➔ (DRN 02-216)
3/4.11 RADIOACTIVE EFFLUENTS (See note below)
← (DRN 02-216)

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 (TS Figure 5.1-3) shall be limited to ten times the effluent 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 X 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, and describe the events leading to this condition in the next Annual Radioactive Effluent Release Report.

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 Requirement 3.11.1.1.

➔ (DRN 02-216)

NOTE: TRM Specifications 3.11.1.1 and 4.11.1.1.1 are part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of these TRM Specifications requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

➔ (DRN 02-216)

TABLE 4.11-1 (See note below)

← (DRN 02-216)

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE AND RELEASE POINT	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS [a]
BATCH RELEASES [d]			
1. Boric Acid Condensate Tanks (4 Tanks)	Grab sample from each batch to be released prior to release	Prior to release	Gamma Emitters [b] I-131 Noble Gases
	A Composite [c] of all grab samples collected during the month for this release point	Monthly	H-3 Gross Alpha
	A Composite [c] of all grab samples collected during the quarter for his release point	Quarterly	Sr-89 Sr-90 Fe-55

➔ (DRN 02-216)

Note: TRM Table 4.11-1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)

TABLE 4.11-1 (Continued, See note below)

← (DRN 02-216)

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE AND RELEASE POINT	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS [a]
BATCH RELEASES [d]			
2. Liquid Waste Management Tanks [2 Waste Condensate Tanks 2 Laundry Tanks 3 Waste Tanks]	Grab sample from each batch to be released prior to release	Prior to release	Gamma Emitters [b] I-131 Noble Gases
	A Composite [c] of all grab samples collected during the month for this release point	Monthly	H-3 Gross Alpha
	A Composite [c] of all grab samples collected during the quarter for this release point	Quarterly	Sr-89 Sr-90 Fe-55

➔ (DRN 02-216)

Note: TRM Table 4.11-1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

→ (DRN 02-216)

TABLE 4.11-1 (Continued, See note below)

← (DRN 02-216)

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE AND RELEASE POINT	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS [a]
BATCH RELEASES [d,g]			
3. Secondary Plant Holding Tanks [f] [Regenerative Waste Tank and Filter Flush Tank]	Grab sample from each batch to be released prior to release	Prior to release	Gamma Emitters [b] I-131 Noble Gases H-3
4. Turbine Building Industrial Waste Sumps (2 Sumps) [TBIWS] → (DRN 02-357) For applicability, see note [i] and [p] ← (DRN 02-357)	Grab sample from each batch to be released prior to release	Prior to release	Gamma Emitters [b] I-131 Noble Gases
	A Composite [c] of all grab samples collected during the month for this release point	Monthly	H-3 Gross Alpha
	A Composite [c] of all grab samples collected during the quarter for this release point	Quarterly	Sr-89 Sr-90 Fe-55

→ (DRN 02-216)

Note: TRM Table 4.11-1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)

TABLE 4.11-1 (Continued, See note below)

← (DRN 02-216)

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE AND RELEASE POINT	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS [a]
BATCH RELEASES [d, g]			
5. Dry Cooling Tower Sumps #1 and #2 [DCTS]	Grab sample from each batch to be released prior to release	Prior to release	Gamma Emitters [b] I-131 Noble Gases
For applicability, see note [j]	A Composite [c] of all grab samples collected during the month for this release point	Monthly	H-3 Gross Alpha
	A Composite [c] of all grab samples collected during the quarter for this release point	Quarterly	Sr-89 Sr-90 Fe-55

➔ (DRN 02-216)

Note: TRM Table 4.11-1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)

TABLE 4.11-1 (Continued, See note below)

← (DRN 02-216)

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE AND RELEASE POINT	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS [a]
BATCH RELEASES [d, g]			
6. Steam Generator Blowdown	Grab sample from each batch to be released prior to release	Prior to release	Gamma Emitters [b] I-131 Noble Gases
For applicability, see note [k & 1]	A composite [c] of all grab samples collected during the month for this release point	Monthly	H-3 Gross Alpha
	A Composite [c] of all grab samples collected during the quarter for this release point	Quarterly	Sr-89 Sr-90 Fe-55

➔ (DRN 02-216)

