→ (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	SAMPLE TYPE AND FREQUENCY	ANALYSIS FREQUENCY	TYPE OF ANALYSIS [a]
BATCH RELEASES [d, g]			
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.

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.

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]	Weekly	I-131 I-133
	Continuous Particulate Sample [c]	Weekly	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.

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.

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 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.

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 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.

→ (DRN 02-216)
3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING (See note below)
← (DRN 02-216)
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 Technical Specification 6.9.1.7, a description of the reasons for not conducting the program as required and the plans for preventing a recurrence.

b. With the level of radioactivity as the result of plant effluents in an environmental sampling medium at a specified location exceeding the reporting levels of Table 3.12-2 when averaged over any calendar quarter, prepare and submit to the Commission within 30 days, pursuant to Technical Specification 6.9.2, a Special Report. This Special Report 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 Requirements 3.11.1.2, 3.11.2.2 and 3.11.2.3.

When more than one of the radionuclides in Table 3.12-2 are detected in the sampling medium, this report shall be submitted if:

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

When radionuclides other than those in Table 3.12-2 are detected and are the result of plant effluents, this report shall be submitted if the potential annual dose* to MEMBER OF THE PUBLIC is equal to or greater than the calendar year limits of Requirements 3.11.1.2, 3.11.2.2 and 3.11.2.3.

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

→ (DRN 02-216)
NOTE: TRM Specifications 3.12.1 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)
RADIOLOGICAL ENVIRONMENTAL MONITORING (See note below)
← (DRN 02-216)
LIMITING CONDITION FOR OPERATION (Continued)

ACTION: (Continued)

b. This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event, the condition shall be reported and described in the Annual Radiological Environmental Operating Report.

c. With milk or fresh leafy vegetable samples unavailable from one or more of the sample locations required by Table 3.12-1, identify locations for obtaining replacement samples and add them to the radiological environmental monitoring program within 30 days.
The specific locations from which samples were unavailable may then be deleted from the monitoring program. Pursuant to Technical Specification 6.9.1.8, identify the cause of the unavailability of samples and identify the new location(s) for obtaining replacement samples in the next Annual Radioactive Effluent Release Report and also include in the report revised table(s) and figure(s) for the ODCM reflecting the new locations(s).

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 tables and figures 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.

→ (DRN 02-216)

NOTE: TRM Specification 3.12.1 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)

TABLE 3.12-1 (See note below)

← (DRN 02-216)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS [1]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
1. DIRECT RADIATION [2]	31 routine monitoring stations either with 2 or more dosimeters or one instrument for measuring and recording dose rate continuously, placed as follows: An inner ring of stations, one in each meteorological sector in the general area of the SITE BOUNDARY An outer ring stations, 1 in 10 of the meteorological sectors in the 6- to 8-km range from the site, The balance of the stations to be in special interest areas such as population centers, nearby residences, schools, and in 1 or 2 areas to serve as control stations	Quarterly	Gamma dose quarterly.

→ (DRN 02-216)

NOTE: TRM Table 3.12-1 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 3.12-1 (Continued, See note below)

← (DRN 02-216)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS [1]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
2. AIRBORNE RADIOIODINE AND PARTICULATES	Samples from five locations Three samples from close to the three SITE BOUNDARY locations, in different sectors, in or near sectors having the highest calculated annual average ground-level D/Q One sample from the vicinity of a community having the highest calculated annual average ground-level D/Q One sample from a control location, as for example 15-30 km distant and in the least prevalent wind direction. [3]	Continuous sampler operation with sample collection bi-weekly, or more frequently if required by dust loading.	Radioiodine Canister I-131 analysis bi-weekly. Particulate Sampler: Gross beta radioactivity analysis following filter change [4]: Gamma isotopic analysis of composite[5] (by location) quarterly.

→ (DRN 02-216)

NOTE: TRM Table 3.12-1 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 3.12-1 (Continued, See note below)

← (DRN 02-216)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS [1]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
3. WATERBORNE			
a. Surface [6]	One sample upstream One sample downstream	Composite sample over one quarter period [7,10]	Gamma isotopic analysis quarterly. [5,10] Composite for tritium analysis quarterly.
b. Ground	Samples from one or two sources only if likely to be affected [8]	Quarterly	Gamma isotopic [5] and tritium analysis quarterly.

