 3)	1	N/A	N/A	22B
iii. Gland Steam Condenser Vent Monitor				
a. Low Range (SRA 1805)	-----	(see the ODCM)	-----	
iv. Steam Jet Air Ejector Vent Monitors				
a. Low Range (SRA 1905)	-----	(see the ODCM)	-----	
b. Mid Range (SRA 1907)	1	N/A	N/A	22B
c. High Range (SRA 1909)	1	N/A	N/A	22B

TABLE 3.3-6 (Continued)
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4 3.3.1)

<u>OPERATION MODE/INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>ALARM SETPOINT</u>	<u>TRIP SETPOINT</u>	<u>ACTION</u>
2. Mode 6				
A. Train A	any 2/3 channels			22
i. Containment Area ⁺ Radiation Channel (VRS 1101)		N/A	≤ 54 mR/hr	
ii. Particulate Channel ⁺ (ERS 1301)		N/A	≤ 2.52 μCi	
iii. Noble Gas Channel ⁺ (ERS 1305)		N/A	≤ 4.4×10 ⁻³ $\frac{\mu\text{Ci}}{\text{cc}}$	
B. Train B	any 2/3 channels			22
i. Containment Area ⁺ Radiation Channel (VRS 1201)		N/A	≤ 54 mR/hr	
ii. Particulate Channel ⁺ (ERS 1401)		N/A	≤ 2.52 μCi	
iii. Noble Gas Channel ⁺ (ERS 1405)		N/A	≤ 4.4×10 ⁻³ $\frac{\mu\text{Ci}}{\text{cc}}$	
3. Mode ***				
A. Spent Fuel Storage (RRC-330)	1	≤ 15 mR/hr	≤ 15 mR/hr	21

⁺ This specification only applies during purge

*** With fuel in storage pool or building

TABLE 4.3-3
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>OPERATION MODE/INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>APPLICABLE MODES</u>
1. Modes 1, 2, 3 & 4				
A. Area Monitors				
i. Upper Containment (VRS 1101/1201)	S*	R	M	1, 2, 3, 4
ii. Containment High Range (VRA 1310/1410)	S	R	M	1, 2, 3, 4
B. Process Monitors				
i. Particulate Channel (ERS 1301/1401)	S*	R	M	1, 2, 3, 4
C. Noble Gas Effluent Monitors				
i. Unit Vent. Effluent Monitors				
a. Low Range (VRS 1505)	----- (see the ODCM) -----			
b. Mid Range (VRS 1507)	S	R	N/A	1, 2, 3, 4
c. High Range (VRS 1509)	S*	R	N/A	1, 2, 3, 4
ii. Steam Generator PORV				
a. MRA 1601 (Loop 1)	S*	R	M	1, 2, 3, 4
b. MRA 1602 (Loop 4)	S*	R	M	1, 2, 3, 4
c. MRA 1701 (Loop 2)	S*	R	M	1, 2, 3, 4
d. MRA 1702 (Loop 3)	S*	R	M	1, 2, 3, 4
iii. Gland Steam Condenser Vent Monitor				
a. Low Range (SRA 1805)	----- (see the ODCM) -----			
iv. Steam Jet Air Ejector Vent Monitors				
a. Low Range (SRA 1905)	----- (see the ODCM) -----			
b. Mid Range (SRA 1907)	S	R	M	1, 2, 3, 4
c. High Range (SRA 1909)	S*	R	N/A	1, 2, 3, 4



TABLE 4.3-3 (Continued)
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>OPERATION MODE/INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>APPLICABLE MODES</u>
2. Mode 6				
A. Train A				6
i. Containment Area Radiation Channel (VRS 1101)	S*	R	M	
ii. Particulate Channel (ERS 1301)	S*	R	M	
iii. Noble Gas Channel (ERS 1305)	S*	R	M	
B. Train B				6
i. Containment Area Radiation Channel (VRS 1201)	S*	R	M	
ii. Particulate Channel (ERS 1401)	S*	R	M	
iii. Noble Gas Channel (ERS 1405)	S*	R	M	
3. Mode **				
A. Spent Fuel Storage (RRG-330)	S	R	M	**

* To include SOURCE CHECK per T/S Section 1.27

** With fuel in storage pool or building

INSTRUMENTATION

EXPLOSIVE GAS MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.9 The explosive gas monitoring instrumentation channels shown in Table 3.3-12 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.11.2.1 are not exceeded.

APPLICABILITY: As shown in Table 3.3-12.

ACTION:

- a. With an explosive gas monitoring instrumentation channel alarm/trip setpoint less conservative than the above specification, declare the channel inoperable and take the ACTION shown in Table 3.3-12.
- b. With less than the minimum number of explosive gas monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-12. Restore the inoperable instrumentation to OPERABLE status within 30 days. If unsuccessful, prepare and submit a SPECIAL REPORT to the Commission pursuant to Specification 6.9.2 to explain why this inoperability was not corrected in a timely manner.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.9 Each explosive gas monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, CHANNEL CALIBRATION, and analog CHANNEL FUNCTIONAL TEST at the frequencies shown in Table 4.3-8.



TABLE 3.3-12

Explosive Gas Monitoring Instrumentation

<u>Instrument (Instrument #)</u>	<u>Minimum Channels OPERABLE</u>	<u>Applicability</u>	<u>ACTION</u>
1. Waste Gas Holdup System Explosive Gas Monitoring System ¹			
a. Hydrogen Monitor (QC-1400)	1	**	23
b. Oxygen Monitor (QC-1400, QC-370)	2	**	24

ACTION Statements

Action 23 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of this system may continue for up to 14 days, provided grab samples are taken and analyzed every 12 hours.

Action 24 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 30 days. With 2 channels inoperable, operation of this system may continue for up to 30 days, provided grab samples are taken and analyzed every 12 hours.

** During waste gas holdup system operation.

¹ The waste gas holdup system explosive gas monitoring system may be inoperable for up to 160 days on a one-time basis for the purpose of replacing one oxygen monitor. During this time, grab samples for oxygen are to be taken and analyzed every 12 hours.



TABLE 4.3-8

Explosive Gas Monitoring Instrumentation Surveillance Requirements

<u>Instrument (Instrument #)</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL</u>	<u>CHANNEL CALIBRATION</u>	<u>Applicability</u>
		<u>TEST</u>		
1. Waste Gas Holdup System Explosive Gas Monitoring System				
a. Hydrogen Monitor (QC-1400)	D	M	Q(1)	**
b. Oxygen Monitor (QC-1400, QC-370*)	D	M	Q(2)	**

Table Notation

- (1) 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.
- (2) 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.

** During waste gas holdup system operation.

* These surveillances are not required during the 160-day period in which this monitor is being replaced.



3/4.11 RADIOACTIVE EFFLUENTS

LIQUID HOLDUP TANKS*

LIMITING CONDITION FOR OPERATION

3.11.1 The quantity of radioactive material contained in each of the following tanks shall be limited to less than or equal to 10 curies, excluding tritium and dissolved or entrained noble gases.

- a. Outside temporary tanks.

APPLICABILITY: At all times.

