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## DEFINITIONS

### FREQUENCY NOTATION

1.12 The FREQUENCY NOTATION specified for the performance of Surveillance Requirements shall correspond to the intervals defined in Table 1.1.

### GAS DECAY TANK SYSTEM

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

### IDENTIFIED LEAKAGE

1.14 IDENTIFIED LEAKAGE shall be:

- a. Leakage (except CONTROLLED LEAKAGE) into closed systems, such as pump seal or valve packing leaks that are captured and conducted to a sump or collecting tank, or
- b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of Leakage Detection Systems or not to be PRESSURE BOUNDARY LEAKAGE, or
- c. Reactor Coolant System leakage through a steam generator to the Secondary Coolant System.

~~MEMBER(S) OF THE PUBLIC~~

Deleted Add

1.15 ~~MEMBER(S) OF THE PUBLIC shall mean individual(s) in a controlled or unrestricted area. However, an individual is not a member of the public during any period in which the individual receives an occupational dose.~~

~~OFFSITE DOSE CALCULATION MANUAL~~

Deleted Add

1.16 ~~The OFFSITE DOSE CALCULATION MANUAL (ODCM) shall contain the methodology and parameters used in the calculation of offsite doses due to radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring Alarm/Trip Setpoints, and in the conduct of the Environmental Radiological Monitoring Program.~~



## DEFINITIONS

### OPERABLE - OPERABILITY

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

### OPERATIONAL MODE - MODE

1.18 An OPERATIONAL MODE (i.e., MODE) shall correspond to any one inclusive combination of core reactivity condition, power level, and average reactor coolant temperature specified in Table 1.2.

### PHYSICS TESTS

1.19 PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation: (1) described in Chapter 13.5 of the FSAR, (2) authorized under the provisions of 10 CFR 50.59, or (3) otherwise approved by the Commission.

### PRESSURE BOUNDARY LEAKAGE

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

### ~~PROCESS CONTROL PROGRAM~~

*Deleted* ← *Add*

1.21 ~~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 and Federal and State regulations, burial ground requirements, and other requirements governing the disposal of radioactive waste.~~

### PURGE - PURGING

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

TABLE 3.3-3 (continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM  
INSTRUMENTATION TRIP SETPOINTS

TABLE NOTATIONS

(1) Either the particulate or gaseous channel in the OPERABLE status will satisfy this LCO.

(2) Containment Gaseous Monitor Setpoint =  $\frac{(3.2 \times 10^4)}{(F)}$  CPM,

Containment Gaseous Monitor Allowable Value =  $\frac{(3.5 \times 10^4)}{(F)}$  CPM,

Where  $F = \frac{\text{Actual Purge Flow}}{\text{Design Purge Flow (35,000 CFM)}}$

Setpoint may vary according to current plant conditions provided that the release rate does not exceed allowable limits provided in ~~Specification 3.11.2.1.~~ the Offsite Dose Calculation Manual. Add

(3) Auxiliary feedwater manual initiation is included in Specification 3.7.1.2.

# If no Allowable Value is specified, as indicated by [], the trip setpoint shall also be the allowable value.



TABLE 3.3-4 (Continued)

TABLE NOTATIONS

- \* During CORE ALTERATIONS or movement of irradiated fuel within the containment comply with Specification 3/4.9.13.
- \*\* With irradiated fuel in the spent fuel pits.
- # Unit 4 Spent Fuel Pool Area is monitored by Plant Vent radioactivity instrumentation.

Note 1 Either the particulate or gaseous channel in the OPERABLE status will satisfy this LCO.

Note 2 Containment Gaseous Monitor Setpoint =  $\frac{(3.2 \times 10^4)}{(F)}$  CPM,

Where  $F = \frac{\text{Actual Purge Flow}}{\text{Design Purge Flow (35,000 CFM)}}$

Setpoint may vary according to current plant conditions provided that the release rate does not exceed allowable limits provided in Specification 3.11.2.1. *(the Offsite Dose Calculation Manual)*

ACTION STATEMENTS

*Add.*

- ACTION 26 - In MODES 1 thru 4: With both the Particulate and Gaseous Radioactivity Monitoring Systems inoperable, operation may continue for up to 7 days provided:
- 1) A Containment sump level monitoring system is OPERABLE,
  - 2) Appropriate grab samples are obtained and analyzed at least once per 24 hours,
  - 3) A Reactor Coolant System water inventory balance is performed at least once per 8 hours during steady state operation except when operating in shutdown cooling mode, and
  - 4) Containment Purge, Exhaust and Instrument Air Bleed Valves are maintained closed.

Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours (ACTION 27 applies in MODES 5 and 6).

INSTRUMENTATION

FIRE DETECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3/4.3.3.4 - (Deleted)

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TABLE 3.3-6

FIRE DETECTION INSTRUMENTS  
FOR ESSENTIAL EQUIPMENT

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11/11/11

TABLE 3.3-6 (Continued)  
FIRE DETECTION INSTRUMENTS  
FOR ESSENTIAL EQUIPMENT

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## INSTRUMENTATION

### RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

3.3.3.5 The radioactive liquid effluent monitoring instrumentation channels shown in Table 3.3-7 shall be OPERABLE with their Alarm/Trip Setpoints set to ensure that the limits of Specification 3.11.1.1 are not exceeded. The Alarm/Trip Setpoints of these channels shall be determined and adjusted in accordance with the methodology and parameters in the OFFSITE DOSE CALCULATION MANUAL (ODCM).

APPLICABILITY: At all times, except as indicated in Table 3.3-7.

#### ACTION:

- a. With a radioactive liquid effluent monitoring instrumentation channel Alarm/Trip Setpoint less conservative than required by the above specification, immediately suspend the release of radioactive liquid effluents monitored by the affected channel or declare the channel inoperable, or change the setpoint so it is acceptably conservative.
- b. With less than the minimum number of radioactive liquid effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-7. Restore the inoperable instrumentation to OPERABLE status within 30 days and, if unsuccessful, explain in the next Annual Radioactive Effluent Release Report pursuant to Specification 6.9.1.4 why this inoperability was not corrected in a timely manner.
- c. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

4.3.3.5 Each radioactive liquid effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION and ANALOG CHANNEL OPERATIONAL TEST at the frequencies shown in Table 4.3-5.

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TABLE 3.3-7

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>		<u>MINIMUM CHANNELS OPERABLE</u>	<u>ACTION</u>
1.	Gross Radioactivity Monitors Providing Alarm and Automatic Termination of Release		
a.	Liquid Radwaste Effluent Line	1*	35
b.	Steam Generator Blowdown Effluent Line	1**	36
2.	Flow Rate Measurement Devices		
a.	Liquid Radwaste Effluent Line	1*	37
b.	Steam Generator Blowdown Effluent Line	1**/Steam generator	37

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\*Applicable during liquid effluent releases.

\*\*Applicable during blowdown operations.

TABLE 3.3-7 (Continued)

TABLE NOTATION

- ACTION 35 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided that prior to initiating a release:
- a. At least two independent samples are analyzed in accordance with Specification 4.11.1.1.1, and
  - b. At least two technically qualified members of the facility staff independently verify the release rate calculations and discharge line valving;
- Otherwise, suspend release of radioactive effluents via this pathway.
- ACTION 36 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided grab samples are analyzed for gross (beta or gamma) radioactivity at a lower limit of detection of no more than  $1 \times 10^{-7}$  microcuries/ml or analyzed isotopically (Gamma) at a lower limit of detection of at least  $5 \times 10^{-7}$  microcuries/ml:
- a. At least once per 12 hours when the specific activity of the secondary coolant is greater than 0.01 microcuries/gram DOSE EQUIVALENT I-131, or
  - b. At least once per 24 hours when the specific activity of the secondary coolant is less than or equal to 0.01 microcuries/gram DOSE EQUIVALENT I-131.
- ACTION 37 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours during actual releases. Pump performance curves may be used to estimate flow.

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TABLE 4.3-5

RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>ANALOG CHANNEL OPERATIONAL TEST</u>
1. Gross Radioactivity Monitors Providing Alarm and Automatic Termination of Release				
a. Liquid Radwaste Effluents Line	D	P	R(2)	Q(1)
b. Steam Generator Blowdown Effluent Line	D	M	R(2)	Q(1)
2. Flow Rate Measurement Devices				
a. Liquid Radwaste Effluent Line	D(3)	N.A.	R	Q
b. Steam Generator Blowdown Effluent Lines	D(3)	N.A.	R	Q

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pageTABLE NOTATIONS

- (1) The ANALOG CHANNEL OPERATIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if the instrument indicates measured levels above the Alarm/Trip Setpoint.
- (2) The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Institute of Standards and Technology (NIST) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NIST. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration shall be used.
- (3) CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once per 24 hours on days on which continuous, periodic, or batch releases are made.



## INSTRUMENTATION

EXPLOSIVE GAS

### RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

explosive gas → 3.7.8  
3.3.3.6 The ~~radioactive gaseous effluent~~ monitoring instrumentation channels shown in Table 3.3-8 shall be OPERABLE with their Alarm/Trip Setpoints set to ensure that the limits of Specification 3.11.2.1 and 3.11.2.5 are not exceeded. ~~The Alarm/Trip Setpoints of these channels meeting Specification 3.11.2.1 shall be determined and adjusted in accordance with the methodology and parameters in the ODCM.~~

APPLICABILITY: As shown in Table 3.3-8

#### ACTION:

an explosive gas →

- a. With a ~~radioactive gaseous effluent~~ monitoring instrumentation channel Alarm/Trip Setpoint less conservative than required by the above specification, ~~immediately suspend the release of radioactive gaseous effluents monitored by the affected channel, or declare the channel inoperable or change the setpoint so it is acceptably conservative.~~
- b. With less than the minimum number of ~~radioactive gaseous effluent~~ monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-8. Restore the inoperable instrumentation to OPERABLE status within 30 days and, if unsuccessful ~~explain in the next Annual Radioactive Effluent Release Report pursuant to Specification 6.9.1.4 why this inoperability was not corrected in a timely manner.~~
- c. The provisions of Specification 3.0.3 are not applicable.