→ (DRN 02-216)

NOTE: TRM Table 3.12-1 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 3.12-1 (Continued, See note below)

← (DRN 02-216)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS [1]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
3. WATERBORNE			
→ (DRN 02-357)			
c. Drinking	One sample upstream.	Composite sample over one month period [7] when I-131 analysis is performed, quarterly[10] composite otherwise	I-131 analysis on each composite when the dose calculated for the consumption of the water is greater than one mrem per year [9] Composite for gross beta and gamma isotopic analyses [5] quarterly[10] Composite for tritium analysis quarterly.
← (DRN 02-357)	One sample downstream.		
→ (DRN 02-357)			
d. Sediment from shoreline	One sample upstream.	Annually	Gamma isotopic analysis [5] annually.
← (DRN 02-357)	One sample downstream.		

→ (DRN 02-216)

NOTE: TRM Table 3.12-1 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 3.12-1 (Continued, See note below)

← (DRN 02-216)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS [1]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
4. INGESTION → (DRN 02-357)			
a. Milk	Samples from milking animals in the three locations within 5 km distance having the highest dose potential. If there are none, then, one sample from milking animals in each of the three areas between 5 to 8 km distant where doses are calculated to be greater than 1 mrem per yr. [9] ← (DRN 02-357)	Quarterly	Gamma isotopic [5] and I-131 analysis quarterly.
	One sample from milking animals at a control location 15-30 km distant and in the least prevalent wind direction.[3]		

→ (DRN 02-216)

NOTE: TRM Table 3.12-1 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 3.12-1 (Continued, See note below)

← (DRN 02-216)

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM*

EXPOSURE PATHWAY AND OR SAMPLE	NUMBER OF REPRESENTATIVE SAMPLES AND SAMPLE LOCATIONS [1]	SAMPLING AND COLLECTION FREQUENCY	TYPE AND FREQUENCY OF ANALYSIS
4. INGESTION			
b. Fish and Invertebrates	One sample of each commercially and recreational important species in vicinity of plant discharge area. One sample of same species in area not influenced by plant discharge.	Sample in season, or annually if they are not seasonal	Gamma isotopic analysis [5] on edible portions.
→ (DRN 02-357) c. Broad Leaf	Samples of one to three different kinds of broad leaf vegetation grown nearest each of two different offsite locations of highest predicted annual average groundlevel D/Q if milk sampling is not performed.	Quarterly	Gamma isotopic [5] and I-131 analysis
	One sample of each of the similar broad leaf vegetation grown 15-30 km distant in the least prevalent Wind direction if milk sampling is Not performed.	Quarterly	Gamma isotopic [5] and I-131 analysis
← (DRN 02-357)			

→ (DRN 02-216)

NOTE: TRM Table 3.12-1 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 3.12-1 (Continued, See note below)

← (DRN 02-216)

TABLE NOTATIONS

* The number, media, frequency, and location of samples may vary from site to site. This table presents an acceptable minimum program for a site at which each entry is applicable. Local site characteristics must be examined to determine if pathways not covered by this table may significantly contribute to an individual's dose and should be included in the sampling program.

1 Specific parameters of distance and direction sector from the centerline of one reactor, and additional description where pertinent, shall be provided for each and every sample location in the ODCM. Refer to NUREG-0133 and to Radiological Assessment Branch Technical Position, Revision 1, November 1979. Deviations are permitted from the required sampling schedule if specimens are unobtainable due to hazardous conditions, seasonal unavailability, malfunction of automatic sampling equipment and other legitimate reasons. If specimens are unobtainable due to sampling equipment malfunction, corrective action shall be completed 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 6.9.1.7. It is recognized that, at times, it may not be possible or practicable to continue to obtain samples of the media of choice at the most desired location or time. In these instances suitable alternative media and locations may be chosen for the particular pathway in question and appropriate substitutions made within 30 days in the radiological environmental monitoring program given in the ODCM. Pursuant to Specification 6.9.1.8, identify the cause of the unavailability of samples for that pathway and identify the new location(s) for obtaining replacement samples in the next Annual Radioactive Effluent Release Report and also include in the report revised figure(s) and table for the ODCM reflecting the new location(s).