ACTION:

- a. With the quantity of radioactive material in any of the above listed tanks exceeding the above limit, without delay suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

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

- * 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.



RADIOACTIVE EFFLUENTS

3/4.11.2 GASEOUS EFFLUENTS

EXPLOSIVE GAS MIXTURE

LIMITING CONDITION FOR OPERATION

3.11.2.1 The concentration of oxygen in the waste gas holdup system shall be limited to less than or equal to 3% by volume if the hydrogen in the system is greater than or equal to 4% by volume.

APPLICABILITY: At all times.

ACTION:

- a. With the concentration of oxygen in the waste gas holdup system greater than 3% by volume but less than or equal to 4% by volume and containing greater than or equal to 4% hydrogen, restore the concentration of oxygen to less than or equal to 3% or reduce the hydrogen concentration to less than 4% within 96 hours.
- b. With the concentration of oxygen in the waste gas holdup system or tank greater than 4% by volume and greater than 4% hydrogen by volume without delay suspend all additions of waste gases to the system or tank and reduce the concentration of oxygen to less than or equal to 3% or the concentration of hydrogen to less than or equal to 4% within 96 hours in the system or tank.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.1 The concentration of oxygen in the waste gas holdup system shall be determined to within the above limits by continuously monitoring the waste gases in the waste gas holdup system with the oxygen monitors required OPERABLE by Table 3.3-12 of Specification 3.3.3.9.



RADIOACTIVE EFFLUENTS

GAS STORAGE TANKS

LIMITING CONDITION FOR OPERATION

3.11.2.2 The quantity of radioactivity contained in each gas storage tank shall be limited to 43,800 curies noble gas (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, without delay suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.2 The quantity of radioactive material contained in each gas storage tank shall be determined to be within the above limit at least once per 4 days by analysis of the Reactor Coolant System noble gases.

INSTRUMENTATION

BASES

Radiation Monitoring Instrumentation (Continued)

<u>INSTRUMENT</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE*</u>
6) Noble Gas Unit Vent Monitors		
a) Low Range (VRS 1505)	See the ODCM	$5.8 \times 10^{-7} \mu\text{Ci/cc}$ to $2.7 \times 10^{-2} \mu\text{Ci/cc}$.
b) Mid Range (VRS 1507)	Not Applicable**	$1.3 \times 10^{-3} \mu\text{Ci/cc}$ to $7.5 \times 10^{+2} \mu\text{Ci/cc}$.
c) High Range (VRS 1509)	Not Applicable**	$2.9 \times 10^{-2} \mu\text{Ci/cc}$ to $1.6 \times 10^{+4} \mu\text{Ci/cc}$.
7) Gland Steam Condenser Vent Noble Gas Monitor		
a) Low Range (SRA 1805)...	See the ODCM	$5.8 \times 10^{-7} \mu\text{Ci/cc}$ to $2.7 \times 10^{-2} \mu\text{Ci/cc}$.
8) Steam Jet Air Ejector Vent Noble Gas Monitor		
a) Low Range (SRA 1905)	See the ODCM	$5.8 \times 10^{-7} \mu\text{Ci/cc}$ to $2.7 \times 10^{-2} \mu\text{Ci/cc}$.
b) Mid Range (SRA 1907)	Not applicable.**	$1.3 \times 10^{-3} \mu\text{Ci/cc}$ to $7.5 \times 10^{+2} \mu\text{Ci/cc}$.
c) High Range (SRA 1909)	Not Applicable.**	$2.9 \times 10^{-2} \mu\text{Ci/cc}$ to $1.6 \times 10^{+4} \mu\text{Ci/cc}$.
9) Spent Fuel Storage (RRC-330)	The monitor setpoint is selected to alarm and trip consistent with 10 CFR 70.24(a) (2)	$1 \times 10^{-1} \text{mR/hr}$ to $1 \times 10^{+4} \text{mR/hr}$

* This is the minimum sensitivity of the instrument for normal operation, to follow the course of an accident, and/or take protective actions. Values of the instrument above or below this minimum sensitivity range are acceptable.

** These monitors are used to provide data to assist in post-accident off-site dose assessment.



INSTRUMENTATION

BASES

3/4.3.3.9 EXPLOSIVE GAS MONITORING INSTRUMENTATION

This instrumentation includes provisions for monitoring the concentrations of potentially explosive gas mixtures in the waste gas holdup system. The OPERABILITY and use of this instrumentation is consistent with the requirement of General Design Criteria specified in Section 11.3 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.

3/4.11 RADIOACTIVE EFFLUENTS

BASES

3/4.11.1 LIQUID HOLDUP TANKS

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.

This specification, being applicable to outside temporary tanks, does not apply to the refueling water storage tank, primary water storage tank, or the condensate storage tank, since they are a part of the permanent plant design.

3/4.11.2 GASEOUS EFFLUENTS

3/4.11.2.1 EXPLOSIVE GAS MIXTURE

This specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas treatment system is maintained below the flammability limits of hydrogen and oxygen mixtures. Maintaining the concentration of hydrogen or oxygen below their flammability limits provides that the releases of radioactive materials will be controlled in conformance with the requirements of the General Design Criterion specified in Section 11.1 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.

3/4.11.2.2 GAS STORAGE TANKS

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



ADMINISTRATIVE CONTROLS

TECHNICAL REVIEW AND CONTROL (continued)

plan and implementing procedures shall be reviewed pursuant to the requirements of Specifications 6.5.1.6 and 6.5.2.7 and approved by the Plant Manager. NRC approval shall be obtained as appropriate.

- g. Recommended changes to the Security Plan and implementing procedures shall be reviewed pursuant to the requirements of Specifications 6.5.1.6 and 6.5.2.7 and approved by the Plant Manager. NRC approval shall be obtained as appropriate.

6.5.3.2 Records of the above activities shall be provided to the Plant Manager, PNSRC and/or the NSDRG as necessary for required reviews.

6.6 REPORTABLE EVENT ACTION

6.6.1 The following actions shall be taken for REPORTABLE EVENTS:

- a. The Commission shall be notified and a report submitted pursuant to the requirements of 10 CFR 50.73, and
- b. Each REPORTABLE EVENT shall be reviewed by the PNSRC, and the results of this review shall be submitted to the NSDRG and the Vice President - Nuclear Operations.

6.7 SAFETY LIMIT VIOLATION

6.7.1 The following actions shall be taken in the event a safety limit is violated:

- a. The NRC Operations Center shall be notified by telephone as soon as possible and in all cases within 1 hour. The Chairman of the NSDRG shall be notified within 24 hours.
- b. A Safety Limit Violation Report shall be prepared. The report shall be reviewed by the PNSRC. This report shall describe (1) applicable circumstances preceding the violation; (2) effects of the violation upon facility components, systems or structures; and (3) corrective action taken to prevent recurrence.
- c. The Safety Limit Violation Report shall be submitted to the Commission, the Chairman of the NSDRG and the Vice President - Nuclear Operations within 14 days of the violation.
- d. Operation of the unit shall not be resumed until authorized by the Commission.