Note: TRM Table 4.11-1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)

TABLE 4.11-1 (Continued, See note below)

← (DRN 02-216)

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE AND RELEASE POINT BATCH RELEASES [d, g]	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS [a]
7. Auxiliary Component Cooling Water System [ACCW] (2 Basins) For applicability, see note [n]	Grab sample from each batch to be released prior to release:	Prior to release	Gamma Emitters [b] I-131 Noble Gases
	A Composite [c] of all grab samples collected during the month for this release point	Monthly	H-3 Gross Alpha
	A Composite [c] of all grab samples collected during the quarter for this release point	Quarterly	Sr-89 Sr-90 Fe-55

➔ (DRN 02-216)

Note: TRM Table 4.11-1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

→ **(DRN 02-216)**

TABLE 4.11-1 (Continued, See note below)

← **(DRN 02-216)**

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE AND RELEASE POINT	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS [a]
CONTINUOUS RELEASES [e, h]			
1. Turbine Building Industrial Waste Sumps (2 Sumps) [TBIWS]	Weekly grab sample	Weekly	Gamma Emitters [b] I-131 Noble Gases
→ **(DRN 02-357)** For applicability, see note [i] and [p] ← **(DRN 02-357)**	A Composite [c] of all grab samples collected during the month for this release point	Monthly	H-3 Gross Alpha
	A Composite [c] of all grab samples collected during the quarter for this release point	Quarterly	Sr-89 Sr-90 Fe-55

→ **(DRN 02-216)**

Note: TRM Table 4.11-1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← **(DRN 02-216)**

➔ (DRN 02-216)

TABLE 4.11-1 (Continued, See note below)

← (DRN 02-216)

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE AND RELEASE POINT	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS [a]
CONTINUOUS RELEASES [e, h]			
2. Dry Cooling Tower Sumps #1 and #2 [DCTS]	Weekly grab sample	Weekly	Gamma Emitters [b] I-131 Noble Gases
For applicability, see note [j]	A Composite [c] of all grab samples collected during the month for this release point	Monthly	H-3 Gross Alpha
	A Composite [c] of all grab samples collected during the quarter for this release point	Quarterly	Sr-89 Sr-90 Fe-55

➔ (DRN 02-216)

Note: TRM Table 4.11-1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)

TABLE 4.11-1 (Continued, See note below)

← (DRN 02-216)

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE AND RELEASE POINT	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS [a]
CONTINUOUS RELEASES [e, h]			
3. Circulating Water Discharge - Steam Generator Blowdown Heat Exchanger Discharge [CWD]	Weekly grab sample	Weekly	Gamma Emitters [b] I-131 Noble Gases
For applicability, see note [o]	A Composite [c] of all grab samples collected during the month for this release point	Monthly	H-3 Gross Alpha
	A Composite [c] of all grab samples collected during the quarter for each release point	Quarterly	Sr-89 Sr-90 Fe-55

➔ (DRN 02-216)

Note: TRM Table 4.11-1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)

TABLE 4.11-1 (Continued, See note below)

← (DRN 02-216)

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE AND RELEASE POINT	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS [a]
CONTINUOUS RELEASES [e, h]			
4. Auxiliary Component Cooling Water System [ACCW] 2 Basins)	Weekly grab sample	Weekly	Gamma Emitters [b] I-131 Noble Gases
For applicability, see note [n]	A Composite [c] of all grab samples collected during the month for this release point	Monthly	H-3 Gross Alpha
	A Composite [c] of all grab samples collected during the quarter for each release point	Quarterly	Sr-89 Sr-90 Fe-55

➔ (DRN 02-216)

Note: TRM Table 4.11-1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)

TABLE 4.11-1 (Continued, See note below)

← (DRN 02-216)

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS PROGRAM

LIQUID RELEASE TYPE AND RELEASE POINT	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS [a]
CONTINUOUS RELEASES [e, h]			
5. Steam Generator Blowdown	Continuous [m] sample collected weekly	Weekly	Gamma Emitters [b] I-131 Noble Gases
For applicability, see note [k & 1]	A Composite [c] of all weekly samples collected during the month for this release point	Monthly	H-3 Gross Alpha
	A Composite [c] of all weekly samples collected during the quarter for this release point	Quarterly	Sr-89 Sr-90 Fe-55