2 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. Film badges shall not be used as dosimeters for measuring direct radiation. The frequency of analysis or readout for TLD systems will depend upon the characteristics of the specific system used and should be selected to obtain optimum dose information with minimal fading.

3 The purpose of this sample is to obtain background information. If it is not practical to establish control locations in accordance with the distance and wind direction criteria, other sites that provide valid background data may be substituted.

→ (DRN 02-216)

NOTE: TRM Table 3.12-1 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 3.12-1 (Continued, See note below)

← (DRN 02-216)

TABLE NOTATIONS

[4] Airborne particulate sample filters shall be analyzed for gross beta radioactivity 24 hours or more after sampling to allow for radon and thoron daughter decay. if gross beta activity in air particulate samples is greater than 10 times the yearly mean of control samples, gamma isotopic analysis shall be performed on the individual samples.

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

[6] The "upstream sample" shall be taken at a distance beyond significant influence of the discharge. The "downstream" sample shall be taken in an area beyond but near the mixing zone. "Upstream" samples in an estuary must be taken far enough upstream to be beyond the plant influence. Salt water shall be sampled only when the receiving water is utilized for recreational activities.

[7] A composite sample is one in which the quantity (aliquot) of liquid sampled is proportional to the quantity of flowing liquid and in which the method of sampling employed results in a specimen that is representative of the liquid flow. In this program composite sample aliquots shall be collected at time intervals that are very short (e.g., hourly) relative to the compositing period (e.g., monthly) in order to assure obtaining a representative sample.

[8] Groundwater samples shall be taken when this source is tapped for drinking or irrigation purposes in areas where the hydraulic gradient or recharge properties are suitable for contamination.

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

[10] Composite samples for surface and/or Drinking Water should be performed every quarter for gross beta and gamma isotopic analysis and monthly for I-131 analysis.

→ (DRN 02-216)

NOTE: TRM Table 3.12-1 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, Am. 51)

TABLE 3.12-2 (See note below)

← (DRN 02-216, Am. 51)

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS

IN ENVIRONMENTAL SAMPLES

Reporting Levels

ANALYSIS	WATER (pCi/l)	AIRBORNE PARTICULATE OR GASES (pCi/M^3)	FISH (pCi/kg, wet)	MILK (pCi/l)	FOOD PRODUCTS (pCi/kg, wet)
→ (DRN 03-255, Am. 73)					
H-3	20,000*				
← (DRN 03-255, Am. 73)					
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-95	400				
Nb-95	400				
→ (DRN 03-255, Am. 73)					
I-131	2**	0.9		3	100
← (DRN 03-255, Am. 73)					
Cs-134	30	10	1,000	60	1,000
Cs-137	50	20	2,000	70	2,000
Ba-140	200			300	
La-140	200			300	

→ (DRN 02-216, Am. 51)

NOTE: TRM Table 3.12-2 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, Am. 51)

→ (DRN 03-255, Am. 73)

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

** If no drinking water pathway exists, a value of 20 pCi/l may be used.

← (DRN 03-255, Am. 73)

→ (DRN 02-216, Am. 51)

TABLE 4.12-1 (See note below)

← (DRN 02-216. Am. 51)

DETECTION CAPABILITIES FOR ENVIRONMENTAL SAMPLE ANALYSIS

→ (DRN 03-255, Am. 73)

LOWER LIMITS OF DETECTION (LLD)[a,b,c e]

← (DRN 03-255, Am. 73)

ANALYSIS	WATER (pCi/l)	AIRBORNE PARTICULATE OR GASES (pCi/M^3)	FISH (pCi/kg, wet)	MILK (pCi/l)	FOOD PRODUCTS (pCi/kg, wet)	SEDIMENT (pCi/kg, dry)
Gross Beta	4	0.01				
→ (DRN 03-255, Am. 73) H-3 ← (DRN 03-255, Am. 73)	2,000[f]					
Mn-54	15		130			
Fe-59	30		260			
Co-58	15		130			
Co-60	15		130			
Zn-65	30		260			
→ (DRN 03-255, Am. 73) Zr-95 ← (DRN 03-255, Am. 73)	15					
Nb-95	15					
I-131	1[d]	0.07		1	60	
Cs-134	15	0.05	130	15	60	150
Cs-137	18	0.06	150	18	80	180
→ (DRN 03-255, Am. 73) Ba-140 ← (DRN 03-255, Am. 73)	15			15		
La-140	15			15		