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6.8 PROCEDURES AND PROGRAMS

6.8.1 Written procedures shall be established, implemented and maintained covering the activities referenced below:

- a. The applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Rev. 2, February 1978.
- b. Security Plan implementation.
- c. Emergency Plan implementation.
- d. PROCESS CONTROL PROGRAM implementation.
- e. OFFSITE DOSE CALCULATION MANUAL implementation.
- f. Quality Assurance Program for effluent and environmental monitoring using the guidance in Regulatory Guide 1.21, Rev. 1, June 1974, and Regulatory Guide 4.1, Rev. 1, April 1975.

6.8.2 Each procedure and administrative policy of Specification 6.8.1 above, and changes thereto, including temporary changes, shall be reviewed prior to implementation as set forth in Specification 6.5 above.

6.8.3 A plant program for post-accident sampling shall be established, implemented, and maintained which will ensure the capability to obtain and analyze reactor coolant samples, containment atmosphere noble gas samples, and unit vent gaseous effluent samples for iodines and particulates under accident conditions. The program will include the following:

- a. Training of personnel,
- b. Procedures for sampling and analysis,
- c. Provisions for maintenance of sampling and analysis equipment.



ADMINISTRATIVE CONTROLS

6.8 PROCEDURES AND PROGRAMS (continued)

6.8.4 The following programs shall be established, implemented, and maintained:

a. Radioactive Effluent Controls Program

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

- 1) Limitations on the operability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM,
- 2) Limitations on the concentrations of radioactive material released in liquid effluents to UNRESTRICTED AREAS conforming to 10 CFR Part 20, Appendix B, Table II, Column 2,
- 3) Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.106 and with the methodology and parameters in the ODCM,
- 4) Limitations on the annual and quarterly doses or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released from each unit to UNRESTRICTED AREAS conforming to Appendix I to 10 CFR Part 50,
- 5) Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days,
- 6) Limitations on the operability and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a 31-day period would exceed 2 percent of the guidelines for the annual dose or dose commitment conforming to Appendix I to 10 CFR Part 50,



ADMINISTRATIVE CONTROLS

6.8 PROCEDURES AND PROGRAMS (continued)

- 7) Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the SITE BOUNDARY conforming to the dose associated with 10 CFR Part 20, Appendix B, Table II, Column 1,
- 8) Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50,
- 9) Limitations on the annual and quarterly doses to a MEMBER OF THE PUBLIC from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10CFR Part 50, and
- 10) Limitations on the annual dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.

b. Radiological Environmental Monitoring Program

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

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

ADMINISTRATIVE CONTROLS

6.9 REPORTING REQUIREMENTS

ROUTINE REPORTS

6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the Regional Administrator unless otherwise noted.

STARTUP REPORT

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.

6.9.1.2 The startup report shall address each of the tests identified in the FSAR and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.



ADMINISTRATIVE CONTROLS

STARTUP REPORT (continued)

6.9.1.3 Startup reports shall be submitted within (1) 90 days following completion of the startup test program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of startup test program, and resumption or commencement of commercial power operation), supplementary reports shall be submitted at least every three months until all three events have been completed.

ANNUAL REPORTS¹

6.9.1.4 Annual reports covering the activities of the unit as described below for the previous calendar year shall be submitted prior to March 1 of each year. The initial report shall be submitted prior to March 1 of the year following initial criticality.

6.9.1.5 Reports required on an annual basis shall include:

- a. A tabulation on an annual basis of the number of station, utility and other personnel (including contractors) receiving exposures greater than 100 mrem/yr and their associated man rem exposure according to work and job functions², e.g., reactor operations and surveillance, in-service inspection, routine maintenance, special maintenance (describe maintenance), waste processing and refueling. The dose assignment to various duty functions may be estimates based on pocket dosimeter, TLD, or film badge measurements. Small exposures totalling less than 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole body dose received from external sources shall be assigned to specific major work functions.
- b. The complete results of steam generator tube in-service inspections performed during the report period (reference Specification 4.4.5.5.b).
- c. Documentation of all challenges to the pressurizer power operated relief valves (PORVs) or safety valves.
- d. Information regarding any instances when the I-131 specific activity limit was exceeded.

¹ A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station.

² This tabulation supplements the requirements of 20.407 of 10 CFR Part 20.



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ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT³

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

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT³

6.9.1.7 The Annual Radioactive Effluent Release Report covering the operation of the unit during the previous 6 months of operation shall be submitted within 90 days after January 1 of each year. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be (1) consistent with the objectives outlined in the ODCM and PCP and (2) in conformance with 10 CFR 50.36a and Section IV.B.1 of Appendix I to 10 CFR Part 50.

³ A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station; however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material for each unit.



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ADMINISTRATIVE CONTROLS

MONTHLY REACTOR 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 U.S. Nuclear Regulatory Commission (Attn: Document Control Desk), Washington, D.C. 20555, with a copy to the Regional Office no later than the 15th of each month following the calendar month covered by the report.

CORE OPERATING LIMITS REPORT

6.9.1.9.1 Core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT before each reload cycle or any remaining part of a reload cycle for the following:

- a. Moderator Temperature Coefficient Limits for Specification 3/4.1.1.4,
- b. Rod Drop Time Limits for Specification 3/4.1.3.3,
- c. Shutdown Rod Insertion Limits for Specification 3/4.1.3.4,
- d. Control Rod Insertion Limits for Specification 3/4.1.3.5,
- e. Axial Flux Difference for Specification 3/4.2.1,
- f. Heat Flux Hot Channel Factor for Specification 3/4.2.2,
- g. Nuclear Enthalpy Rise Hot Channel Factor for Specification 3/4.2.3, and
- h. Allowable Power Level for Specification 3/4.2.6.

6.9.1.9.2 The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC in:

- a. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985 (Westinghouse Proprietary),
- b. WCAP-8385, "Power Distribution Control and Load Following Procedures - Topical Report," September 1974 (Westinghouse Proprietary),
- c. WCAP-10216-P-A, Part B, "Relaxation of Constant Axial Offset Control/ F_0 Surveillance Technical Specification," June 1983 (Westinghouse Proprietary),
- d. WCAP-10266-P-A Rev. 2, "The 1981 Version of Westinghouse Evaluation Mode Using BASH Code," March 1987 (Westinghouse Proprietary).

ADMINISTRATIVE CONTROLS

CORE OPERATING LIMITS REPORT (Continued)

6.9.1.9.3 The core operating limits shall be determined so that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis are met.

6.9.1.9.4 The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance, for each reload cycle, to the NRC document control desk with copies to the Regional Administrator and Resident Inspector.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the attention of the document control desk - U.S. Nuclear Regulatory Commission (Washington, D.C. 20555), with copies to the Region III Administrator and the Resident Inspector at the Cook Nuclear Plant within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

- a. Inoperable Seismic Monitoring Instrumentation, Specification 3.3.3.3.
- b. Seismic Monitoring Instrumentation Actuated, Specification 4.3.3.3.2.
- c. Inoperable Meteorological Monitoring Instrumentation, Specification 3.3.3.4.
- d. High Specific Activity in RCS Coolant, Specification 3.4.8.
- e. RCS Pressure Transient Mitigated By RHR Safety Valve or RCS Vent(s), Specification 3.4.9.3.
- f. Moderator Temperature Coefficient, Specification 3.1.1.4.
- g. Sealed Source Leakage in Excess of Limits, Specification 4.7.7.1.3.
- h. ECCS Actuation, Specifications 3.5.2 and 3.5.3.
- i. Violation of Safety Limit, Specification 6.7.1.