Explosive gas →

Prepare and Submit a special Report to the Commission within 30 days to explain

#### SURVEILLANCE REQUIREMENTS

explosive gas →

4.3.3.6 Each ~~radioactive gaseous effluent~~ monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, ~~SOURCE-CHECK~~, CHANNEL CALIBRATION and ANALOG CHANNEL OPERATIONAL TEST at the frequencies shown in Table 4.3-6.

EXPLOSIVE GAS

TABLE 3.3-8

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABILITY</u>	<u>ACTION</u>
1. GAS DECAY TANK SYSTEM			
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release (Plant Vent Monitor)	1	*	45
b. Effluent System Flow Rate Measuring Device	1	*	46
2. WASTE GAS DISPOSAL SYSTEM (Explosive Gas Monitoring System)			
a. Hydrogen and Oxygen Monitors	1	* Delete	49
3. Condenser Air Ejector Vent System			
a. Noble Gas Activity Monitor (SPING or PRMS)	1	#	47
b. Iodine Sampler	1	##	48
c. Particulate Sampler	1	##	48
d. Effluent System Flow Rate Measuring Device	1	##	46
e. Sampler Flow Rate Measuring Device	1	##	46





TABLE 3.3-8 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>		<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABILITY</u>	<u>ACTION</u>
4.	Plant Vent System (Include Unit 4's Spent Fuel Pool)			
a.	Noble Gas Activity Monitor (SPING or PRMS)	1	*	47
b.	Iodine Sampler	1	*	48
c.	Particulate Sampler	1	*	48
d.	Effluent System Flow Rate Measuring Device	1	*	46
e.	Sampler Flow Rate Measuring Device	1	*	46
5.	Unit 3 Spent Fuel Pit Building Vent			
a.	Noble Gas Activity Monitor	1	*	47
b.	Iodine Sampler	1	*	48
c.	Particulate Sampler	1	*	48
d.	Sampler Flow Rate Measuring Device	1	*	46



TABLE 3.3-8 (Continued)

TABLE NOTATION

\* At all times.

\* During GAS DECAY TANK SYSTEM operation.

# Applies during MODE 1, 2, 3 and 4.

## Applies during MODE 1, 2, 3 and 4 when primary to secondary leakage is detected as indicated by condenser air ejector noble gas activity monitor.

ACTION 45 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, the contents of the tank(s) may be released to the environment provided that prior to initiating the release:

- a. At least two independent samples of the tank's contents are analyzed, and
- b. At least two technically qualified members of the facility staff independently verify the release rate calculations and discharge valve lineup;

Otherwise, suspend release of radioactive effluents via this pathway.

ACTION 46 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours.

ACTION 47 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via this pathway may continue provided grab samples are taken at least once per 12 hours and these samples are analyzed for radioactivity within 24 hours.

ACTION 48 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, effluent releases via the affected pathway may continue provided samples are continuously collected with auxiliary sampling equipment as required in Table 4.11-2 and analyzed at least weekly.

ACTION 49 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of the GAS DECAY TANK SYSTEM may continue provided that grab samples are collected and analyzed for hydrogen and oxygen concentration at least a) once per 8 hours during degassing operations, and b) once per day during other operations.



EXPLOSIVE GAS

TABLE 4.3-6

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	ANALOG CHANNEL OPERATIONAL TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. GAS DECAY TANK SYSTEM					
a. Noble Gas Activity Monitor - Providing Alarm and Automatic Termination of Release (Plant Vent Monitor)	P	P	R(3)	Q(1)	*
b. Effluent System Flow Rate Measuring Device	P	N.A.	R	N.A.	*
2. GAS DECAY TANK SYSTEM (Explosive Gas Monitoring System)					
a. Hydrogen and Oxygen Monitors	D	N.A.	(1, 2) Q(4, 5)	M	* Delete
3. Condenser Air Ejector Vent System					
a. Noble Gas Activity Monitor (SPING or PRMS)	D	M	R(3)	Q(2)	#
b. Iodine Sampler	W	N.A.	N.A.	N.A.	##
c. Particulate Sampler	W	N.A.	N.A.	N.A.	##
d. Effluent System Flow Rate Measuring Device	D	N.A.	R	N.A.	##

TABLE 4.3-6 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>ANALOG CHANNEL OPERATIONAL TEST</u>	<u>MODES FOR WHICH SURVEILLANCE IS REQUIRED</u>
3. Condenser Air Ejector Vent System (Continued)					
e. Sample Flow Rate Measuring Device	D	N.A.	R	N.A.	##
4. Plant Vent System (Include Unit 4's Spent Fuel Pool)					
a. Noble Gas Activity Monitor (SPING or PRMS)	D	M	R(3)	Q(2)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Effluent System Flow Rate Measuring Device	D	N.A.	R	N.A.	*
e. Sampler Flow Rate Measuring Device	D	N.A.	R	N.A.	*

TABLE 4.3-6 (Continued)

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>ANALOG CHANNEL OPERATIONAL TEST</u>	<u>MODES FOR WHICH SURVEILLANCE IS REQUIRED</u>
5. Unit 3 Spent Fuel Pit Building Vent					
a. Noble Gas Activity Monitor	D	M	R(3)	Q(2)	*
b. Iodine Sampler	W	N.A.	N.A.	N.A.	*
c. Particulate Sampler	W	N.A.	N.A.	N.A.	*
d. Sampler Flow Rate Measuring Device	D	N.A.	R	N.A.	*

TABLE NOTATION\* ~~At all times.~~\* ~~During GAS DECAY TANK SYSTEM operation.~~\* ~~Applies during MODE 1, 2, 3 and 4.~~## ~~Applies during MODE 1, 2, 3 and 4 when primary to secondary leakage is detected as indicated by condenser air ejector noble gas activity monitor.~~

- (1) ~~The ANALOG CHANNEL OPERATIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if the instrument indicates measured levels above the Alarm/Trip Setpoint.~~
- (2) ~~The ANALOG CHANNEL OPERATIONAL TEST shall also demonstrate that if the instrument indicates measured levels above the Alarm Setpoint, alarm annunciation occurs in the control room (for PRMS only) and in the computer room (for SPING only).~~
- (3) ~~The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Institute of Standards and Technology (NIST) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NIST. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration shall be used.~~





TABLE 4.3-6 (Continued)

TABLE NOTATIONS (Continued)

①

(A) 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

(B) 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.



### 3/4.11 RADIOACTIVE EFFLUENTS

#### 3/4.11.1 LIQUID EFFLUENTS

##### CONCENTRATION

##### LIMITING CONDITION FOR OPERATION

---

3.11.1.1 The concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS (see Figure 5.1-1) shall be limited to 10 times the concentrations specified in 10 CFR Part 20, Appendix B, Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to  $2 \times 10^{-4}$  microCurie/ml total activity.

APPLICABILITY: At all times.

##### ACTION:

With the concentration of radioactive material released in liquid effluents to UNRESTRICTED AREAS exceeding the above limits, immediately 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 results of the radioactivity analyses shall be used in accordance with the methodology and parameters in the ODCM to assure that the concentrations at the point of release are maintained within the limits of Specification 3.11.1.1.

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TABLE 4.11-1

## RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE	SAMPLING FREQUENCY	MINIMUM ANALYSIS FREQUENCY	TYPE OF ACTIVITY ANALYSIS	LOWER LIMIT OF DETECTION (LLD) <sup>(1)</sup> (μCi/ml)
1. Batch Waste Release Tanks <sup>(2)</sup>	P Each Batch	P Each Batch	Principal Gamma Emitters <sup>(3)</sup>	5x10 <sup>-7</sup>
			I-131	1x10 <sup>-6</sup>
	P One Batch/M	M	Dissolved and Entrained Gases (Gamma Emitters)	1x10 <sup>-5</sup>
	P Each Batch	M Composite <sup>(4)</sup>	H-3	1x10 <sup>-5</sup>
			Gross Alpha	1x10 <sup>-7</sup>
	P Each Batch	Q Composite <sup>(4)</sup>	Sr-89, Sr-90	5x10 <sup>-8</sup>
			Fe-55	1x10 <sup>-6</sup>
2. Continuous Releases <sup>(5)</sup>	W	W	Principal Gamma Emitters <sup>(3)</sup>	5x10 <sup>-7</sup>
			I-131	1x10 <sup>-6</sup>
	M <sup>(8)</sup>	M <sup>(8)</sup>	Dissolved and Entrained Gases (Gamma Emitters)	1x10 <sup>-5</sup>
	W <sup>(8)</sup>	M <sup>(8)</sup> Composite <sup>(6)</sup>	H-3	1x10 <sup>-5</sup>
			Gross Alpha	1x10 <sup>-7</sup>
	W <sup>(8)</sup>	Q <sup>(8)</sup> Composite <sup>(6)</sup>	Sr-89, Sr-90	5x10 <sup>-8</sup>
			Fe-55	1x10 <sup>-6</sup>
	M	M	Principal Gamma Emitters <sup>(3)</sup>	5x10 <sup>-7</sup>
			I-131	1x10 <sup>-6</sup>
	M	M	Principal Gamma Emitters <sup>(3)</sup>	5x10 <sup>-7</sup>
			I-131	1x10 <sup>-6</sup>

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TABLE 4.11-1 (continued)

TABLE NOTATIONS

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

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

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

Where:

- LLD = the "a priori" lower limit of detection as defined above for a blank sample (microCurie per unit mass or volume),
- $s_b$  = the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (counts per minute),
- $E$  = the counting efficiency (counts per disintegration),
- $V$  = the sample size (units of mass or volume),
- $2.22 \times 10^6$  = the number of disintegrations per minute per microCurie,
- $Y$  = the fractional radiochemical yield, when applicable,
- $\lambda$  = the radioactive decay constant for the particular radionuclide, and
- $\Delta t$  = the elapsed time between the midpoint of sample collection and the time of counting (for plant effluents, not environmental samples).