→ (DRN 02-216, Am. 51)

NOTE: TRM Table 4.12-1 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, Am. 51)

→ (DRN 02-216, Am. 51)

TABLE 4.12-1 (See note below)

← (DRN 02-216, Am. 51)

TABLE NOTATIONS

a. This list does not mean that only these nuclides are to be considered Other peaks that are identifiable, together with those of the above nuclides, shall also be analyzed and reported in the Annual Radiological Environmental Operating Report pursuant to Technical Specification 6.9.1.7.

b. Required detection capabilities for thermoluminescent dosimeters used for environmental measurements shall be in accordance with the recommendations of Regulatory Guide 4.13.

c. 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 Technical Specification 6.9.1.7.

→ (DRN 03-255, Am. 73)

d. LLD for drinking water samples. If no drinking water pathway exists, a value of 15 pCi/l may be used.

← (DRN 03-255, Am. 73)

e. The LLD is defined in the ODCM.

→ (DRN 03-255, Am. 73)

f. If no drinking water pathway exists, a value of 3000 pCi/l may be used.

← (DRN 03-255, AM. 73)

→ (DRN 02-216, Am. 51)

NOTE: TRM Table 4.12-1 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, Am. 51)

→ (DRN 02-216)
3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING (See note below)
← (DRN 02-216)

3/4.12.2 LAND USE CENSUS

LIMITING CONDITION FOR OPERATION

3.12.2 A land use census shall be conducted and shall identify within a distance of 8 km (5 miles) the location in each of the 16 meteorological sectors of the nearest milk animal, the nearest residence, and the nearest garden* of greater than 50 m^2 (500 ft^2) producing broad leaf vegetation.

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 Requirement 4.11.2.3, identify the new location(s) in the next Annual Radioactive Effluent Release Report, pursuant to Specification 6.9.1.8.

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 Requirement 3.12-1, add the new location(s), to the radiological environmental monitoring program within 30 days. The sampling location(s), excluding the control station location, having the lowest calculated dose or dose commitment(s), via the same exposure pathway, may be deleted from this monitoring program after October 31 of the year in which this land use census was conducted. Pursuant to Technical Specification 6.9.1.8 identify the new location(s) in the next Annual Radioactive Effluent Release Report and also include revised figure(s) and table(s) for the ODCM reflecting the new location(s).

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

→ (DRN 02-216)
NOTE: TRM Specification 3.12.2 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)

3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING

3/4.12.2 LAND USE CENSUS (Continued)

SURVEILLANCE REQUIREMENTS

→ (DRN 02-216)

4.12.2 The land use census shall be conducted during the growing season at least once

← (DRN 02-216)

per 24 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 Technical Specification 6.9.1.7.

→ (DRN 02-216)
3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING (See note below)
← (DRN 02-216)
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.

APPLICABILITY: At all times.

ACTION:

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 Technical Specification 6.9.1.7.

SURVEILLANCE REQUIREMENTS

4.12.3 The Interlaboratory comparison Program shall be described in the ODCM. A summary of the results obtained as part of the above required Interlaboratory Comparison Program shall be included in the Annual Radiological Environmental Operating Report pursuant to Technical Specification 6.9.1.7.

→ (DRN 02-216)

NOTE: TRM Specification 3.12.3 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)

NOTE

The BASES contained in the succeeding pages summarize the reasons for the requirements of Sections 3.0 and 4.0.

→ (DRN 02-912)
3/4.1.2 BORATION SYSTEMS CHARGING PUMPS – APPENDIX R
← (DRN 02-912)

The Action of this TRM is required to be entered for charging pump A and charging pump B, separately. Also, the allowed outage time (AOT) of 7 days is tracked separately for each pump.

TRM 3/4.1.2 was developed to control the amount of time charging pumps A and B are allowed to remain inoperable. The Limiting Condition For Operation (LCO) requires charging pumps A and B to be Operable in Modes 1, 2, 3, and 4. The Applicability of Modes 1, 2, 3, and 4 is consistent with Technical Specifications (TS) 3.1.2.4 Applicability for the charging pumps. For the purposes of this TRM, a charging pump does not have to be aligned for service to be considered Operable; it only has to be readily available and capable of being aligned to perform its specified function.