ADMINISTRATIVE CONTROLS

6.10 RECORD RETENTION

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

- a. Records and logs of unit operation covering time interval at each power level.
- b. Records and logs of principal maintenance activities, inspections, repair and replacement of principal items of equipment related to nuclear safety.
- c. All REPORTABLE EVENTS submitted to the Commission.
- d. Records of surveillance activities, inspections and calibrations required by these Technical Specifications.
- e. Records of changes made to the procedures required by Specification 6.8.1.
- f. Records of sealed source and fission detection leak tests and results.
- g. Records of annual physical inventory of all sealed source material on record.



ADMINISTRATIVE CONTROLS

RECORD RETENTION (Continued)

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

- a. Records and drawing changes reflecting unit design modifications made to systems and equipment described in the Final Safety Analysis Report.
- b. Records of new and irradiated fuel inventory, fuel transfers and assembly burnup histories.
- c. Records of radiation exposure for all individuals entering radiation control areas.
- d. Records of gaseous and liquid radioactive material released to the environment.
- e. Records of transient or operational cycles for those facility components identified in Table 5.9-1.
- f. Records of reactor tests and experiments.
- g. Records of training and qualification for current members of the Plant Staff.
- h. Records of in-service inspections performed pursuant to these Technical Specifications.
- i. Records of Quality Assurance activities required by the QA Manual.
- j. Records of reviews performed for changes made to procedures or equipment or review of tests and experiments pursuant to 10 CFR 50.59.
- k. Records of meetings of the PNSRC and the NSDRC.
- l. Records of radioactive shipments.
- m. Records of the service lives of hydraulic snubbers including the date at which service life commences and associated installation and maintenance records.
- n. Records of reviews performed for changes made to the OFFSITE DOSE CALCULATION MANUAL and the PROCESS CONTROL PROGRAM.

6.11 RADIATION PROTECTION PROGRAM

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



ADMINISTRATIVE CONTROLS

6.12 HIGH RADIATION AREA

6.12.1 In lieu of the "control device" or "alarm signal" required by paragraph 20.203(c)(2) of 10 CFR 20, each high radiation area in which the intensity of radiation is 1000 mrem/hr or less shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit*. Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

- a. A radiation monitoring device which continuously indicates the radiation dose rate in the area.
- b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made aware of it.
- c. An individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device. This individual shall be responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the facility Health Physicist in the Radiation Work Permit.

6.12.2 The requirements of 6.12.1 shall also apply to each high radiation area in which the intensity of radiation is greater than 1000mrem/hr. When possible, locked doors shall be provided to prevent unauthorized entry into such areas, and the keys shall be maintained under the administrative control of the Shift Supervisor on duty and/or the Plant Health Physicist (Plant Radiation Protection Supervisor). Doors shall remain locked except during periods of access by personnel under an approved RWP which shall specify the dose rate levels in the immediate work areas. In the event that it is not possible or practicable to provide locked doors due to area size or configuration, the area shall be roped off, conspicuously posted and a flashing light shall be activated as a warning device.

* Health Physics (Radiation Protection) personnel shall be exempt from the RWP issuance requirement during the performance of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas.

ADMINISTRATIVE CONTROLS

6.13 PROCESS CONTROL PROGRAM (PCP)

6.13.1 Changes to the PCP:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.n. This documentation shall contain:
 1. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and
 2. A determination that the change will maintain the overall conformance of the solidified waste product to existing requirements of Federal, State, or other applicable regulations.
- b. Shall become effective after review and acceptance by the PNSRC and the approval of the Plant Manager.

6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

6.14.1 Changes to the ODCM:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.n. This documentation shall contain:
 1. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and
 2. A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.
- b. Shall become effective after review and acceptance by the PNSRC and the approval of the Plant Manager.
- c. Shall be submitted to the Commission in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Annual Radioactive Effluent Release Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g., month/year) the change was implemented.



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DEFINITIONS

PHYSICS TESTS

1.25 PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation and 1) described in Chapter 13.0 of the FSAR, 2) authorized under the provisions of 10 CFR 50.59, or 3) otherwise approved by the Commission.

\bar{E} - AVERAGE DISINTEGRATION ENERGY

1.26 \bar{E} shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

SOURCE CHECK

1.27 A SOURCE CHECK shall be the qualitative assessment of Channel response when the Channel sensor is exposed to a radioactive source.

PROCESS CONTROL PROGRAM (PCP)

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



DEFINITIONS

1.29 Deleted.

OFFSITE DOSE CALCULATION MANUAL (ODCM)

1.30 The OFFSITE DOSE CALCULATION MANUAL (ODCM) shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm/trip setpoints, and in the conduct of the Environmental Radiological Monitoring Program. The ODCM shall contain (1) the Radioactive Effluent Controls and Radiological Environmental Monitoring Programs required by Section 6.8.4 and (2) descriptions of the information that should be included in the Annual Radiological Environmental Operating and Annual Radioactive Effluent Release Reports required by Specifications 6.9.1.6 and 6.9.1.7.

GASEOUS RADWASTE TREATMENT SYSTEM

1.31 A GASEOUS RADWASTE TREATMENT SYSTEM is any system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system off-gases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

VENTILATION EXHAUST TREATMENT SYSTEM

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

PURGE-PURGING

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

VENTING

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

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4 3.3.1)

<u>OPERATION MODE/INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>ALARM SETPOINT</u>	<u>TRIP SETPOINT</u>	<u>ACTION</u>
1. Modes 1, 2, 3 & 4				
A. Area Monitors				
i. Upper Containment ⁺ (VRS 2101/2201)	1	N/A	≤ 54 mR/hr	21
ii. Containment High Range (VRA 2310/2410)	2	≤ 10R/hr	N/A	22A
B. Process Monitors				
i. Particulate Channel ⁺ (ERS 2301/2401)	1	N/A	≤ 2.52 μCi	20
ii. Noble Gas Channel ⁺ (ERS 2305/2405)	1	N/A	≤ 4.4×10 ⁻³ $\frac{\mu\text{Ci}}{\text{cc}}$	20
C. Noble Gas Effluent Monitors				
i. Unit Vent Effluent Monitors				
a. Low Range (VRS 2505)	----- (see the ODCM) -----			
b. Mid Range (VRS 2507)	1	N/A	N/A	22B
c. High Range (VRS 2509)	1	N/A	N/A	22B
ii. Steam Generator PORV				
a. MRA 2601 (Loop 1)	1	N/A	N/A	22B
b. MRA 2602 (Loop 4)	1	N/A	N/A	22B
c. MRA 2701 (Loop 2)	1	N/A	N/A	22B
d. MRA 2702 (Loop 3)	1	N/A	N/A	22B
iii. Gland Steam Condenser Vent Monitor				
a. Low Range (SRA 2805)	----- (see the ODCM) -----			
iv. Steam Jet Air Ejector Vent Monitors				
a. Low Range (SRA 2905)	----- (see the ODCM) -----			
b. Mid Range (SRA 2907)	1	N/A	N/A	22B
c. High Range (SRA 2909)	1	N/A	N/A	22B