➔ (DRN 02-216)

Note: TRM Table 4.11-1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)
TABLE 4.11-1 (Continued, See note below)
← (DRN 02-216)

TABLE NOTATIONS

a. The type of analysis and their associated Lower Limits of Detection (LLD), as defined in the ODCM, are:
➔ (DRN 02-216)
← (DRN 02-216)

Type of Analysis	LLD (μCi/ml)
Gamma Emitters	5E-07
I-131	1E-06
Noble Gases (Gamma Emitters)	1E-05
H-3	1E-05
Gross Alpha	1E-07
Fe-55	1E-06
Sr-89, Sr-90	5E-08
Ce-144	5E-06

b. The gamma emitters LLD Requirement includes the following radionuclides: MN-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144. The analysis for gamma emitters shall include an analysis for I-131 and gamma emitting noble gases dissolved or entrained in the sample at the LLD's specified above. This list does not mean that only these nuclides are to be considered. Other identifiable gamma peaks, together with the above nuclides, shall also be analyzed and reported in the Annual Radioactive Effluent Release Report.

c. 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. Prior to analyses, all samples taken for composites are to be thoroughly mixed in order for the composite sample to be representative of the effluent release.

d. 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 to assure representative sampling.

e. A continuous release is the discharge of liquid wastes of a non-discrete volume, e.g., a system that has input flow during the release (in service sumps, etc).

➔ (DRN 02-216)

Note: TRM Table 4.11-1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

➔ **(DRN 02-216)**

TABLE 4.11-1 (Continued, See note below)

← **(DRN 02-216)**

TABLE NOTATIONS

➔ **(DRN 02-357)**

f. If the contents of the Regenerative Waste Tank or Filter Flush Tank contain detectable radioactivity, no discharges from these tanks shall be made to the UNRESTRICTED AREA, and the contents of these tanks shall be directed to the Liquid Waste Management System or other monitored effluent release point.

← **(DRN 02-357)**

g. When release from this source is batch in nature.

h. When release from this source is continuous in nature.

i. The Turbine Building Industrial Waste Sumps (TBIWS) shall be sampled and analyzed in accordance with this table if any of the following conditions exist, and the release has NOT been directed to the Liquid Waste Management System:

(1) Primary to Secondary leakage is occurring: or,

(2) Activity is present in the secondary system as indicated by either the Steam Generator Blowdown (SGB) monitor or secondary sampling and analysis; or,

(3) Activity was present in the TBIWS during the previous FOUR Weeks.

j. The Dry Cooling Tower Sump (DCTS) shall be sampled and analyzed in accordance with this table if any of the following conditions exist, and the release has NOT been directed to the Liquid Waste Management System:

(1) Primary to Component Cooling Water (CCW) leakage is occurring or,

(2) Activity is present in the CCW/ACCW systems as indicated by either the CCW monitors or CCW/ACCW sampling and analysis; or,

(3) Activity was present in the DCTS during the previous FOUR Weeks.

k. Sampling and analysis of Steam Generator Blowdown will be required only when blowdown is directed to the Circulating Water System (CWS) or the Waterford Waste Ponds.

➔ **(DRN 02-216)**

Note: TRM Table 4.11-1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations in accordance with Technical Specification 6.14.

← **(DRN 02-216)**

→ **(DRN 02-216)**

TABLE 4.11-1 (Continued, See note below)

← **(DRN 02-216)**

TABLE NOTATIONS

l. Steam Generator Blowdown discharge to the Waste Ponds shall not be performed unless radiation monitoring and automatic isolation capabilities are added to the Waste Ponds discharge path. Steam Generator Blowdown to the Waste Ponds will be limited to situations requiring secondary chemistry control where the Circulating Water System is not available or the secondary chemistry is outside the requirements for Circulating Water System discharge. Blowdown to the Waste Ponds will be terminated upon detection of sample activity greater than the LLD levels in Notation [a].

m. To be representative of the quantities and concentration of radioactive materials in liquid effluents, samples shall be collected continuously in proportion to the rate of flow of the effluent stream.

n. Sampling and analysis of the Auxiliary Component Cooling Water (ACCW) system is required when detectable activity exists in the CCW system. Continued sampling and analysis of ACCW is required for a minimum of FOUR Weeks following non-detection of activity in CCW/ACCW systems.

o. Sampling and analysis of the Circulating Water Discharge - Steam Generator Blowdown heat exchanger discharge (CWD) is required when detectable activity exists in the secondary system, or the CCW/ACCW Systems.