The Action when the LCO cannot be met requires the inoperable charging pump(s) to be restored to Operable status within 7 days. If for some reason the inoperable charging pump(s) cannot be restored within 7 days, an hourly fire watch in the designated fire areas must be established within the next one hour. TRM Table 3.1-1, "Impacted Fire Areas with Charging Pump(s) Inoperable" lists the required fire areas that need fire watches when a required charging pump is inoperable.

The allowed outage time of 7 days is consistent with the "Remote Shutdown System" TS (TS 3.3.3.5). The requirement to establish an hourly fire watch compensates for not having one level of fire protection for greater than 7 days. The Waterford 3 fire hazards analysis relies on defense in depth for fire protection, but credits detection followed by timely extinguishing via the fire brigade.

No Surveillance Requirements are required per this TRM other than those required by Technical Specification 4.1.2.4.

Charging Pump AB is not required to be Operable for Appendix R purposes per this TRM. There are no fire areas that credit only charging pump AB as the Appendix R protected pump.

Technical Specification 3.1.2.4 Action requires a plant shutdown when the inoperable charging pump cannot be restored within 72 hours. This TRM requires a fire watch to be established if the pump is not restored within 7 days. If a TS required shutdown to Cold Shutdown is completed within 108 hours (72 hour AOT + 36 hours to CSD = 4.5 days), which is less than 7 days, fire watch patrols would not have to be deployed. However, if one pump is restored to Operable status (shutdown not required) and the other pump is inoperable for more than 7 days, fire watch patrols are required to be deployed.

3/4.3 INSTRUMENTATION

BASES

3/4.3.3.1 RADIATION MONITORING INSTRUMENTATION

The OPERABILITY of the radiation monitoring channels ensures that: (1) the radiation levels are continually measured in the areas served by the individual channels; (2) the alarm or automatic action is initiated when the radiation level trip setpoint is exceeded; and (3) sufficient information is available on selected plant parameters to monitor and assess these variables following an accident.

3/4.3.3.2 INCORE DETECTORS

The OPERABILITY of the incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core.

3/4.3.3.3 SEISMIC INSTRUMENTATION

The OPERABILITY of the seismic instrumentation ensures that sufficient capability is available to promptly determine the magnitude of a seismic event and evaluate the response of those features important to safety. This capability is required to permit comparison of the measured response to that used in the design basis for the facility to determine if plant shutdown is required pursuant to Appendix "A" of 10 CFR Part 100. The instrumentation is consistent with the recommendations of regulatory Guide 1.12, "Instrumentation for Earthquakes," April 1974.

3/4.3.3.4 METEOROLOGICAL INSTRUMENTATION

The OPERABILITY of the meteorological instrumentation ensures that sufficient meteorological data are available for estimating potential radiation doses to the public as a result of routine or accidental release of radioactive materials to the atmosphere. This capability is required to evaluate the need for initiating protective measures to protect the health and safety of the public and is consistent with the recommendations of Regulatory Guide 1.23 "Onsite Meteorological Programs," February 1972.

3/4.3.3.8 FIRE DETECTION INSTRUMENTATION

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

In the event that a portion of the fire detection instrumentation is inoperable, the establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is restored to OPERABILITY.

→ (DRN 02-216)
3/4.3 INSTRUMENTATION (See note below)
← (DRN 02-216)
BASES

3/4.3.3.9 LOOSE-PART DETECTION INSTRUMENTATION

The OPERABILITY of the loose-part detection instrumentation ensures that sufficient capability is available to detect loose metallic parts in the primary system and avoid or mitigate damage to primary system components. The allowable out-of-service times and Surveillance Requirements are consistent with the recommendations of Regulatory Guide 1.133, "Loose-Part Detection Program for the Primary System of Light-Water-Cooled Reactors," May 1981.

3/4.3.3.10 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases of liquid effluents. The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the methodology and parameters in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50.

3/4.3.3.11 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the methodology and parameters in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. This instrumentation also include provisions for monitoring (and controlling) the concentrations of potentially explosive gas mixtures in the WASTE GAS HOLDUP SYSTEM. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50.