TABLE 3.3-6 (Continued)
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4 3.3.1)

<u>OPERATION MODE/INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>ALARM SETPOINT</u>	<u>TRIP SETPOINT</u>	<u>ACTION</u>
2. Mode 6				
A. Train A	any 2/3 channels			22
i. Containment Area ⁺ Radiation Channel (VRS 2101)		N/A	≤ 54 mR/hr	
ii. Particulate Channel ⁺ (ERS 2301)		N/A	≤ 2.52 μCi	
iii. Noble Gas Channel ⁺ (ERS 2305)		N/A	≤ 4.4×10 ⁻³ $\frac{\mu\text{Ci}}{\text{cc}}$	
B. Train B	any 2/3 channels			22
i. Containment Area ⁺ Radiation Channel (VRS 2201)		N/A	≤ 54 mR/hr	
ii. Particulate Channel ⁺ (ERS 2401)		N/A	≤ 2.52 μCi	
iii. Noble Gas Channel ⁺ (ERS 2405)		N/A	≤ 4.4×10 ⁻³ $\frac{\mu\text{Ci}}{\text{cc}}$	
3. Mode ***				
A. Spent Fuel Storage (RRC-330)	1	≤ 15 mR/hr	≤ 15 mR/hr	21

*** With fuel in storage pool or building

⁺ This specification only applies during purge



TABLE 4.3-3
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>OPERATION MODE/INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>APPLICABLE MODES</u>
1. Modes 1, 2, 3 & 4				
A. Area Monitors				
i. Upper Containment (VRS 2101/2201)	S*	R	M	1, 2, 3, 4
ii. Containment High Range (VRA 2310/2410)	S	R	M	1, 2, 3, 4
B. Process Monitors				
i. Particulate Channel (ERS 2301/2401)	S*	R	M	1, 2, 3, 4
C. Noble Gas Effluent Monitors				
i. Unit Vent Effluent Monitors				
a. Low Range (VRS 2505)	----- (see the ODCM) -----			
b. Mid Range (VRS 2507)	S	R	N/A	1, 2, 3, 4
c. High Range (VRS 2509)	S*	R	N/A	1, 2, 3, 4
ii. Steam Generator PORV				
a. MRA 2601 (Loop 1)	S*	R	M	1, 2, 3, 4
b. MRA 2602 (Loop 4)	S*	R	M	1, 2, 3, 4
c. MRA 2701 (Loop 2)	S*	R	M	1, 2, 3, 4
d. MRA 2702 (Loop 3)	S*	R	M	1, 2, 3, 4
iii. Gland Steam Condenser Vent Monitor				
a. Low Range (SRA 2805)	----- (see the ODCM) -----			
iv. Steam Jet Air Ejector Vent Monitors				
a. Low Range (SRA 2905)	----- (see the ODCM) -----			
b. Mid Range (SRA 2907)	S	R	M	1, 2, 3, 4
c. High Range (SRA 2909)	S*	R	N/A	1, 2, 3, 4

TABLE 4.3-3 (Continued)
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>OPERATION MODE/INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>APPLICABLE MODES</u>
2. Mode 6				
A. Train A				6
i. Containment Area Radiation Channel (VRS 2101)	S*	R	M	
ii. Particulate Channel (ERS 2301)	S*	R	M	
iii. Noble Gas Channel (ERS 2305)	S*	R	M	
B. Train B				6
i. Containment Area Radiation Channel (VRS 2201)	S*	R	M	
ii. Particulate Channel (ERS 2401)	S*	R	M	
iii. Noble Gas Channel (ERS 2405)	S*	R	M	
3. Mode **				
A. Spent Fuel Storage (RRC-330)	S	R	M	**

* To include SOURCE CHECK per T/S Section 1.27

** With fuel in storage pool or building

INSTRUMENTATION

EXPLOSIVE GAS MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.9 The explosive gas monitoring instrumentation channels shown in Table 3.3-12 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specifications 3.11.2.1 are not exceeded.

APPLICABILITY: As shown in Table 3.3-12.

ACTION:

- a. With an explosive gas monitoring instrumentation channel alarm/trip setpoint less conservative than the above specification, declare the channel inoperable and take the ACTION shown in Table 3.3-12.
- b. With less than the minimum number of explosive gas monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-12. Restore the inoperable instrumentation to OPERABLE status within 30 days. If unsuccessful, prepare and submit a SPECIAL REPORT to the Commission pursuant to Specification 6.9.2 to explain why this inoperability was not corrected in a timely manner.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.9.1 Each explosive gas monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, CHANNEL CALIBRATION, and analog CHANNEL FUNCTIONAL TEST at the frequencies shown in Table 4.3-8.



TABLE 3.3-12

Explosive Gas Monitoring Instrumentation

<u>Instrument (Instrument #)</u>	<u>Minimum Channels OPERABLE</u>	<u>Applicability</u>	<u>ACTION</u>
1. Waste Gas Holdup System Explosive Gas Monitoring System ¹			
a. Hydrogen Monitor (QC-1400)	1	**	23
b. Oxygen Monitor (QC-1400, QC-370)	2	**	24

ACTION STATEMENTS

Action 23 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of this system may continue for up to 14 days, provided grab samples are taken and analyzed every 12 hours.

Action 24 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 30 days. With 2 channels inoperable, operation of this system may continue for up to 30 days, provided grab samples are taken and analyzed every 12 hours.

** During waste gas holdup system operation.

¹ The waste gas holdup system explosive gas monitoring system may be inoperable for up to 160 days on a one-time basis for the purpose of replacing one oxygen monitor. During this time, grab samples for oxygen are to be taken and analyzed every 12 hours.

TABLE 4.3-8

Explosive Gas Monitoring Instrumentation Surveillance Requirements

<u>Instrument (Instrument #)</u>	<u>CHANNEL</u>			<u>Applicability</u>
	<u>CHECK</u>	<u>FUNCTIONAL TEST</u>	<u>CALIBRATION</u>	
1. Waste Gas Holdup System Explosive Gas Monitoring System				
a. Hydrogen Monitor (QC-1400)	D	M	Q(1)	**
b. Oxygen Monitor (QC-1400, QC-370*)	D	M	Q(2)	**

Table Notation

- (1) 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.
- (2) 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.

** During waste gas holdup system operation.

* These surveillances are not required during the 160-day period in which this monitor is being replaced.