→ **(DRN 02-357)**

p. The normal sampling location is the Oil Separator System, which receives all TBIWS wastewater, and is the release path to the Unrestricted Area.

← **(DRN 02-357)**

→ **(DRN 02-216)**

Note: TRM Table 4.11-1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← **(DRN 02-216)**

→ (DRN 02-216)
3/4.11 RADIOACTIVE EFFLUENTS (See note below)
← (DRN 02-216)

3/4.11.1 LIQUID 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 to UNRESTRICTED AREAS (see TS Figure 5.1-3) shall be limited:

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

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

APPLICABILITY: At all times.

ACTION:

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 Technical Specification 6.9.2, a Special Report. This Special Report shall: (1) Identify the cause(s) for exceeding the limit(s) and define 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. NOTE: The following step is applicable only if drinking water supply is taken from the receiving water. (2) Include the results of radiological analyses of the drinking water source and the radiological impact on finished drinking water supplies with regard to the requirements of 40 CFR Part 141.

→ (DRN 04-1191, Am. 91)
The provisions of TRM LCO 3.0.3 and 3.0.4 are not applicable.
← (DRN 04-1191, Am. 91)

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 methodology and parameters specified in the ODCM at least once per 31 days.

→ (DRN 02-216)
NOTE: TRM Specification 3.11.1.2 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this specification requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

→ (DRN 02-216)
3/4.11 RADIOACTIVE EFFLUENTS (See note below)
← (DRN 02-216)

3/4.11.1 LIQUID 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 to UNRESTRICTED AREAS (see TS Figure 5.1-3) would exceed in a 31 day period: a) 0.06 mRem to the total body, or b) 0.2 mRem to any organ

APPLICABILITY: At all times.

ACTION:

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 Technical 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.

→ (DRN 04-1191, Am. 91)
The provisions of TRM LCO 3.0.3 and 3.0.4 are not applicable.
← (DRN 04-1191, Am. 91)

SURVEILLANCE REQUIREMENTS

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

4.11.1.3.2 The installed LIQUID RADWASTE TREATMENT SYSTEM shall be demonstrated OPERABLE by meeting Requirements 3.11.1.1 and 3.11.1.2

→ (DRN 02-216)
NOTE: TRM Section 3.11.1.3 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM specification requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

➔ (DRN 02-216)
3/4.11 RADIOACTIVE EFFLUENTS (See note below)
← (DRN 02-216)
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 TS Figure 5.1-3) shall be limited to the following:

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

b. For Iodine-131, Iodine-133, Tritium, and 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), and describe the events leading to this condition in the next Annual Radioactive Effluent Release Report.

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 Representative samples and analysis of gaseous effluents shall be obtained in accordance with the sampling and analyses program specified in Table 4.11-2.

4.11.2.1.3 Based upon the sampling and analysis performed in Table 4.11-2 the dose rate due to I-131, I-133, H-3, and all other radionuclides in particulate form with half-lives greater than 8 days shall be determined to be within the above limits in accordance with the methodology and parameters in the ODCM.

➔ (DRN 02-216)

NOTE: TRM Specifications 3.11.2.1 and 4.11.2.1.2 are part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of these TRM Specifications requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

➔ (DRN 02-216)

TABLE 4.11-2 (See note below)

← (DRN 02-216)

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

GASEOUS RELEASE TYPE AND RELEASE POINT	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS(a)
1. Waste Gas Decay Tanks (3 Tanks)	Grab sample from each tank to be released prior to release	Prior to Release	Noble Gas Gamma Emitters [b]
2. Containment Purge (Plant Stack)	Grab sample from each purge prior to release	Prior to Release [g]	Noble Gas Gamma Emitters [b]
	Grab sample prior to purge [i]	Prior to Release [i, g]	H-3
	Continuous noble gas monitor	Continuous	Noble Gases Gross Beta or Gamma