3/4.3.4 TURBINE OVERSPEED PROTECTION

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

→ (DRN 02-216)

NOTE: TRM Specification Bases 3/4.3.3.10 and 3/4.3.3.11 are part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of these TRM Specification Bases requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

→ (DRN 02-677, Am. 56)

3/4.3 INSTRUMENTATION

BASES

3/4.3.5 ULTRASONIC FLOWMETERS

→ (DRN 02-1889, Am. 74, DRN 03-247, Am. 75)

The ultrasonic flowmeters (UFMs) measure feedwater flow and bulk feedwater temperature. The UFM feedwater flow and feedwater bulk temperature inputs will be used by the Core Operating Limits Supervisory System (COLSS) to calculate station secondary calorimetric power. The UFM feedwater flow and feedwater bulk temperature inputs are also used as inputs into calibration constant algorithms that compensate or "calibrate" the alternate feedwater and main steam venturi-based flows and feedwater temperature instrumentation inputs used by COLSS on a loss of UFMs.

The loss of a UFM will cause a control room alarm to annunciate and COLSS to automatically default to the compensated alternate venturi-based instrumentation inputs. COLSS normally defaults to Main Steam BSCAL (MSBSCAL) when reactor core power is greater than or equal to 95% of 3441 MWt RATED THERMAL POWER (RTP) or Feedwater BSCAL (FWBSCAL) when reactor core power is less than 95% of 3441 MWt RTP. MSBSCAL and FWBSCAL are calibrated by the UFM calibration factors. The requirement for the UFM to be operable above 50% power ensures that feedwater temperature is greater than the temperature (250 F) at which the UFM is reliable and the most accurate power measurement instrumentation is used over a large power range.

← (DRN 02-1889, Am. 74, DRN 03-247, Am. 75)

→ (DRN 02-1889, Am. 74; DRN 03-247, Am. 75)

← (DRN 02-1889, Am. 74; DRN 03-247, Am. 75)

→ (DRN 02-1889, Am. 74; DRN 03-247, Am. 75)

Within 48 hours following the loss of the UFMs, operator action must be taken to reduce THERMAL POWER to less than or equal to 3423 MWt (99.4%). The decrease in power within the 48 hour completion time takes into account the reduction of confidence in the UFM based calibration factors resulting from COLSS alternate instrumentation loop drift caused by time and ambient temperature uncertainty effects. On restoration, THERMAL POWER should be maintained at the previous TRM action level until UFM calibration factors are developed.

← (DRN 02-1889, Am. DRN 03-247, Am. 75)

→ (DRN 03-247, Am. 75)

Within 31 days following the loss of the UFMs, operator action must be taken to reduce power to less than or equal to 3390 MWt (98.5%). The decrease in power within the 31 day completion time takes into account the loss of confidence in the UFM based calibration factors.

← (DRN 02-677, Am. 56; DRN 03-247, Am. 75)

→ (DRN 02-677, Am. 56)

3/4.3 INSTRUMENTATION

BASES

3/4.3.5 ULTRASONIC FLOWMETERS (cont'd)

→ (DRN 02-1889, Am. 74; DRN 03-247, Am. 75)

The 48 hour and 31 day LCO ACTION STATEMENTS are required to maintain consistency with the COLSS Secondary Calorimetric Measurement Uncertainty analyses. The entry into LCO ACTION STATEMENTS begins with the loss of the UFM, when greater than 50% power. The appropriate ACTION STATEMENT time limit entry will be based on the last time MSBSCAL and FWBSCAL were updated by the UFM calibration factors prior to UFM failure. These ACTIONS ensure CPC margins to trip remain conservative and preserve the Appendix K ECCS limits.