The value 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. Typical values of  $E$ ,  $V$ ,  $Y$ , and  $\Delta t$  should be used in the calculation.

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

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TABLE 4.11-1 (Continued)

TABLE NOTATIONS (Continued)

- (3) The principal gamma emitters for which the LLD specification exclusively applies are the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144. This list does not mean that only these nuclides are to be considered. Other gamma peaks that are identifiable, together with those of the above nuclides, shall also be analyzed and reported in the Semiannual Radioactive Effluent Release Report pursuant to Specification 6.9.1.4.
- (4) A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of liquid waste discharged and in which the method of sampling employed results in a specimen that is representative of the liquids released.
- (5) A continuous release is the discharge of liquid wastes of a nondiscrete volume, e.g., from a volume of a system that has an input flow during the continuous release.
- (6) Prior to analyses, all samples taken for the composite shall be thoroughly mixed in order for the composite sample to be representative of the effluent release.
- (7) Sampling and analysis of steam generator blowdown is not required during Mode 5 or 6.
- (8) Sampling and analysis of steam generator blowdown on the applicable unit is only necessary for these species when primary to secondary leakage is occurring as indicated by the condenser air ejector noble gas activity monitor. (See Specification 3.3.3.6 in Table 3.3-8, Item 3a).

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## RADIOACTIVE EFFLUENTS

### DOSE

#### LIMITING CONDITION FOR OPERATION

3.11.1.2 The dose or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released, from each unit, to UNRESTRICTED AREAS (see Figure 5.1-1) shall be limited:

- a. During any calendar quarter to less than or equal to 1.5 mrem to the whole 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 whole 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 that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions that have been taken to reduce the releases and the proposed corrective actions to be taken to assure that subsequent releases will be in compliance with the above limits.
- b. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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

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## RADIOACTIVE EFFLUENTS

### LIQUID RADWASTE TREATMENT SYSTEM

#### LIMITING CONDITION FOR OPERATION

3.11.1.3 The Liquid Radwaste Treatment System shall be OPERABLE and appropriate portions of the system shall be used to reduce releases of radioactivity when the projected doses due to the liquid effluent, from each unit, to UNRESTRICTED AREAS (see Figure 5.1-1) would exceed 0.06 mrem to the whole body or 0.2 mrem to any organ in a 31-day period.

APPLICABILITY: At all times.

#### ACTION:

- a. With radioactive liquid waste being discharged without treatment and in excess of the above limits and any portion of the Liquid Radwaste Treatment System not in operation, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that includes the following information:
  1. Explanation of why liquid radwaste was being discharged without treatment, identification of any inoperable equipment or subsystems, and the reason for the inoperability,
  2. Action(s) taken to restore the inoperable equipment to OPERABLE status, and
  3. Summary description of action(s) taken to prevent a recurrence.
- b. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

4.11.1.3.1 Doses due to liquid releases from each unit to UNRESTRICTED AREAS shall be projected at least once per 31 days in accordance with the methodology and parameters in the ODCM when Liquid Radwaste Treatment Systems are not being fully utilized.

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

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## RADIOACTIVE EFFLUENTS

### 3/4.11.2 GASEOUS EFFLUENTS

#### DOSE RATE

#### LIMITING CONDITION FOR OPERATION

---

3.11.2.1 The dose rate due to radioactive materials released in gaseous effluents from the site to areas at and beyond the SITE BOUNDARY (see Figure 5.1-1) shall be limited to the following:

- a. For noble gases: Less than or equal to 500 mrem/yr to the whole body and less than or equal to 3000 mrem/yr to the skin, and
- b. For Iodine-131, for Iodine-133, for tritium, and for all radionuclides in particulate form with half-lives greater than 8 days: Less than or equal to 1500 mrem/yr to any organ.

APPLICABILITY: At all times.

#### ACTION:

With the dose rate(s) exceeding the above limits, immediately restore 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 methodology and parameters in the ODCM.

4.11.2.1.2 The dose rate due to Iodine-131, Iodine-133, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents shall be determined to be within the above limits in accordance with the methodology and parameters in the ODCM by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in Table 4.11-2.

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TABLE 4.11-2  
RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

GASEOUS RELEASE TYPE	SAMPLING FREQUENCY	MINIMUM ANALYSIS FREQUENCY	TYPE OF ACTIVITY ANALYSIS	LOWER LIMIT OF DETECTION (LLD) <sup>(1)</sup> ( $\mu\text{Ci/cc}$ )
1. Gas Decay Tank (Batch)	P Each Tank Grab Sample	P Each Tank	Principal Gamma Emitters <sup>(2)</sup>	$1 \times 10^{-4}$
2. Containment Purge or Venting (Batch)	P <sup>(6)</sup> Grab Sample	P Each PURGE <sup>(6)</sup>	Principal Gamma Emitters <sup>(2)</sup>	$1 \times 10^{-4}$
			H-3	$1 \times 10^{-6}$
3. Condenser Air Ejectors	M <sup>(6)</sup> Grab Sample	M <sup>(6)</sup> Gas Sample	Principal Gamma Emitters <sup>(2)</sup>	$1 \times 10^{-4}$
			H-3	$1 \times 10^{-6}$
4. Plant Vent (Includes Unit 4 Spent Fuel Pit Building Vent.)	M <sup>(6)</sup> Grab Sample	M <sup>(6)</sup> Gas Sample	Principal Gamma Emitters <sup>(2)</sup>	$1 \times 10^{-4}$
	M <sup>(4),(5)</sup> Grab Sample	M	H-3	$1 \times 10^{-6}$
5. Unit 3 Spent Fuel Pit Building Vent	M Grab Sample	M Gas Sample	Principal Gamma Emitters <sup>(2)</sup>	$1 \times 10^{-4}$
	M <sup>(4),(5)</sup> Grab Sample	M	H-3	$1 \times 10^{-6}$
6. All Release Types as listed in 3., 4., and 5. above	Continuous <sup>(3)</sup>	W <sup>(7)</sup> Charcoal Sample	I-131	$1 \times 10^{-12}$
	Continuous <sup>(3)</sup>	W <sup>(7)</sup> Particulate Sample	Principal Gamma Emitters <sup>(2)</sup>	$1 \times 10^{-11}$
	Continuous <sup>(3)</sup>	M Composite Particulate Sample	Gross Alpha	$1 \times 10^{-11}$
	Continuous <sup>(3)</sup>	Q Composite Particulate Sample	Sr-89, Sr-90	$1 \times 10^{-11}$
	Continuous <sup>(3)</sup>	Noble Gas Monitor	Noble Gas Gross Beta or Gamma	$1 \times 10^{-6}$

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TURKEY POINT - UNITS 3 & 4

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AMENDMENT NOS. 137 AND 132



TABLE 4.11-2 (Continued)

TABLE NOTATIONS

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

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

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

Where:

LLD = the "a priori" lower limit of detection as defined above as a blank sample (microCurie per unit mass or volume),

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

$E$  = the counting efficiency (counts per disintegration),

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

$2.22 \times 10^6$  = the number of disintegrations per minute per microCurie,

$Y$  = the fractional radiochemical yield, when applicable,

$\lambda$  = the radioactive decay constant for the particular radionuclide, and

$\Delta t$  = the elapsed time between the midpoint of sample collection and the time of counting (for plant effluents, not environmental samples)

The value 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. Typical values of  $E$ ,  $V$ ,  $Y$  and  $\Delta t$  shall be used in the calculation.

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TABLE 4.11-2 (Continued)

TABLE NOTATIONS (Continued)

- (2) The principal gamma emitters for which the LLD specification will apply are exclusively the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, and Xe-138 in noble gas emissions and Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, I-131, 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 gamma peaks that are measurable and identifiable, together with the above nuclides, shall also be identified and reported pursuant to Specification 6.9.1.4.

Nuclides which are below the LLD for the analyses should not be reported as being present at the LLD for that nuclide. When a radionuclide's calculated LLD is greater than its listed LLD limit, the calculated LLD should be assigned as the activity of the radionuclide; or, the activity of the radionuclide should be calculated using measured ratios with those radionuclides which are routinely identified and measured.

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

- (4) When a Unit's refueling canal is flooded Tritium grab samples shall be taken on that Unit only from the following respective area(s) at least once per 24 hours:

For Unit 3 sample the plant vent and the Unit 3 spent fuel pool area ventilation exhaust.

For Unit 4 sample the plant vent only.

- (5) When spent fuel is in the spent fuel pool, tritium grab samples shall be taken from the following respective area at least once per 7 days:

For Unit 3, sample the Unit 3 spent fuel pool area ventilation exhaust

For Unit 4, sample the plant vent.

- (6) Sampling and analysis shall also be performed following shutdown, startup, or a THERMAL POWER change exceeding 15% of RATED THERMAL POWER within a 1-hour period if (1) analysis shows that the DOSE EQUIVALENT I-131 concentration in the primary coolant has increased by more than a factor of 3; and (2) the noble gas activity monitor shows that effluent activity has increased by more than a factor of 3.