➔ (DRN 02-216)

NOTE: TRM Table 4.11-2 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)

TABLE 4.11-2 (See note below)

← (DRN 02-216)

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

GASEOUS RELEASE TYPE AND RELEASE POINT	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS(a)
3. Plant Stack	Monthly grab sample	Monthly [g]	Noble Gas Gamma Emitters [b]
		Monthly [f, g]	H-3
	Continuous Charcoal Cartridge Sample [c]	Weekly [h]	I-131 I-133
	Continuous Particulate Sample [c]	Weekly [h]	Particulate Gamma Emitters [b] Gross Alpha
	Composite of all continuous particulate filters collected during the Quarter	Quarterly	Sr-89 Sr-90
	Continuous noble gas monitor	Continuous	Noble Gases Gross Beta or Gamma

➔ (DRN 02-216)

Note: TRM Table 4.11-2 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)

TABLE 4.11-2 (Continued, See note below)

← (DRN 02-216)

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

GASEOUS RELEASE TYPE AND RELEASE POINT	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS (a)
4. Fuel Handling Building Ventilation (Normal Exhaust)	Monthly grab sample	Monthly	Noble Gas gamma Emitters [b]
	Weekly grab sample	Weekly	H-3
	Continuous Charcoal Cartridge Sample[c] Continuous Particulate Sample [c]	Weekly Weekly	I-131 I-133 Particulate Gamma Emitters[b] Gross Alpha
Whenever irradiated fuel is in the storage pool, see note [e]	Composite of all continuous particulate filters collected during the Quarter	Quarterly	Sr-89 Sr-90
	Continuous noble gas monitor	Continuous	Noble Gases Gross Beta or Gamma

➔ (DRN 02-216)

Note: TRM Table 4.11-2 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)

TABLE 4.11-2 (Continued, See note below)

← (DRN 02-216)

RADIOACTIVE GASEOUS WASTE SAMPLING AND ANALYSIS PROGRAM

GASEOUS RELEASE TYPE AND RELEASE POINT	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS (a)
5. Main Condenser Evacuation and Turbine Gland Sealing System (MCES) For applicability see note [d]	Monthly grab sample	Monthly[g]	Noble Gas Gamma Emitters [b]
		Monthly [g]	H-3
	Continuous Charcoal Cartridge Sample [c]	Weekly [h]	I-131 I-133
	Continuous Particulate Sample [c]	Weekly [h]	Particulate Gamma Emitters [b] Gross Alpha
	Composite of all continuous particulate filters collected during the Quarter	Quarterly	Sr-89 Sr-90
	Continuous noble gas monitor	Continuous	Noble Gases Gross Beta or Gamma

➔ (DRN 02-216)

Note: TRM Table 4.11-2 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.

← (DRN 02-216)

➔ (DRN 02-216)
TABLE 4.11-2 (Continued, See note below)
← (DRN 02-216)
TABLE NOTATIONS

a. The LLD, as defined in the ODCM, values for the following types of analysis are:

Type of Analysis	LLD (μCi/cc)
Noble Gas Gamma Emitters	1E-04
H-3	1E-06
I-131	1E-12
I-133	1E-10
Particulate Gamma Emitters	1E-11
Gross Alpha	1E-11
Sr-89, Sr-90	1E-11
Gross Beta or Gamma Noble Gas Monitor	1E-06

b. The principal gamma emitters for which the LLD Requirement applies include the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, and Xe-138 in noble gas releases, and Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, I-131, I-133, Cs-134, Cs-137, Ce-141, and Ce-144 in Iodine and particulate releases. This list does not mean that only these nuclides are to be considered. Other gamma peaks that are identifiable, together with the above nuclides, shall also be analyzed and reported in the Annual Radioactive Effluent Release Report.

c. Samples shall be changed at least once per seven days and analyses shall be completed within 48 hours after changing, or after removal from sampler, except for the gross alpha analysis. The gross alpha analysis shall be completed within 10 days after changing, or removal from sampler.
The ratio of the sample flow rate to the sampled stream (effluent stream) flow shall be known for the time period covered by each dose or dose rate calculation.

d. If no primary to secondary leakage exists, then only the gross beta or gamma analysis (installed radiation monitors) needs to be performed for the Main Condenser Evacuation and Turbine Gland Sealing System (MCES). Sampling and analysis shall be performed when a primary to secondary leak exists.

e. Fuel Handling Building sampling is required whenever irradiated fuel is in the storage pool.

f. Tritium grab samples for the Plant Stack shall be taken at least once per 24 hours if purging containment with the refueling cavity flooded.