← (DRN 02-1889, Am. 74; DRN 03-247, Am. 75)

→ (DRN 03-247, Am. 75)

If COLSS is out of service, then Core Protection Calculator System (CPCS) will continue to maintain plant operations within the core power operating limits. Operating limits will be maintained through compliance with Technical Specifications (TS) sections 3.2.1, 3.2.3, 3.2.4, 3.2.7, and 4.3.1.1, Table 4.3-1 (2, 9, 10, 14) applicable ACTION STATEMENTS and Surveillance Requirements (SR). If the UFM(s) is OPERABLE during the period COLSS is out of service, then plant operation may continue at 3441 MWt RTP using the power indications from the CPCS and UFM based manual secondary calorimetric measurement. If the UFM(s) becomes INOPERABLE during the period COLSS is out of service, then plant operation may continue at 3441 MWt RTP using the power indications from the CPCS. However, in order to remain in compliance with the bases for operation at a RTP of 3441 MWt, the UFM(s) must be returned to service prior to the next required daily CPCS calibration or THERMAL POWER must be reduced to less than or equal to 3390 MWt (98.5%). This power reduction is performed prior to the next CPC calibration in order to remain within the alternate venturi-based instrumentation power measurement uncertainty analysis and maintain consistency with the COLSS Secondary Calorimetric Measurement Uncertainty analyses.

← (DRN 03-247, Am. 75)

The TRM is annotated with a 3.0.4 exemption, allowing entry into the applicable Mode to be made with UFMs INOPERABLE, as required by the Actions.

The SR 4.3.5.a. to perform a CHANNEL FUNCTIONAL TEST at least once per 18 months is based on the vendor recommendations. The UFM equipment contains on-line self-diagnostic capabilities to continuously verify operation within its design bounds. The 18 month frequency is based on the refueling cycle. This frequency is acceptable from a reliability standpoint.

The SR 4.3.5.b 31 day CHANNEL CHECK verifies the COLSS alternate calorimetric heat balances MSBSCAL and FWBSCAL are within a value bounded by engineering analyses. This comparison of alternate heat balances to USBSCAL assures the calibration factors derived by USBSCAL are valid and the basis for the original power measurement uncertainty assumptions for operation are maintained at the various thermal power levels when UFM is inoperable.

← (DRN 02-677, Am. 56)

3/4.6 CONTAINMENT SYSTEMS

BASES

3/4.6.1 PRIMARY CONTAINMENT

Primary CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the safety analyses. This restriction, in conjunction with the leakage rate limitation, will limit the SITE BOUNDARY radiation doses to within the limits of 10 CFR Part 100 during accident conditions.

3/4.6.1.2 CONTAINMENT LEAKAGE

The limitations on containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the safety analyses at the peak accident pressure, P_a. As an added conservatism, the measured overall integrated leakage rate is further limited to less than or equal to 0.75 L_a or less than or equal to 0.75 L_t as applicable during performance of the periodic tests to account for possible degradation of the containment leakage barriers between leakage tests.

The surveillance requirements for measuring leakage rates are consistent with the requirements of Appendix J of 10 CFR Part 50. A one time extension of the test interval is allowed for the third Type A test of the first 10-year service period, as required by Surveillance Requirement 4.6.1.2.a and by Section III.D.(a) of Appendix J to 10 CFR Part 50, provided the performance of the Type A test occurs prior to unit restart following Refuel 7.

3/4.6.1.5 AIR TEMPERATURE

→ (DRN 02-1571)

The limitation on containment minimum average air temperature ensures that the ECCS is capable of maintaining a Peak Clad Temperature (PCT) less than or equal to 2200°F under LOCA conditions. A lower containment average air temperature results in a lower post accident containment pressure, a lower reflood rate, and therefore a higher PCT. Lowering the Peak Linear Heat Rate setpoint in COLSS by 0.2 kW/ft. for every 10°F below the minimum containment temperature limit of 90°F will ensure the resulting PCT remains bounded by the UFSAR accident analyses. The value of 0.2 kW/ft. was calculated in a sensitivity analysis performed by ABB and the results are documented in the ABB letter to J.B. Holman dated June 29, 1993 (Letter number L-93-026).

← (DRN 02-1571)

The 90°F minimum value specified in the TRM is the value used in the accident analysis and does not contain any allowance for temperature measurement instrument uncertainty. Instrument uncertainty is addressed in the surveillance procedure.

3/4.6.3 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment and is consistent with the requirements of GDC 54 through GDC 57 of Appendix A to 10 CFR Part 50. Containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

3/4.6.3 CONTAINMENT ISOLATION VALVES

BASES

The opening of locked or sealed closed containment isolation valves on an intermittent basis under administrative control includes the following considerations: (1) stationing an operator, who is in constant communication with control room, at the valve controls, (2) instructing this operator to close these valves in an accident situation, and (3) assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the containment.