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TABLE 4.11-2 (Continued)

TABLE NOTATIONS (Continued)

- (7) Sample collection media on the applicable Unit shall be changed at least once per 7 days and analyses shall be completed within 48 hours after changing, or after removal from sampler. Sample collection media on the applicable Unit shall also be changed at least once per 24 hours for at least 7 days following each shutdown, startup, or THERMAL POWER change exceeding 15% of RATED THERMAL POWER within a 1-hour period and analyses shall be completed within 48 hours of changing if: (1) analysis shows that the DOSE EQUIVALENT I-131 concentration in the primary coolant has increased more than a factor of 3; and (2) the noble gas monitor shows that effluent activity has increased more than a factor of 3. When samples collected for 24 hours are analyzed, the corresponding LLDs may be increased by a factor of 10.

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## RADIOACTIVE EFFLUENTS

### DOSE - NOBLE GASES

#### LIMITING CONDITION FOR OPERATION

3.11.2.2 The air dose due to noble gases released in gaseous effluents, from each unit, to areas at and beyond the SITE BOUNDARY (see Figure 5.1-1) shall be limited to the following:

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

APPLICABILITY: At all times.

#### ACTION

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

#### SURVEILLANCE REQUIREMENTS

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

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## RADIOACTIVE EFFLUENTS

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

#### LIMITING CONDITION FOR OPERATION

3.11.2.3 The dose 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 at and beyond the SITE BOUNDARY (see Figure 5.1-1) shall be limited to the following:

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

APPLICABILITY: At all times.

#### ACTION:

- a. With the calculated dose from the release of Iodine-131, Iodine-133, tritium, and radionuclides in particulate form with half-lives greater than 8 days, in gaseous effluents exceeding any of the above limits, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions that have been taken to reduce the releases and the proposed corrective actions to be taken to assure that subsequent releases will be in compliance with the above limits.
- b. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

4.11.2.3 Cumulative dose contributions for the current calendar quarter and current calendar year for Iodine-131, Iodine-133, tritium and radionuclides in particulate form with half-lives greater than 8 days shall be determined in accordance with the methodology and parameters in the ODCM at least once per 31 days.

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## RADIOACTIVE EFFLUENTS

### GASEOUS RADWASTE TREATMENT SYSTEM

#### LIMITING CONDITION FOR OPERATION

3.11.2.4 The VENTILATION EXHAUST TREATMENT SYSTEM and the GAS DECAY TANK SYSTEM shall be OPERABLE and appropriate portions of these systems shall be used to reduce releases of radioactivity when the projected doses in 31 days due to gaseous effluent releases, from each unit, to areas at and beyond the SITE BOUNDARY (see Figure 5.1-1) would exceed:

- a. 0.2 mrad to air from gamma radiation, or
- b. 0.4 mrad to air from beta radiation, or
- c. 0.3 mrem to any organ of a MEMBER OF THE PUBLIC.

APPLICABILITY: At all times.

#### ACTION:

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

#### SURVEILLANCE REQUIREMENTS

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

4.11.2.4.2 The installed VENTILATION EXHAUST TREATMENT SYSTEM and GAS DECAY TANK SYSTEM shall be considered OPERABLE by meeting Specifications 3.11.2.1 and either 3.11.2.2 or 3.11.2.3.

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## PLANT SYSTEMS

RADIOACTIVE EFFLUENTS

EXPLOSIVE GAS MIXTURE

LIMITING CONDITION FOR OPERATION

3.7.8

~~3.11.2.5~~ The concentration of oxygen in the GAS DECAY TANK SYSTEM (as measured in the inservice gas decay tank) shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration exceeds 4% by volume.

APPLICABILITY: At all times.

ACTION:

- a. With the concentration of oxygen in the inservice gas decay tank greater than 2% by volume but less than or equal to 4% by volume, reduce the oxygen concentration to the above limits within 48 hours.
- b. With the concentration of oxygen in the inservice gas decay tank greater than 4% by volume and the hydrogen concentration greater than 4% by volume, immediately suspend all additions of waste gases to the gas decay tanks and reduce the concentration of oxygen to less than or equal to 4% by volume, then take ACTION a., above.
- c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

~~4.11.2.5~~ The concentrations of hydrogen and oxygen in the inservice gas decay tanks shall be determined to be within the above limits by continuously\* monitoring the waste gases in the inservice gas decay tank with the hydrogen and oxygen monitors required OPERABLE by Table 3.3-8 of Specification 3.3.3.6.

4.7.8

\*When continuous monitoring capability is inoperable, Table 3.3-8 allows the use of grab samples.

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# PLANT SYSTEMS

## RADIOACTIVE EFFLUENTS

### GAS DECAY TANKS

#### LIMITING CONDITION FOR OPERATION

~~3.11.2.6~~ <sup>(3.7.9)</sup> The quantity of radioactivity contained in each gas decay tank shall be limited to less than or equal to 70,000 Curies of noble gases (considered as Xe-133 equivalent).

APPLICABILITY: At all times.

#### ACTION:

- a. With the quantity of radioactive material in any gas decay tank exceeding the above limit, immediately suspend all additions of radioactive material to the tank, within 48 hours reduce the tank contents to within the limit, and describe the events leading to this condition in the next Annual Radioactive Effluent Release Report, pursuant to Specification 6.9.1.4.
- b. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

~~4.11.2.6~~ The quantity of radioactive material contained in each gas decay tank shall be determined to be within the above limit at least once per 24 hours when radioactive materials are being added to the tank and the Reactor Coolant System total activity exceeds the limit of Specification 3.4.8.

(4.7.9)

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## RADIOACTIVE EFFLUENTS

### 3/4.11.3 SOLID RADIOACTIVE WASTES

#### LIMITING CONDITION FOR OPERATION

3.11.3 SOLIDIFICATION or dewatering of radioactive wastes shall be performed in accordance with the PROCESS CONTROL PROGRAM to meet shipping and transportation requirements during transit, and the applicable licensing requirements of the consignee when received at the shipping destination.

APPLICABILITY: At all times.

#### ACTION:

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- a. With SOLIDIFICATION or dewatering not meeting the applicable licensing requirements of the consignee and shipping and transportation requirements, suspend shipment of the inadequately processed wastes and correct the PROCESS CONTROL PROGRAM, the procedures, and/or the Solid Waste System as necessary to prevent recurrence.
  - b. With SOLIDIFICATION or dewatering not performed in accordance with the PROCESS CONTROL PROGRAM, test the improperly processed waste in each container to ensure that it meets the applicable licensing requirements of the consignee and shipping requirements and take appropriate administrative action to prevent recurrence.
  - c. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

4.11.3.1 Dewatering shall be performed in accordance with the PCP.

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

- a. If any test specimen fails to verify SOLIDIFICATION, the SOLIDIFICATION of the batch under test shall be suspended until such time as additional test specimens can be obtained, alternative SOLIDIFICATION parameters can be determined in accordance with the PROCESS CONTROL PROGRAM, and a subsequent test verifies SOLIDIFICATION. SOLIDIFICATION of the batch may then be resumed using the alternative SOLIDIFICATION parameters determined by the PROCESS CONTROL PROGRAM;
- b. If the initial test specimen from a batch of waste fails to verify SOLIDIFICATION, the PROCESS CONTROL PROGRAM shall provide for the collection and testing of representative test specimens from each consecutive batch of the same type of wet waste until at least three consecutive initial test specimens demonstrate SOLIDIFICATION. The PROCESS CONTROL PROGRAM shall be modified as required, as provided in Specification 6.13, to assure SOLIDIFICATION of subsequent batches of waste; and
- c. With the installed equipment incapable of meeting Specification 3.11.3 or declared inoperable, restore the equipment to OPERABLE status or provide for contract capability to process wastes as necessary to satisfy all applicable transportation and disposal requirements.

## RADIOACTIVE EFFLUENTS

### 3/4.11.4 TOTAL DOSE

#### LIMITING CONDITION FOR OPERATION

3.11.4 The annual (calendar year) dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to radiation from uranium fuel cycle sources shall be limited to less than or equal to 25 mrems to the whole body or any organ, except the thyroid, which shall be limited to less than or equal to 75 mrems.

APPLICABILITY: At all times.

#### ACTION:

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- a. With the calculated doses from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of Specification 3.11.1.2a., 3.11.1.2b., 3.11.2.2a., 3.11.2.2b., 3.11.2.3a., or 3.11.2.3b., calculations shall be made including direct radiation contributions from the units to determine whether the above limits of Specification 3.11.4 have been exceeded. If such is the case, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that defines the corrective action to be taken to reduce subsequent releases to prevent recurrence of exceeding the above limits and includes the schedule for achieving conformance with the above limits. This Special Report, as defined in 10 CFR 20.2203(a)(4), shall include an analysis that estimates the radiation exposure (dose) to a MEMBER OF THE PUBLIC from uranium fuel cycle sources, including all effluent pathways and direct radiation, for the calendar year that includes the release(s) covered by this report. It shall also describe levels of radiation and concentrations of radioactive material involved, and the cause of the exposure levels or concentrations. If the estimated dose(s) exceeds the above limits, and if the release condition resulting in violation of 40 CFR Part 190 has not already been corrected, the Special Report shall include a request for a variance in accordance with the provisions of 40 CFR Part 190. Submittal of the report is considered a timely request, and a variance is granted until staff action on the request is complete.
  - b. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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

4.11.4.2 Cumulative dose contributions from direct radiation from the units and the methodology used shall be indicated in the Annual Radioactive Effluent Release Report. This requirement is applicable only under conditions set forth in ACTION a. of Specification 3.11.4.

### 3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING

#### 3/4.12.1 MONITORING PROGRAM

##### LIMITING CONDITION FOR OPERATION

3.12.1 The Radiological Environmental Monitoring Program shall be conducted as specified in Table 3.12-1.

APPLICABILITY: At all times.