➔ (DRN 02-216)

NOTE: TRM Table 4.11-2 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

➔ (DRN 02-216)
TABLE 4.11-2 (Continued, See note below)
← (DRN 02-216)
TABLE NOTATION

g. Sampling shall also be performed within 24 hours following shutdown, startup, or a THERMAL POWER change exceeding 15% of RATED THERMAL POWER within a 1-hour period. Analysis for radionuclides shall be completed within 48 hours of sampling. This sampling is not applicable if the noble gas monitor shows that effluent activity has not increased by a factor of 3. This sampling is not applicable to the MCES WRGM if no primary to secondary leakage exists.

h. Samples shall be changed at least once per 24 hours for at least seven days following each shutdown, startup, or THERMAL POWER change exceeding 15% of RATED THERMAL POWER in 1-hour, and analyses shall be completed within 48 hours of changing. When samples collected for 24 hours are analyzed, the corresponding LLDs may be increased by a factor of 10. This requirement applies if:

1) Primary Coolant Dose Equivalent Iodine-131 concentration has increased by more than a factor of 3; AND

2) The noble gas monitor shows that effluent activity has increased by more than a factor of 3.

i. Sampling and analysis are required prior to each purge. Sampling and analysis will be required monthly if purge exceeds 30 days.

➔ (DRN 02-216)

Note: TRM Table 4.11-2 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Table requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

→ (DRN 02-216)
3/4.11 RADIOACTIVE EFFLUENTS (See note below)
← (DRN 02-216)

3/4.11.2 GASEOUS EFFLUENTS

DOSE RATE

LIMITING CONDITION FOR OPERATION

3.11.2.2 The air dose due to noble gases released in gaseous effluents to areas at and beyond the SITE BOUNDARY (see TS Figure 5.1-3) shall be limited to the following:

a. During any calendar quarter: Less than or equal to:
   i) 5 mrad for gamma radiation, and
   ii) 10 mrad for beta radiation

   and,

b. During any calendar year: Less than or equal to:
   i) 10 mrad for gamma radiation, and
   ii) 20 mrad for beta radiation.

APPLICABILITY: At all times.

ACTION:

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 Technical Specification 6.9.2, a Special Report. This Special Report shall identify the cause(s) for exceeding the limit(s) and define 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.

→ (DRN 04-1191, Am. 91)
The provisions of TRM LCO 3.0.3 and 3.0.4 are not applicable.
← (DRN 04-1191, Am. 91)

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.

→ (DRN 02-216)
NOTE: TRM Specification 3.11.2.2 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Specification requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

→ (DRN 02-216)
3/4.11 RADIOACTIVE EFFLUENTS (See note below)
← (DRN 02-216)

3/4.11.2 GASEOUS EFFLUENTS

DOSE - IODINE-131, IODINE-133, TRITIUM, AND RADIONUCLIDES IN PARTICULATE FORM

LIMITING CONDITION FOR OPERATION

3.11.2.3 The dose to 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 to areas at and beyond the SITE BOUNDARY (see TS Figure 5.1-3) shall be limited to the following:

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

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

APPLICABILITY: At all times

ACTION: 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 Technical Specification 6.9.2, a Special Report. This Special Report shall identify the cause(s) for exceeding the limit and define 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.

→ (DRN 04-1191, Am. 91)
The provisions of TRM LCO 3.0.3 and 3.0.4 are not applicable.
← (DRN 04-1191, Am. 91)

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.