INSTRUMENTATION

3/4.3.4 TURBINE OVERSPEED PROTECTION

LIMITING CONDITION FOR OPERATION

3.3.4.1 At least one turbine overspeed protection system shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3

ACTION:

- a. With one stop valve or one control valve per high pressure turbine steam lead inoperable or with one reheat stop valve or one reheat intercept valve per low pressure turbine steam lead inoperable, operation may continue for up to 72 hours provided the inoperable valve(s) is restored to OPERABLE status or at least one valve in the affected steam lead is closed; otherwise, isolate the turbine from the steam supply within the next 6 hours.
- b. With the above required turbine overspeed protection system otherwise inoperable, within 6 hours either restore the system to OPERABLE status or isolate the turbine from the steam supply.

SURVEILLANCE REQUIREMENTS

4.3.4.1.1 The provisions of Specification 4.0.4 are not applicable.

4.3.4.1.2 The above required turbine overspeed protection system shall be demonstrated OPERABLE:

- a. At least once per 7 days by cycling each of the following valves through at least one complete cycle from the running position.
 1. Four high pressure turbine stop valves.
 2. Four high pressure turbine control valves.
 3. Six low pressure turbine reheat stop valves.
 4. Six low pressure turbine reheat intercept valves.

INSTRUMENTATION

SURVEILLANCE REQUIREMENTS (Continued)

- b. At least once per 31 days by direct observation of the movement of each of the above valves through one complete cycle from the running position.
- c. At least once per 18 months by performance of a CHANNEL CALIBRATION on the turbine overspeed protection systems.
- d. At least once per 40 months by disassembling at least one of each of the above valves and performing a visual and surface inspection of valve seats, disks and stems and verifying no unacceptable flaws or corrosion.

3/4.11 RADIOACTIVE EFFLUENTS

LIQUID HOLDUP TANKS*

LIMITING CONDITION FOR OPERATION

3.11.1 The quantity of radioactive material contained in each of the following tanks shall be limited to less than or equal to 10 curies, excluding tritium and dissolved or entrained noble gases.

- a. Outside temporary tanks.

APPLICABILITY: At all times.

ACTION:

- a. With the quantity of radioactive material in any of the above listed tanks exceeding the above limit, without delay suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

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

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

RADIOACTIVE EFFLUENTS

3/4.11.2 GASEOUS EFFLUENTS

EXPLOSIVE GAS MIXTURE

LIMITING CONDITION FOR OPERATION

3.11.2.1 The concentration of oxygen in the waste gas holdup system shall be limited to less than or equal to 3% by volume if the hydrogen in the system is greater than or equal to 4% by volume.

APPLICABILITY: At all times.

ACTION:

- a. With the concentration of oxygen in the waste gas holdup system greater than 3% by volume but less than or equal to 4% by volume and containing greater than or equal to 4% hydrogen, restore the concentration of oxygen to less than or equal to 3% or reduce the hydrogen concentration to less than 4% within 96 hours.
- b. With the concentration of oxygen in the waste gas holdup system or tank greater than 4% by volume and greater than 4% hydrogen by volume, without delay suspend all additions of waste gases to the system or tank and reduce the concentration of oxygen to less than or equal to 3% or the concentration of hydrogen to less than or equal to 4% within 96 hours in the system or tank.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.1 The concentration of oxygen in the waste gas holdup system shall be determined to within the above limits by continuously monitoring the waste gases in the waste gas holdup system with the oxygen monitors required OPERABLE by Table 3.3-12 of Specification 3.3.3.9.

RADIOACTIVE EFFLUENTS

GAS STORAGE TANKS

LIMITING CONDITION FOR OPERATION

3.11.2.2 The quantity of radioactivity contained in each gas storage tank shall be limited to 43,800 curies noble gas (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, without delay suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.2 The quantity of radioactive material contained in each gas storage tank shall be determined to be within the above limit at least once per 4 days by analysis of the Reactor Coolant System noble gases.

INSTRUMENTATION

BASES

Radiation Monitoring Instrumentation (Continued)

<u>INSTRUMENT</u>	<u>ALARM/TRIP SETPOINT</u>	<u>MEASUREMENT RANGE*</u>
6) Noble Gas Unit Vent Monitors		
a) Low Range (VRS 2505)	See the ODCM	$5.8 \times 10^{-7} \mu\text{Ci/cc}$ to $2.7 \times 10^{-2} \mu\text{Ci/cc}$.
b) Mid Range (VRS 2507)	Not Applicable**	$1.3 \times 10^{-3} \mu\text{Ci/cc}$ to $7.5 \times 10^{+2} \mu\text{Ci/cc}$.
c) High Range (VRS 2509)	Not Applicable**	$2.9 \times 10^{-2} \mu\text{Ci/cc}$ to $1.6 \times 10^{+4} \mu\text{Ci/cc}$.
7) Gland Steam Condenser Vent Noble Gas Monitor		
a) Low Range (SRA 2805)...	See the ODCM	$5.8 \times 10^{-7} \mu\text{Ci/cc}$ to $2.7 \times 10^{-2} \mu\text{Ci/cc}$.
8) Steam Jet Air Ejector Vent Noble Gas Monitor		
a) Low Range (SRA 2905)	See the ODCM	$5.8 \times 10^{-7} \mu\text{Ci/cc}$ to $2.7 \times 10^{-2} \mu\text{Ci/cc}$.
b) Mid Range (SRA 2907)	Not applicable.**	$1.3 \times 10^{-3} \mu\text{Ci/cc}$ to $7.5 \times 10^{+2} \mu\text{Ci/cc}$.
c) High Range (SRA 2909)	Not Applicable.**	$2.9 \times 10^{-2} \mu\text{Ci/cc}$ to $1.6 \times 10^{+4} \mu\text{Ci/cc}$.
9) Spent Fuel Storage (RRC-330)	The monitor setpoint is selected to alarm and trip consistent with 10 CFR 70.24(a) (2)	$1 \times 10^{-1} \text{mR/hr}$ to $1 \times 10^{+4} \text{mR/hr}$

* This is the minimum sensitivity of the instrument for normal operation, to follow the course of an accident, and/or take protective actions. Values of the instrument above or below this minimum sensitivity range are acceptable.

** These monitors are used to provide data to assist in post-accident off-site dose assessment.

INSTRUMENTATION

BASES

3/4.3.3.6 POST-ACCIDENT INSTRUMENTATION

The OPERABILITY of the post-accident instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables during and following an accident.

3/4.3.3.7 Deleted.

3/4.3.3.8 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the fire detection instrumentation ensures that adequate warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early stages. Prompt detection of fires will reduce the potential for damage to safety-related equipment and is an integral element in the overall facility fire protection program.

In the event that a portion of the fire detection instrumentation is inoperable, the establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is restored to OPERABILITY. Use of containment temperature monitoring is allowed once per hour if containment fire detection is inoperable.

3/4 3.3.9 EXPLOSIVE GAS MONITORING INSTRUMENTATION

This instrumentation includes provisions for monitoring 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 specified in Section 11.3 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.

3/4.3.4 TURBINE OVERSPEED PROTECTION

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



3/4.11 RADIOACTIVE EFFLUENTS

BASES

3/4.11.1 LIQUID HOLDUP TANKS

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.

This specification, being applicable to outside temporary tanks, does not apply to the refueling water storage tank, primary water storage tank, or the condensate storage tank, since they are a part of the permanent plant design.