ACTION:

- a. With the Radiological Environmental Monitoring Program not being conducted as specified in Table 3.12-1, prepare and submit to the Commission, in the Annual Radiological Environmental Operating Report required by Specification 6.9.1.3, a description of the reasons for not conducting the program as required and the plans for preventing a recurrence.
- b. With the level of confirmed\*\* radioactivity as the result of plant effluents in an environmental sampling medium at a specified location exceeding the reporting levels of Table 3.12-2 when averaged over any calendar quarter, prepare and submit to the Commission within 30 days, pursuant to Specification 6.9.2, a Special Report that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions to be taken to reduce radioactive effluents so that the potential annual dose\* to a MEMBER OF THE PUBLIC is less than the calendar year limits of Specifications 3.11.1.2, 3.11.2.2, or 3.11.2.3. When more than one of the radionuclides in Table 3.12-2 are detected in the sampling medium, this report shall be submitted if:

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

When radionuclides other than those in Table 3.12-2 are detected and are the result of plant effluents, this report shall be submitted if the potential annual dose\* to a MEMBER OF THE PUBLIC from all radionuclides is equal to or greater than the calendar year limits of Specification 3.11.1.2, 3.11.2.2, or 3.11.2.3. This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event, the condition shall be reported and described in the Annual Radiological Environmental Operating Report required by Specification 6.9.1.3.

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

\*\*A confirmatory reanalysis of the original, a duplicate, or a new sample may be desirable, as appropriate. The results of the confirmatory analysis shall be completed at the earliest time consistent with the analysis, but in any case within 30 days.

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## RADIOLOGICAL ENVIRONMENTAL MONITORING

### LIMITING CONDITION FOR OPERATION

#### ACTION (Continued)

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- c. With milk or broad leaf vegetation samples unavailable from one or more of the sample locations required by Table 3.12-1, identify specific locations for obtaining replacement samples and add them within 30 days to the Radiological Environmental Monitoring Program given in the ODCM. The specific locations from which samples were unavailable may then be deleted from the monitoring program. Pursuant to Specification 6.14, submit in the next Annual Radioactive Effluent Release Report documentation for a change in the ODCM including a revised figure(s) and table for the ODCM reflecting the new location(s) with supporting information identifying the cause of the unavailability of samples and justifying the selection of the new location(s) for obtaining samples.
- d. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

4.12.1 The radiological environmental monitoring samples shall be collected pursuant to Table 3.12-1 from the specific locations given in the table and figure(s) in the ODCM, and shall be analyzed pursuant to the requirements of Table 3.12-1 and the detection capabilities required by Table 4.12-1.

TABLE 3.12-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM<sup>(1)</sup>

<u>EXPOSURE PATHWAY AND/OR SAMPLE</u>	<u>NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS</u> <sup>(2)(3)</sup>	<u>SAMPLING AND COLLECTION FREQUENCY</u> <sup>(4)</sup>	<u>TYPE AND FREQUENCY OF ANALYSIS</u> <sup>(4)</sup>
1. Direct Radiation <sup>(5)</sup>	21 monitoring locations	Continuous monitoring with sample collection quarterly <sup>(6)</sup>	Gamma exposure rate quarterly
2. Airborne  Radioiodine and Particulates	Five locations	Continuous sampler oper- ation with sample collec- tion weekly, or more frequently if required by dust loading.	<u>Radioiodine Filter</u> I-131 analysis weekly.  <u>Particulate Filter</u> Gross beta radioactivity analysis $\geq$ 24 hours following filter change; <sup>(7)</sup> Gamma isotopic analysis <sup>(8)</sup> of composite <sup>(7)</sup> (by location) quarterly.
3. Waterborne <sup>(10)</sup> a. Surface <sup>(8)</sup>	Three locations <sup>(9)</sup>	Monthly	Gamma isotopic <sup>(8)</sup> and tritium analyses monthly.

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TABLE 3.12-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM<sup>(1)</sup>

<u>EXPOSURE PATHWAY AND/OR SAMPLE</u>	<u>NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS</u> <sup>(2)(3)</sup>	<u>SAMPLING AND COLLECTION FREQUENCY</u> <sup>(4)</sup>	<u>TYPE AND FREQUENCY OF ANALYSIS</u> <sup>(4)</sup>
3. Waterborne (Continued)			
b. Sediment from Shoreline	Three locations	Semiannually.	Gamma isotopic analysis <sup>(8)</sup> semiannually.
4. Ingestion			
a. Fish and Inverte- brates			
1. Crustacea	Two locations	Semiannually	Gamma isotopic analysis <sup>(8)</sup> semiannually
2. Fish	Two locations	Semiannually	Gamma isotopic analysis <sup>(8)</sup> semiannually
b. Food Products			
1. Broad leaf vegetation	Three locations <sup>(11)</sup>	Monthly when available	Gamma isotopic <sup>(8)</sup> and I-131 analyses monthly.

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TABLE 3.12-1 (Continued)

TABLE NOTATIONS

- (1) Deviations are permitted from the required sampling schedule if specimens are unobtainable due to circumstances such as hazardous conditions, seasonal unavailability, and malfunction of automatic sampling equipment or other legitimate reasons. If specimens are unobtainable due to sampling equipment malfunction, corrective action shall be taken prior to the end of the next sampling period. All deviations from the sampling schedule shall be documented in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.3.
- (2) Specific parameters of distance and direction sector from the centerline of the plant vent stack and additional description where pertinent, shall be provided for each and every sample location in Table 3.12-1 in a table and figure(s) in the ODCM.
- (3) At times, it may not be possible or practicable to continue to obtain samples of the media of choice at the most desired location or time. In these instances suitable alternative media and locations may be chosen for the particular pathway in question and appropriate substitutions made within 30 days in the Radiological Environmental Monitoring Program given in the ODCM.
- (4) The following definition of frequencies shall apply to Table 3.12-1 only:  
  
Weekly - not less than once per calendar week. A maximum interval of 11 days is allowed between the collection of any two consecutive samples.  
  
Semi-Monthly - Not less than 2 times per calendar month with an interval of not less than 7 days between sample collections. A maximum interval of 24 days is allowed between collection of any two consecutive samples.  
  
Monthly - Not less than once per calendar month with an interval of not less than 10 days between collection of any two consecutive samples.  
  
Quarterly - Not less than once per calendar quarter.  
  
Semiannually - One sample each between calendar dates (January 1 - June 30) and (July 1 - December 31). An interval of not less than 30 days will be provided between sample collections.  
  
The frequency of analyses is to be consistent with the sample collection frequency.
- (5) One or more instruments, such as a pressurized ion chamber, for measuring and recording dose rate continuously may be used in place of, or in addition to, integrating dosimeters. For the purposes of this table, a thermoluminescent dosimeter (TLD) is considered to be one phosphor; two or more phosphors in a packet are considered as two or more dosimeters.

TABLE 3.12-1 (Continued)

TABLE NOTATIONS (Continued)

- (6) Refers to normal collection frequency. More frequent sample collection is permitted when conditions warrant it.
- (7) Airborne particulate sample filters are analyzed for gross beta radioactivity 24 hours or more after sampling to allow for radon and thoron daughter decay. In addition to the requirement for a gamma isotopic on a composite sample, a gamma isotopic is also required for each sample having a gross beta radioactivity which is  $> 1.0 \text{ pCi/m}^3$  and which is also  $> 10$  times that of the most recent control sample.
- (8) Gamma isotopic analysis means the identification and quantification of gamma-emitting radionuclides that may be attributable to the effluents from the facility.
- (9) Off-shore grab samples.
- (10) Discharges from the Turkey Point Plant do not influence drinking water or ground water pathways.
- (11) Samples of broad leaf vegetation grown nearest each of two different off-site locations of highest predicted annual average ground level D/Q; and one sample of similar broad leaf vegetation at an available location 15-30 km distant in the least prevalent wind direction based upon historical data in the ODCM.

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TABLE 3.12-2

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLESREPORTING LEVELS

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

\*Since no drinking water pathway exists, a value of 30,000 pCi/l is used. For drinking water samples, a value of 20,000 pCi/l is used. This is 40 CFR Part 141 value.

\*\*Applies to drinking water

\*\*\*An equilibrium mixture of the parent and daughter isotopes which corresponds to the reporting value of the parent isotope.

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TURKEY POINT - UNITS 3 & 4

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AMENDMENT NOS. 137 AND 132

TABLE 4.12-1

DETECTION CAPABILITIES FOR ENVIRONMENTAL SAMPLE ANALYSIS<sup>(1)</sup>LOWER LIMIT OF DETECTION (LLD)<sup>(2)(3)</sup>

ANALYSIS	WATER (pCi/l)	AIRBORNE PARTICULATE OR GASES (pCi/m <sup>3</sup> )	FISH (pCi/kg, wet)	MILK (pCi/l)	FOOD PRODUCTS (pCi/kg, wet)	SEDIMENT (pCi/kg, dry)
Gross Beta	4	0.01				
H-3	3000*					
Mn-54	15		130			
Fe-59	30		260			
Co-58,60	15		130			
Zn-65	30		260			
Zr-Nb-95	15 <sup>(5)</sup>					
I-131	1 <sup>(4)</sup>	0.07		1	60	
Cs-134	15	0.05	130	15	60	150
Cs-137	18	0.06	150	18	80	180
Ba-La-140	15 <sup>(5)</sup>			15 <sup>(5)</sup>		

\*Since no drinking water pathway exists, a value of 3,000 pCi/l is used. For drinking water samples, a value of 2,000 pCi/l is used.