→ (DRN 02-216)
NOTE: TRM Specification 3.11.2.3 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM specification requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

→ (DRN 02-216)
3/4.11 RADIOACTIVE EFFLUENTS (See note below)
← (DRN 02-216)

3/4.11.2 GASEOUS EFFLUENTS

GASEOUS RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION

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

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:

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 Technical Specification 6.9.2, a Special Report. This Special Report shall include the following information:

a. Identification of any inoperable equipment or subsystems, and the reason for the inoperability,

b. Action(s) taken to restore the inoperable equipment to OPERABLE status, and

c. Summary description of action(s) taken to prevent a recurrence.

→ (DRN 04-1191, Am. 91)
d. The provisions of TRM LCO 3.0.3 and 3.0.4 are not applicable.
← (DRN 04-1191, Am. 91)

→ (DRN 02-216)
NOTE: TRM Specification 3.11.2.4 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM specification requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

SURVEILLANCE REQUIREMENTS (Continued)

4.11.2.4.1 Doses due to gaseous releases to areas at and beyond the SITE BOUNDARY shall be projected at least once per 31 days in accordance with the methodology and parameters in the ODCM.

4.11.2.4.2 The installed Gaseous Radwaste Treatment System shall be demonstrated operable by meeting Requirements 3.11.2.1, 3.11.2.2 and 3.11.2.3.

3/4.11 RADIOACTIVE EFFLUENTS

3/4.11.3 SOLID RADIOACTIVE WASTE

LIMITING CONDITION FOR OPERATION

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

APPLICABILITY: At all times.

ACTION:

a. With solidification or dewatering not meeting disposal site and shipping and transportation requirements, suspend shipment of the inadequately processed wastes and correct the process control program, the procedures, and/or the solid waste system as necessary to prevent recurrence.

b. With solidification or dewatering not performed in accordance with the process control program, test the improperly processed waste in each container to ensure that it meets burial ground and shipping requirements and perform appropriate corrective action if required.

→ (DRN 04-1191, Am. 91)

c. The provisions of TRM LCO 3.0.3 and 3.0.4 are not applicable.

← (DRN 04-1191, Am. 91)

SURVEILLANCE REQUIREMENTS

4.11.3 Solidification of at least one representative test specimen from at least every tenth batch of each type of wet radioactive wastes, (e.g., filter sludges, spent resins), SHALL BE VERIFIED IN ACCORDANCE WITH THE VENDOR'S PROCESS CONTROL PROGRAM.

4.11.3.1 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 may be modified if practical to assure solidification of subsequent batches of waste.

4.11.3.2 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 vendors 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.

→ (DRN 02-216)
3/4.11 RADIOACTIVE EFFLUENTS (See note below)
← (DRN 02-216)

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 release of radioactivity and to direct radiation from uranium fuel cycle sources shall be limited to less than or equal to 25 mrem to the total body or any organ, except the thyroid, which shall be limited to less than or equal to 75 mrem.

APPLICABILITY: At all times.

ACTION:

With the calculated doses from the release of radioactive materials in liquid or gaseous effluents exceeding twice the limits of Requirement 3.11.1.2.a 3.11.1.2.b, 3.11.2.2.a, 3.11.2.2.b, 3.11.2.3.a or 3.11.2.3.b, calculations shall be made including direct radiation contributions from the reactor units and from outside storage tanks to determine whether the above limits of Requirement 3.11.4 have been exceeded. This evaluation should be done in accordance with guidance in the ODCM. If such is the case, prepare and submit to the Commission within 30 days, pursuant to Technical Specification 6.9.2, a Special Report. This Special Report shall define 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. As defined in 10CFR20.2203(a)(4), the Special Report 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. The Special Report shall 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 Requirement 3.11.4 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.

→ (DRN 04-1191, Am. 91)
The provisions of TRM LCO 3.0.3 and 3.0.4 are not applicable.
← (DRN 04-1191, Am. 91)

→ (DRN 02-216)
NOTE: TRM Specification 3.11.4 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Specification requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

SURVEILLANCE REQUIREMENTS (Continued)

4.11.4.1 Cumulative dose contributions from liquid and gaseous effluents shall be determined in accordance with Requirement 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 reactor units and from radwaste storage tanks shall be determined in accordance with the methodology and parameters in the ODCM. This requirement is applicable only under conditions set forth in Requirement 3.11.4.