3/4 11.2 GASEOUS EFFLUENTS

3/4.11.2.1 EXPLOSIVE GAS MIXTURE

This specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas treatment system is maintained below the flammability limits of hydrogen and oxygen mixtures. Maintaining the concentration of hydrogen or oxygen below their flammability limits provides that the releases of radioactive materials will be controlled in conformance with the requirements of the General Design Criterion specified in Section 11.1 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.

3/4.11.2.2 GAS STORAGE TANKS

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



ADMINISTRATIVE CONTROLS

TECHNICAL REVIEW AND CONTROL (continued)

plan and implementing procedures shall be reviewed pursuant to the requirements of Specifications 6.5.1.6 and 6.5.2.7 and approved by the Plant Manager. NRC approval shall be obtained as appropriate.

- g. Recommended changes to the Security Plan and implementing procedures shall be reviewed pursuant to the requirements of Specifications 6.5.1.6 and 6.5.2.7 and approved by the Plant Manager. NRC approval shall be obtained as appropriate.

6.5.3.2 Records of the above activities shall be provided to the Plant Manager, PNSRC and/or the NSDRC as necessary for required reviews.

6.6 REPORTABLE EVENT ACTION

6.6.1 The following actions shall be taken for REPORTABLE EVENTS:

- a. The Commission shall be notified and a report submitted pursuant to the requirements of 10 CFR 50.73, and
- b. Each REPORTABLE EVENT shall be reviewed by the PNSRC, and the results of this review shall be submitted to the NSDRC and the Vice President - Nuclear Operations.

6.7 SAFETY LIMIT VIOLATION

6.7.1 The following actions shall be taken in the event a safety limit is violated:

- a. The NRC Operations Center shall be notified by telephone as soon as possible and in all cases within 1 hour. The Chairman of the NSDRC shall be notified within 24 hours.
- b. A Safety Limit Violation Report shall be prepared. The report shall be reviewed by the PNSRC. This report shall describe (1) applicable circumstances preceding the violation; (2) effects of the violation upon facility components, systems or structures; and (3) corrective action taken to prevent recurrence.
- c. The Safety Limit Violation Report shall be submitted to the Commission, the Chairman of the NSDRC and the Vice President - Nuclear Operations within 14 days of the violation.
- d. Operation of the unit shall not be resumed until authorized by the Commission.

ADMINISTRATIVE CONTROLS

6.8 PROCEDURES AND PROGRAMS

6.8.1 Written procedures shall be established, implemented and maintained covering the activities referenced below:

- a. The applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, Rev. 2, February 1978.
- b. Security Plan implementation.
- c. Emergency Plan implementation.
- d. PROCESS CONTROL PROGRAM implementation.
- e. OFFSITE DOSE CALCULATION MANUAL implementation.
- f. Quality Assurance Program for effluent and environmental monitoring using the guidance in Regulatory Guide 1.21, Rev. 1, June 1974, and Regulatory Guide 4.1, Rev. 1, April 1975.

6.8.2 Each procedure and administrative policy of Specification 6.8.1 above, and changes thereto, including temporary changes, shall be reviewed prior to implementation as set forth in Specification 6.5 above.

6.8.3 A plant program for post-accident sampling shall be established, implemented, and maintained which will ensure the capability to obtain and analyze reactor coolant samples, containment atmosphere noble gas samples, and unit vent gaseous effluent samples for iodines and particulates under accident conditions. The program will include the following:

- a. Training of personnel,
- b. Procedures for sampling and analysis,
- c. Provisions for maintenance of sampling and analysis equipment.



ADMINISTRATIVE CONTROLS

PROCEDURES AND PROGRAMS (continued)

6.8.4 The following programs shall be established, implemented, and maintained:

a. Radioactive Effluent Controls Program

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

- 1) Limitations on the operability of radioactive liquid and gaseous monitoring instrumentation including surveillance tests and setpoint determination in accordance with the methodology in the ODCM,
- 2) Limitations on the concentrations of radioactive material released in liquid effluents to UNRESTRICTED AREAS conforming to 10 CFR Part 20, Appendix B, Table II, Column 2,
- 3) Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.106 and with the methodology and parameters in the ODCM,
- 4) Limitations on the annual and quarterly doses or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released from each unit to UNRESTRICTED AREAS conforming to Appendix I to 10 CFR Part 50,
- 5) Determination of cumulative and projected dose contributions from radioactive effluents for the current calendar quarter and current calendar year in accordance with the methodology and parameters in the ODCM at least every 31 days,
- 6) Limitations on the operability and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a 31-day period would exceed 2 percent of the guidelines for the annual dose or dose commitment conforming to Appendix I to 10 CFR Part 50,

ADMINISTRATIVE CONTROLS

PROCEDURES AND PROGRAMS (continued)

- 7) Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the SITE BOUNDARY conforming to the dose associated with 10 CFR Part 20, Appendix B, Table II, Column 1,
- 8) Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10 CFR Part 50,
- 9) Limitations on the annual and quarterly doses to a MEMBER OF THE PUBLIC from Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from each unit to areas beyond the SITE BOUNDARY conforming to Appendix I to 10CFR Part 50, and
- 10) Limitations on the annual dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.

b. Radiological Environmental Monitoring Program

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

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



ADMINISTRATIVE CONTROLS

6.9 REPORTING REQUIREMENTS

ROUTINE REPORTS

6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the Regional Administrator unless otherwise noted.

STARTUP REPORT

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.

6.9.1.2 The startup report shall address each of the tests identified in the FSAR and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.

ADMINISTRATIVE CONTROLS

STARTUP REPORT (continued)

6.9.1.3 Startup reports shall be submitted within (1) 90 days following completion of the startup test program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of startup test program, and resumption or commencement of commercial power operation), supplementary reports shall be submitted at least every three months until all three events have been completed.

ANNUAL REPORTS¹

6.9.1.4 Annual reports covering the activities of the unit as described below for the previous calendar year shall be submitted prior to March 1 of each year. The initial report shall be submitted prior to March 1 of the year following initial criticality.

6.9.1.5 Reports required on an annual basis shall include:

- a. A tabulation on an annual basis of the number of station, utility and other personnel (including contractors) receiving exposures greater than 100 mrem/yr and their associated man rem exposure according to work and job functions², e.g., reactor operations and surveillance, in-service inspection, routine maintenance, special maintenance (describe maintenance), waste processing and refueling. The dose assignment to various duty functions may be estimates based on pocket dosimeter, TLD, or film badge measurements. Small exposures totalling less than 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole body dose received from external sources shall be assigned to specific major work functions.
- b. The complete results of steam generator tube in-service inspections performed during the report period (reference Specification 4.4.5.5.b).
- c. Documentation of all challenges to the pressurizer power operated relief valves (PORVs) or safety valves.
- d. Information regarding any instances when the I-131 specific activity limit was exceeded.

¹ A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station.

² This tabulation supplements the requirements of 20.407 of 10 CFR Part 20.