TURKEY POINT - UNITS 3 &amp; 4

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AMENDMENT NOS 137 AND 132

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TABLE 4.12-1 (Continued)

TABLE NOTATIONS

- (1) This list does not mean that only these nuclides are to be considered. Other peaks that are identifiable, together with those of the above nuclides, shall also be analyzed and reported in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.3.
- (2) Required detection capabilities for thermoluminescent dosimeters used for environmental measurements are given in Regulatory Guide 4.13.
- (3) The LLD is defined, for purposes of these specifications, as the smallest concentration of radioactive material in a sample that will yield a net count, above system background, that will be detected with 95% probability with only 5% probability of falsely concluding that a blank observation represents a "real" signal.

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

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

Where:

LLD = the "a priori" lower limit of detection as defined above as <sup>1</sup>/<sub>1000</sub> picoCuries per unit mass or volume,

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

E = the counting efficiency (counts per disintegration),

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

2.22 = the number of disintegrations per minute per picoCurie,

Y = the fractional radiochemical yield, when applicable,

$\lambda$  = the radioactive decay constant for the particular radionuclide, and

$\Delta t$  = the elapsed time between environmental collection, or end of the sample collection period, and time of counting (sec).

Typical values of E, V, Y, and  $\Delta t$  should be used in the calculation.

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TABLE 4.12-1 (Continued)

TABLE NOTATIONS (Continued)

It should be recognized that the LLD is defined as an a priori (before the fact) limit representing the capability of a measurement system and not as an a posteriori (after the fact) limit for a particular measurement. Analyses shall be performed in such a manner that the stated LLDs will be achieved under routine conditions. Occasionally background fluctuations, unavoidable small sample sizes, the presence of interfering nuclides, or other uncontrollable circumstances may render these LLDs unachievable. In such cases, the contributing factors shall be identified and described in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.3.

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

(5) An equilibrium mixture of the parent and daughter isotopes which corresponds to 15 pCi/l of the parent isotope.

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## RADIOLOGICAL ENVIRONMENTAL MONITORING

### 3/4.12.2 LAND USE CENSUS

#### LIMITING CONDITION FOR OPERATION

3.12.2 A Land Use Census shall be conducted and shall identify within a distance of 8 km (5 miles) the location in each of the 16 meteorological sectors of the nearest milk animal, the nearest residence, and the nearest garden\* of greater than 50 m<sup>2</sup> (500 ft<sup>2</sup>) producing broad leaf vegetation.

APPLICABILITY: At all times.

#### ACTION:

- a. With a Land Use Census identifying a location(s) that yields a calculated dose or dose commitment greater than the values currently being calculated in Specification 4.11.2.3, pursuant to Specification 6.9.1.4, identify the new location(s) in the next Semiannual Radioactive Effluent Release Report.
- b. With a Land Use Census identifying a location(s) that yields a calculated dose or dose commitment (via the same exposure pathway) 20% greater than at a location from which samples are currently being obtained in accordance with Specification 3.12.1, add the new location(s) within 30 days to the Radiological Environmental Monitoring Program given in the ODCM. The sampling location(s), excluding the control station location, having the lowest calculated dose or dose commitment(s), via the same exposure pathway, may be deleted from this monitoring program after October 31 of the year in which this Land Use Census was conducted. Pursuant to Specification 6.14, submit in the next Semiannual Radioactive Effluent Release Report documentation for a change in the ODCM including a revised figure(s) and table(s) for the ODCM reflecting the new location(s) with information supporting the change in sampling locations.
- c. The provisions of Specification 3.0.3 are not applicable.

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\*Broad leaf vegetation sampling may be performed at the SITE BOUNDARY in each of two different direction sectors with the highest predicted D/Qs in lieu of the garden census. Specifications for broad leaf vegetation sampling in Table 3.12-1, Part 4.b., shall be followed, including analysis of control samples.

RADIOLOGICAL ENVIRONMENTAL MONITORING

SURVEILLANCE REQUIREMENTS

4.12.2 The Land Use Census shall be conducted during the growing season at least once per 12 months using that information that will provide the best results, such as by a door-to-door survey, aerial survey, or by consulting local agriculture authorities. The results of the Land Use Census shall be included in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.3.

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## RADIOLOGICAL ENVIRONMENTAL MONITORING

### 3/4.12.3 INTERLABORATORY COMPARISON PROGRAM

#### LIMITING CONDITION FOR OPERATION

3.12.3 Analyses shall be performed on all radioactive materials, supplied as part of an Interlaboratory Comparison Program that has been approved by the Commission\*, that correspond to samples required by Tables 3.12-1 and 3.12-2.

APPLICABILITY: At all times.

#### ACTION:

- a. With analyses not being performed as required above, report the corrective actions taken to prevent a recurrence to the Commission in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.3.
- b. The provisions of Specification 3.0.3 are not applicable.

#### SURVEILLANCE REQUIREMENTS

4.12.3 A summary of the results obtained as part of the above required Interlaboratory Comparison Program shall be included in the Annual Radiological Environmental Operating Report pursuant to Specification 6.9.1.3.

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\*This condition is satisfied by participation in the Environmental Radioactivity Laboratory Intercomparison Studies Program conducted by the Environmental Protection Agency (EPA).

## ADMINISTRATIVE CONTROLS

### PROCEDURES AND PROGRAMS (Continued)

- (3) Identification of process sampling points, which shall include monitoring the discharge of the condensate pumps for evidence of condenser in-leakage,
- (4) Procedures for the recording and management of data,
- (5) Procedures defining corrective actions for all off-control point chemistry conditions, and
- (6) A procedure identifying: (a) the authority responsible for the interpretation of the data, and (b) the sequence and timing of administrative events required to initiate corrective action.

#### d. Post-Accident Sampling

A program which will ensure the capability to obtain and analyze reactor coolant, radioactive iodines and particulates in plant gaseous effluents, and containment atmosphere samples under accident conditions. The program shall include the following:

- (1) Training of personnel,
- (2) Procedures for sampling and analysis, and
- (3) Provisions for maintenance of sampling and analysis equipment.

#### e. Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

- a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:
  1. an API Gravity or an absolute specific gravity within limits,
  2. a flash point and kinematic viscosity within limits for Grade No. 2-D fuel oil per ASTM D975, and
  3. a clear and bright appearance with proper color;
- b. Other properties for Grade No. 2-D fuel oil per ASTM D975 are within limits within 30 days following sampling and addition to storage tanks; and
- c. Total particulate concentration of the fuel oil is  $\leq 10$  mg/liter when tested every 31 days in accordance with either ASTM D-2276 or ASTM D-5452.

Insert 1

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f. Radioactive Effluent Controls Program

This program conforms to 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 shall be contained in the ODCM, shall be implemented by procedures, and 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 ten times the 10 CFR 20, Appendix B, Table 2, Column 2 limits;
3. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.1302 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 10 CFR 50, Appendix I;
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 appropriate portions of these systems are used to reduce releases of radioactivity when the projected doses in a period of 31 days would exceed 2 percent of the guidelines for the annual dose or dose commitment, conforming to 10 CFR 50, Appendix I;
7. Limitations on the dose rate resulting from radioactive material released in gaseous effluents to areas beyond the site boundary to 500 mrem per year to the whole body, 3000 mrem per year to the skin and 1500 mrem per year to any organ from iodine 131, iodine 133 tritium and all radionuclides in particulate form with half live greater than 8 days.
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 10 CFR 50, Appendix I;

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 10 CFR 50, Appendix I; 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 190.

g. 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

### ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT\*

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

The Annual Radiological Environmental Operating Reports shall include summaries, interpretations, and an analysis of trends of the results of the radiological environmental surveillance activities for the report period, including a comparison with preoperational studies, with operational controls, as appropriate, and with previous environmental surveillance reports, and an assessment of the observed impacts of the plant operation on the environment. The reports shall also include the results of the Land Use Census required by Specification 3.12.2.

The Annual Radiological Environmental Operating Reports shall include the results of analysis of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the OFFSITE DOSE CALCULATION MANUAL, as well as summarized and tabulated results of these analyses and measurements in the format of the table in the Radiological Assessment Branch Technical Position, Revision 1, November 1979. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted as soon as possible in a supplementary report.

The reports shall also include the following: a summary description of the Radiological Environmental Monitoring Program; at least two legible maps\*\* covering all sampling locations keyed to a table giving distances and directions from the centerline of one reactor; the results of licensee participation in the Interlaboratory Comparison Program and the corrective action taken if the specified program is not being performed as required by Specification 3.12.3; reasons for not conducting the Radiological Environmental Monitoring Program as required by specification 3.12.1, and discussion of all deviations from the sampling schedule of Table 3.12-1; discussion of environmental sample measurements that exceed the reporting levels of Table 3.12-2 but are not the result of plant effluents, pursuant to ACTION b. of Specification 3.12.1; and discussion of all analyses in which the LLD required by Table 4.12-1 was not achievable.

Insert 2

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

~~\*\*One map shall cover stations near the SITE BOUNDARY; a second shall include the more distant stations.~~

INSERT 2

6.9.1.3 Annual Radiological Environmental Operating Report

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and analyses 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 Offsite Dose Calculation Manual (ODCM), and in (2) 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

The Annual Radiological Environmental Operating Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODCM, as well as summarized and tabulated results of these analyses and measurements. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

## ADMINISTRATIVE CONTROLS

### ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT\*

5.9.1.4 An Annual Radioactive Effluent Release Report covering the operation of the unit during the previous 12 months of operation shall be submitted by April 1 of each year.