ADMINISTRATIVE CONTROLS

ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT³

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

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT³

6.9.1.7 The Annual Radioactive Effluent Release Report covering the operation of the unit during the previous 6 months of operation shall be submitted within 90 days after January 1 of each year. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be (1) consistent with the objectives outlined in the ODCM and PCP and (2) in conformance with 10 CFR 50.36a and Section IV.B.1 of Appendix I to 10 CFR Part 50.

³ A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station; however, for units with separate radwaste systems, the submittal shall specify the releases of radioactive material for each unit.

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ADMINISTRATIVE CONTROLS

MONTHLY REACTOR 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 U.S. Nuclear Regulatory Commission (Attn: Document Control Desk), Washington, D.C. 20555, with a copy to the Regional Office no later than the 15th of each month following the calendar month covered by the report.

CORE OPERATING LIMITS REPORT

6.9.1.9.1 Core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT before each reload cycle or any remaining part of a reload cycle for the following:

- a. Moderator Temperature Coefficient Limits for Specification 3/4.1.1.4,
- b. Rod Drop Time Limits for Specification 3/4.1.3.4,
- c. Shutdown Rod Insertion Limits for Specification 3/4.1.3.5,
- d. Control Rod Insertion Limits for Specification 3/4.1.3.6,
- e. Axial Flux Difference for Specification 3/4.2.1,
- f. Heat Flux Hot Channel Factor for Specification 3/4.2.2,
- g. Nuclear Enthalpy Rise Hot Channel Factor for Specification 3/4.2.3, and
- h. Allowable Power Level for Specification 3/4.2.6.

6.9.1.9.2 The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC in:

- a. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985 (Westinghouse Proprietary),
- b. WCAP-8385, "Power Distribution Control and Load Following Procedures - Topical Report," September 1974 (Westinghouse Proprietary),
- c. WCAP-10216-P-A, Part B, "Relaxation of Constant Axial Offset Control/ F_0 Surveillance Technical Specification," June 1983 (Westinghouse Proprietary),
- d. WCAP-10266-P-A Rev. 2, "The 1981 Version of Westinghouse Evaluation Mode Using BASH Code," March 1987 (Westinghouse Proprietary).

ADMINISTRATIVE CONTROLS

CORE OPERATING LIMITS REPORT (Continued)

6.9.1.9.3 The core operating limits shall be determined so that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis are met.

6.9.1.9.4 The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance, for each reload cycle, to the NRC document control desk with copies to the Regional Administrator and Resident Inspector.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the attention of the document control desk - U.S. Nuclear Regulatory Commission (Washington, D.C. 20555), with copies to the Region III Administrator and the Resident Inspector at the Cook Nuclear Plant within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

- a. Inoperable Seismic Monitoring Instrumentation, Specification 3.3.3.3.
- b. Seismic Monitoring Instrumentation Actuated, Specification 4.3.3.3.2.
- c. Inoperable Meteorological Monitoring Instrumentation, Specification 3.3.3.4.
- d. High Specific Activity in RCS Coolant, Specification 3.4.8.
- e. RCS Pressure Transient Mitigated By RHR Safety Valve or RCS Vent(s), Specification 3.4.9.3.
- f. Moderator Temperature Coefficient, Specification 3.1.1.4.
- g. Sealed Source Leakage in Excess of Limits, Specification 4.7.7.1.3.
- h. ECCS Actuation, Specifications 3.5.2 and 3.5.3.
- i. Violation of Safety Limit, Specification 6.7.1.

ADMINISTRATIVE CONTROLS

6.10 RECORD RETENTION

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

- a. Records and logs of unit operation covering time interval at each power level.
- b. Records and logs of principal maintenance activities, inspections, repair and replacement of principal items of equipment related to nuclear safety.
- c. All REPORTABLE EVENTS submitted to the Commission.
- d. Records of surveillance activities, inspections and calibrations required by these Technical Specifications.
- e. Records of changes made to the procedures required by Specification 6.8.1.
- f. Records of sealed source and fission detection leak tests and results.
- g. Records of annual physical inventory of all sealed source material on record.



ADMINISTRATIVE CONTROLS

RECORD RETENTION (Continued)

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

- a. Records and drawing changes reflecting unit design modifications made to systems and equipment described in the Final Safety Analysis Report.
- b. Records of new and irradiated fuel inventory, fuel transfers and assembly burnup histories.
- c. Records of radiation exposure for all individuals entering radiation control areas.
- d. Records of gaseous and liquid radioactive material released to the environment.
- e. Records of transient or operational cycles for those facility components identified in Table 5.7-1.
- f. Records of reactor tests and experiments.
- g. Records of training and qualification for current members of the Plant Staff.
- h. Records of in-service inspections performed pursuant to these Technical Specifications.
- i. Records of Quality Assurance activities required by the QA Manual.
- j. Records of reviews performed for changes made to procedures or equipment or review of tests and experiments pursuant to 10 CFR 50.59.
- k. Records of meetings of the PNSRC and the NSDRC.
- l. Records of radioactive shipments.
- m. Records of the service lives of hydraulic snubbers including the date at which service life commences and associated installation and maintenance records.
- n. Records of reviews performed for changes made to the OFFSITE DOSE CALCULATION MANUAL and the PROCESS CONTROL PROGRAM.

6.11 RADIATION PROTECTION PROGRAM

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



ADMINISTRATIVE CONTROLS

6.12 HIGH RADIATION AREA

6.12.1 In lieu of the "control device" or "alarm signal" required by paragraph 20.203(c)(2) of 10 CFR 20, each high radiation area in which the intensity of radiation is 1000 mrem/hr or less shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit*. Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

- a. A radiation monitoring device which continuously indicates the radiation dose rate in the area.
- b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made aware of it.
- c. An individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device. This individual shall be responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the facility Health Physicist in the Radiation Work Permit.

6.12.2 The requirements of 6.12.1 shall also apply to each high radiation area in which the intensity of radiation is greater than 1000mrem/hr. When possible, locked doors shall be provided to prevent unauthorized entry into such areas, and the keys shall be maintained under the administrative control of the Shift Supervisor on duty and/or the Plant Health Physicist (Plant Radiation Protection Supervisor). Doors shall remain locked except during periods of access by personnel under an approved RWP which shall specify the dose rate levels in the immediate work areas. In the event that it is not possible or practicable to provide locked doors due to area size or configuration, the area shall be roped off, conspicuously posted and a flashing light shall be activated as a warning device.

* Health Physics (Radiation Protection) personnel shall be exempt from the RWP issuance requirement during the performance of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas.

ADMINISTRATIVE CONTROLS

6.13 PROCESS CONTROL PROGRAM (PCP)

6.13.1 Changes to the PCP:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.n. This documentation shall contain:
 1. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and
 2. A determination that the change will maintain the overall conformance of the solidified waste product to existing requirements of Federal, State, or other applicable regulations.
- b. Shall become effective after review and acceptance by the PNSRC and the approval of the Plant Manager.

6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

6.14.1 Changes to the ODCM:

- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.2.n. This documentation shall contain:
 1. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and
 2. A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.106, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.
- b. Shall become effective after review and acceptance by the PNSRC and the approval of the Plant Manager.
- c. Shall be submitted to the Commission in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Annual Radioactive Effluent Release Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g., month/year) the change was implemented.