The Annual Radioactive Effluent Release Report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit as outlined in Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," Revision 1, June 1974, with data summarized on a quarterly basis following the format of Appendix B thereof. For solid wastes, the format for Table 3 in Appendix B shall be supplemented with three additional categories: class of solid wastes (as defined by 10 CFR Part 61), type of container (e.g., strong tight package, Type A, Type B) and SOLIDIFICATION agent or absorbent (e.g., cement).

The Annual Radioactive Effluent Release Report to be submitted by April 1 of each year shall include an annual summary of hourly meteorological data collected over the previous year. This annual summary may be either in the form of an hour-by-hour listing on magnetic tape of wind speed, wind direction, atmospheric stability, and precipitation (if measured), or in the form of joint frequency distributions of wind speed, wind direction, and atmospheric stability.\*\* This same report shall include an assessment of the radiation doses due to the radioactive liquid and gaseous effluents released from the unit or station during the previous calendar year. This same report shall also include an assessment of the radiation doses from radioactive liquid and gaseous effluents to MEMBERS OF THE PUBLIC due to their activities inside the SITE BOUNDARY (Figure 5.1-1) during the report period. All assumptions used in making these assessments, i.e., specific activity, exposure time, and location, shall be included in these reports. The meteorological conditions concurrent with the time of release of radioactive materials in gaseous effluents, as determined by sampling frequency and measurement, shall be used for determining the gaseous pathway doses. Approximate and conservative methods may be used in lieu of actual meteorological measurements. The assessment of radiation doses shall be performed in accordance with the methodology and parameters in the OFFSITE DOSE CALCULATION MANUAL (ODCM).

Insert 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 from each unit.

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





INSERT 3

6.9.1.4 Radioactive Effluent Release Report

The Radioactive Effluent Release Report covering the operation of the unit shall be submitted in accordance with 10 CFR 50.36a. 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 consistent with the objectives outlined in the ODCM and Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR 50, Appendix I, Section IV.B.1.



## ADMINISTRATIVE CONTROLS

### ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT (Continued)

The Annual Radioactive Effluent Release Report to be submitted by April 1 of each year shall also include an assessment of radiation doses to the likely most exposed MEMBER OF THE PUBLIC from reactor releases from the previous calendar year and other nearby uranium fuel cycle sources, including doses from primary effluent pathways and direct radiation, for the previous calendar year to show conformance with 40 CFR Part 190, "Environmental Radiation Protection Standards for Nuclear Power Operation." Acceptable methods for calculating the dose contribution from liquid and gaseous effluents are given in Regulatory Guide 1.109, Revision 1, October 1977.

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

The Annual Radioactive Effluent Release Report shall include any changes made during the reporting period to the PROCESS CONTROL PROGRAM (PCP) and to the OFFSITE DOSE CALCULATION MANUAL (ODCM), pursuant to Specifications 6.13 and 6.14, respectively, as well as any major change to Liquid, Gaseous, or Solid Radwaste Treatment Systems pursuant to Specification 6.15. It shall also include a listing of new locations for dose calculations and/or environmental monitoring identified by the Land Use Census pursuant to Specification 3.12.2.

The Annual Radioactive Effluent Release Report shall also include the following: an explanation as to why the inoperability of liquid or gaseous effluent monitoring instrumentation was not corrected within the time specified in Specification 3.3.3.5 or 3.3.3.6, respectively; and description of the events leading to liquid holdup tanks or gas storage tanks exceeding the limits of Specification 3.11.1.4 or 3.11.2.6.

### MONTHLY OPERATING REPORTS

6.9.1.5 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, Document Control Desk, Washington, D.C. 20555, with a copy to the Regional Administrator of the Regional Office of the NRC, no later than the 15th of each month following the calendar month covered by the report.

### PEAKING FACTOR LIMIT REPORT

6.9.1.6 The  $W(Z)$  function(s) for Base-Load Operation corresponding to a  $\pm 2\%$  band about the target flux difference and/or a  $\pm 3\%$  band about the target flux difference, the Load-Follow function  $F_z(Z)$  and the augmented surveillance turnon power fraction,  $P_r$ , shall be provided to the U.S. Nuclear Regulatory Commission, whenever  $P_r$  is  $< 1.0$ . In the event, the option of Baseload Operation (as defined in Section 4.2.2.3) will not be exercised, the submission of the  $W(Z)$  function is not required. Should these values (i.e.,  $W(Z)$ ,  $F_z(Z)$  and  $P_r$ ) change requiring a new submittal or an amended submittal to the Peaking

## ADMINISTRATIVE CONTROLS

### RECORD RETENTION (Continued)

- 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 facility radiation and contamination surveys;
- d. Records of radiation exposure for all individuals entering radiation control areas;
- e. Records of gaseous and liquid radioactive material released to the environs;
- f. Records of transient or operational cycles for those unit components identified in Table 5.7-1;
- g. Records of reactor tests and experiments;
- h. Records of training and qualification for current members of the facility staff;
- i. Records of inservice inspections performed pursuant to these Technical Specifications;
- j. Records of quality assurance activities required for the duration of the unit Operating License by the Quality Assurance Manual;
- k. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments pursuant to 10 CFR 50.59;
- l. Records of meetings of the PNSC and the CNRB;
- m. Records of the service lives of all hydraulic and mechanical snubbers required by Specification 3.7.6 including the date at which the service life commences and associated installation and maintenance records;
- n. Records of secondary water sampling and water quality; and
- o. Annual Radiological Environmental Operating Reports and records of analyses transmitted to the licensee which are used to prepare the Annual Radiological Environmental Operating Report.
- p. Records for Environmental Qualification which are covered under the provisions of 10 CFR 50.49.

Insert 4

#### 6.11 RADIATION PROTECTION PROGRAM

6.11.1 Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved,



INSERT 4

- q. Records of reviews performed for changes made to the Offsite Dose Calculation Manual and the Process Control Program.

## ADMINISTRATIVE CONTROLS

### HIGH RADIATION AREA (Continued)

For individual high radiation areas accessible to personnel with radiation levels of greater than 1000 mrem/hr and less than 500 rads/hr that are located within large areas, such as PWR containment, where no enclosure exists for purposes of locking, and where no enclosure can be reasonably constructed around the individual area, that individual area shall be barricaded, conspicuously posted, and a flashing light shall be activated as a warning device.

#### 6.13 PROCESS CONTROL PROGRAM (PCP)

6.13.1 The PCP shall be reviewed by the PNSC prior to implementation.

6.13.2 Licensee-initiated changes to the PCP:

Insert  
5

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

#### 6.14 OFFSITE DOSE CALCULATION MANUAL (ODCM)

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

6.14.2 Licensee-initiated changes to the ODCM:

Insert  
6

- a. Shall be submitted to the Commission in the Annual Radioactive Effluent Release Report for the period in which the change(s) was made effective. This submittal shall contain:
  - (1) Sufficiently detailed information to totally support the rationale for the change without benefit of additional or supplemental information. Information submitted should consist of a package of those pages of the ODCM to be changed with each page numbered, dated and containing the revision number, together with appropriate analyses or evaluations justifying the change(s).



INSERT 5

6.13 Process Control Program (PCP)

- 6.13.1 The Process Control Program (PCP) shall contain the current formulas, sampling, analyses, test, and determinations to be made to ensure that processing and packaging of solid radioactive wastes based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to assure compliance with 10 CFR Parts 20, 61, and 71, State regulations, burial ground requirements, and other requirements governing the disposal of solid radioactive waste.
- 6.13.2 Licensee-initiated changes to the PCP:
- a. Shall be documented and records of reviews performed shall be retained as required by Specification 6.10.3q. 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 PNSC and the approval of the Plant General Manager.

INSERT 6

6.14 Offsite Dose Calculation Manual (ODCM)

6.14.1 The ODCM shall contain the following:

- a. 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 and trip setpoints, and in the conduct of the Radiological Environmental Monitoring Program; and
- b. The radioactive effluent controls and radiological environmental monitoring activities, and descriptions of the information that should be included in the Annual Radiological Environmental Operating, and Annual Radioactive Effluent Release Reports required by Specification 6.9.1.3 and Specification 6.9.1.4.

6.14.2 Licensee initiated changes to the ODCM:

- a. Shall be documented and records of reviews performed shall be retained as required by specification 6.10.3q. This documentation shall contain:
  1. Sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s), and
  2. A determination that the change(s) maintain the levels of radioactive effluent control required by 10 CFR 20.1302, 40 CFR 190, 10 CFR 50.36a, and Appendix I to 10 CFR 50, and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.
- b. Shall become effective after the review and acceptance by the PNSC and approval of the Plant General Manager; and
- c. Shall be submitted to the NRC 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 in 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 (i.e., month and year) the change was implemented.

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## ADMINISTRATIVE CONTROLS

### OFFSITE DOSE CALCULATION MANUAL (ODCM) (Continued)

- (2) A determination that the change will not reduce the accuracy or reliability of dose calculations or Setpoint determinations; and
- (3) Documentation of the fact that the change has been reviewed and found acceptable by the PNSC.

b. Shall become effective upon review and acceptance by the PNSC.

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

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

- a. Shall be reported to the Commission in the Annual Radioactive Effluent Release Report for the period in which the evaluation was reviewed by the PNSC. The discussion of each change shall contain:
  - (1) A summary of the evaluation that led to the determination that the change could be made in accordance with 10 CFR 50.59;
  - (2) Sufficient detailed information to totally support the reason for the change without benefit of additional or supplemental information;
  - (3) A detailed description of the equipment, components, and processes involved and the interfaces with other plant systems;
  - (4) An evaluation of the change, which shows the predicted releases of radioactive materials in liquid and gaseous effluents and/or quantity of solid waste that differ from those previously predicted in the License application and amendments thereto;
  - (5) An evaluation of the change, which shows the expected maximum exposures to a MEMBER OF THE PUBLIC in the UNRESTRICTED AREA and to the general population that differ from those previously estimated in the License application and amendments thereto;
  - (6) A comparison of the predicted releases of radioactive materials, in liquid and gaseous effluents and in solid waste, to the actual releases for the period prior to when the change is to be made;
  - (7) An estimate of the exposure to plant operating personnel as a result of the change; and
  - (8) Documentation of the fact that the change was reviewed and found acceptable by the PNSC.
- b. Shall become effective upon review and acceptance by the PNSC.

*Page Deleted*

\*Licensees may choose to submit the information called for in this Specification as part of the annual FSAR update.



ATTACHMENT 4

CHANGES MADE IN RESPONSE TO TURKEY POINT ODCM Rev. 4 TECHNICAL EVALUATION REPORT

CATEGORY A

1. Deleted the method for apportioning liquids based on RCS activity. When releases are made, the dose limit per reactor is applied to the common release point. This ensures that the dose limit is not exceeded for any single unit. (see par. 1 on page 2-2 of Rev. 6 of the ODCM)
2. Added the elevations of the vents to the Basis section of Objectives/System Description in section 3. The dispersion models were also verified to be correct as stated in the ODCM.
3. Changed wording to clearly state that the calculations are for Trip and Alarm setpoints. Added words that state the calculation is used to verify that a limit is not exceeded but due to the range of the monitors, lower setpoints are used in accordance with approved plant procedures. This has been emphasized in section 2 and 3 of the ODCM rev. 6.
4. See no. 3 above.
5. Redefined the term  $F_2$  to read 'estimated', based on pump curves and expected condenser fouling.
6.  $FEC_b$  was redefined such that using data from a previous qtr. for beta emitting isotopes and actual sample data for gamma isotopes is the only acceptable method. The value of 0.5 for  $E_b$  was deleted.
7. This method was revised to allow the use of a gross beta-gamma analysis in lieu of an isotopic analysis. Labeling unidentified nuclides from gross counting techniques is not required. When gross counting methods are used, the activity concentration limit for the most restrictive isotope is used to calculate the effluent concentration.
8. Defined the term  $S_f$  for liquids to be: 0.7 from the Liquid Rad Waste System, 0.1 from each unit's S/G blowdown System, and 0.1 from unmonitored pathways (storm drains). These values are assigned, not calculated.
9. See no. 3 above.
10. Accounting for gas effluents from steam dumps, blowdown flash tanks, and other unmonitored steam losses are not required unless a primary to secondary leak is occurring. During periods of primary to secondary leakage, the most accurate means available are used to determine the quantity of gaseous effluent released, and these methods are described in approved plant procedures. One method is described on page 3-5 in rev. 6 of the ODCM.

11. The use of Noble Gas release fractions has been deleted.
12. Equation for noble gas setpoints, based on concentration, was deleted in Rev. 5.
13. See no. 10 above.
14. Added to the basis that the REMP program verifies that ocean pathways are not significant.
15. Added a description to Sec. 4 to use TLD measurements from the REMP program for the total dose calculation.

CATEGORY B

1. Reworded this to read : "The operability of the LRW System is verified by meeting Control 2.2 and 2.3." The basis now includes information on how we meet this. By virtue of meeting these Controls, the Radwaste system is fulfilling its intended function.
2. Added to control 1.3 that the methods used for calculations for the annual report are indicated in each method. When alternate methods are indicated, their use is controlled by approved plant procedures, and is stated in each method when their use is normally practiced.
3. Defined the term  $S_i$  for noble gases to be: 0.6 from the Plant Vent, 0.1 from each unit's SJAE Vent, 0.1 from the unit 3 Spent Fuel Vent, and 0.1 from unmonitored pathways. These values are assigned, not calculated.
4. This was addressed in Category A no. 6, and B no. 2.
5. This was addressed in Category A no. 2.
6. This was deleted; only historical (or reference) Met. data is used. Reference Met. data is periodically verified to ensure it's validity.
7. Clarified this statement and added the basis for this methodology to the basis section. Iodine and particulates are not considered in batch releases but are measured and accounted for as continuous releases to prevent over accounting for these releases.
8. The basis for the pathway dose transfer factors in appendix A are still being investigated. These tables were derived in the early 1970's and the basis for these are not readily available. Corporate H.P./Chemistry is working on deriving a basis and validating the current tables or deriving new tables with a validated basis. This action is planned to be complete by 1/1/98.
9. The effective dose transfer factors in Appendix. B have been evaluated using data from 1992, 1993, and 1994. Only minor changes

were noted between these values and the values currently in the ODCM. The canal-groundwater transfer is not relevant to airborne releases. 'Scaling factors' are not used to calculate effective dose transfer factors, however the use of effective dose transfer factors are clearly defined and stated in their applicable methods. The method for calculating these factors is contained in Appendix 3C of rev. 6 of the ODCM (appendix. B of rev.4).

10. The primary method for performing dose projections is to use the previous months calculated dose, with an alternate method used only when a more accurate projection is necessary and sufficient data is available.
11. The validity of these values are periodically checked against actual Met. conditions for the previous few years. This was added to the Basis section for these values. The derivation of this factor is not included in this manual since this factor is not routinely calculated and the value is periodically verified.
12. See no. 11 above.
13. This diagram was corrected.
14. This is included in Rev. 6. Rev. 4 did not contain this since it was included in the Technical Specifications.

#### CATEGORY C

1. This was added to the system description.
2. See Category A no. 10 and 11.
3. See Category A no. 15. A mathematical expression is not needed to add the dose from direct radiation with the dose from effluent releases.
4. This is included in Rev. 6. Rev. 4 did not include this since it was contained in the Technical Specifications.
5. This is included in Rev. 6. Rev. 4 did not include this since it was contained in the Technical Specifications.

#### CATEGORY D

1. This reference will be updated when the review of the Appendix. A bases are complete.



ATTACHMENT 4

CHANGES MADE IN RESPONSE TO TURKEY POINT ODCM Rev. 4 TECHNICAL EVALUATION REPORT

CATEGORY A

1. Deleted the method for apportioning liquids based on RCS activity. When releases are made, the dose limit per reactor is applied to the common release point. This ensures that the dose limit is not exceeded for any single unit. (see par. 1 on page 2-2 of Rev. 6 of the ODCM)
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3. Changed wording to clearly state that the calculations are for Trip and Alarm setpoints. Added words that state the calculation is used to verify that a limit is not exceeded but due to the range of the monitors, lower setpoints are used in accordance with approved plant procedures. This has been emphasized in section 2 and 3 of the ODCM rev. 6.
4. See no. 3 above.
5. Redefined the term  $F_2$  to read 'estimated', based on pump curves and expected condenser fouling.
6.  $FEC_p$  was redefined such that using data from a previous qtr. for beta emitting isotopes and actual sample data for gamma isotopes is the only acceptable method. The value of 0.5 for  $E_p$  was deleted.
7. This method was revised to allow the use of a gross beta-gamma analysis in lieu of an isotopic analysis. Labeling unidentified nuclides from gross counting techniques is not required. When gross counting methods are used, the activity concentration limit for the most restrictive isotope is used to calculate the effluent concentration.
8. Defined the term  $S_i$  for liquids to be: 0.7 from the Liquid Rad Waste System, 0.1 from each unit's S/G blowdown System, and 0.1 from unmonitored pathways (storm drains). These values are assigned, not calculated.
9. See no. 3 above.
10. Accounting for gas effluents from steam dumps, blowdown flash tanks, and other unmonitored steam losses are not required unless a primary to secondary leak is occurring. During periods of primary to secondary leakage, the most accurate means available are used to determine the quantity of gaseous effluent released, and these methods are described in approved plant procedures. One method is described on page 3-5 in rev. 6 of the ODCM.

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15. Added a description to Sec. 4 to use TLD measurements from the REMP program for the total dose calculation.

CATEGORY B

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3. Defined the term S<sub>i</sub> for noble gases to be: 0.6 from the Plant Vent, 0.1 from each unit's SJAE Vent, 0.1 from the unit 3 Spent Fuel Vent, and 0.1 from unmonitored pathways. These values are assigned, not calculated.
4. This was addressed in Category A no. 6, and B no. 2.
5. This was addressed in Category A no. 2.
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7. Clarified this statement and added the basis for this methodology to the basis section. Iodine and particulates are not considered in batch releases but are measured and accounted for as continuous releases to prevent over accounting for these releases.
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were noted between these values and the values currently in the ODCM. The canal-groundwater transfer is not relevant to airborne releases. 'Scaling factors' are not used to calculate effective dose transfer factors, however the use of effective dose transfer factors are clearly defined and stated in their applicable methods. The method for calculating these factors is contained in Appendix 3C of rev. 6 of the ODCM (appendix. B of rev.4).

10. The primary method for performing dose projections is to use the previous months calculated dose, with an alternate method used only when a more accurate projection is necessary and sufficient data is available.
11. The validity of these values are periodically checked against actual Met. conditions for the previous few years. This was added to the Basis section for these values. The derivation of this factor is not included in this manual since this factor is not routinely calculated and the value is periodically verified.
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13. This diagram was corrected.
14. This is included in Rev. 6. Rev. 4 did not contain this since it was included in the Technical Specifications.

#### CATEGORY C

1. This was added to the system description.
2. See Category A no. 10 and 11.
3. See Category A no. 15. A mathematical expression is not needed to add the dose from direct radiation with the dose from effluent releases.
4. This is included in Rev. 6. Rev. 4 did not include this since it was contained in the Technical Specifications.
5. This is included in Rev. 6. Rev. 4 did not include this since it was contained in the Technical Specifications.

#### CATEGORY D

1. This reference will be updated when the review of the Appendix. A bases are complete.

ENCLOSURE 1