BASES

3/4.7.1.6.1 MAIN FEEDWATER REGULATING VALVES AND STARTUP FEEDWATER REGULATING VALVES

The Main Feedwater Isolation Valves (MFIVs) isolate main feedwater (MFW) flow to the secondary side of the steam generators following a high energy line break. Closure of the MFIVs terminates flow to both steam generators, terminating the event for feedwater and steam line breaks occurring downstream of the MFIVs. The consequences of events occurring in the MFW lines upstream of the MFIVs will also be mitigated by their closure.

Main Feedwater Regulating Valves (MFRV) and Startup Feedwater Regulating Valves (SFRV) are located upstream of the MFIV and are used as a backup to their related MFIV. Both valves must close to isolate the line. These valves close on a MSIS and are furnished with emergency closure circuits so that the closure can be actuated through override of their normal control signals.

In MODES 1, 2, 3, and 4, the SFRVs and MFRVs must be capable of actuating to the closed position on a MSIS, except when they are closed and deactivated or isolated by either a closed manual valve or closed and deactivated automatic valve. When a SFRV or MFRV is closed and deactivated or isolated by a closed manual valve or closed and deactivated automatic valve, it is already performing its safety function and continued operation in the applicable MODES is allowed.

With one SFRV or MFRV unable to actuate to the closed position on a MSIS, action must be taken to close or isolate the inoperable valve within 72 hours. The 72 hour Completion Time is consistent with that for the MFIVs. The 72 hour Completion Time is reasonable to return the SFRVs and MFRVs to functional status or isolate the affected flow path.

SFRVs and MFRVs that are closed or isolated because they are unable to actuate to the closed position on a MSIS must be verified on a periodic basis that they are closed or isolated. The 7 day time is reasonable in view of valve status indications available in the control room, and other administrative controls to ensure that these valves are closed or isolated.

If a non-functional SFRV and MFRV cannot be repaired, closed, or isolated in the required time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 in the following 30 hours. The allowed completion times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

The TRM requirement is annotated with a 3.0.4 exemption, allowing entry into the applicable MODEs to be made with a SFRV or MFRV closed or isolated as required by the ACTIONs. The ACTIONS allow separate condition entry for each valve by using "With one or more SFRV or MFRV...". This prevents immediate entry into TS 3.0.3 if multiple SFRVs and/or MFRVs are unable to actuate to the closed position on a MSIS.

3/4.7.1.6.1 MAIN FEEDWATER REGULATING VALVES AND STARTUP FEEDWATER REGULATING VALVES (Continued)

The Surveillance Requirement to verify isolation in less than or equal to 4.5 seconds supports the 5.0 second time assumed in the accident and containment analyses minus 0.5 seconds to account for measurement uncertainty. The SFRVs and MFRVs should not be tested at power since even a partial stroke exercise increases the risk of a valve closure with the plant generating power. The Surveillance to verify each SFRV and MFRV can close on an actual or simulated actuation signal is normally performed when the plant is returning to operation following a refueling outage. The 18 month frequency is based on the refueling cycle. Verification of closure time is performed per TS 4.0.5. This frequency is acceptable from a reliability standpoint and is in accordance with the Inservice Testing Program.

→(DRN 02-1683)

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BASES

3/4.7.1.7 ATMOSPHERIC DUMP VALVES

The ADVs have two safety functions 1) to close for containment isolation and 2) to open in order to provide for cooldown capability during isolation conditions. The ADV close safety function is addressed in Technical Requirements Manual (TRM) Table 3.6-2, "Containment Isolation Valves," as containment isolation valves and is applicable to TS 3.6.3 ACTION statements. This section addresses the open safety function of the valves.

The open safety function of the ADVs provide a safety grade method for cooling the unit to Shutdown Cooling (SDC) System entry conditions, should the preferred heat sink via the Steam Bypass System to the condenser not be available, as discussed in the FSAR, Section 10.3. This safety grade cooldown function is performed in conjunction with the Emergency Feedwater System providing cooling water from the condensate storage pool (CSP).

Two ADVs, one per steam generator, are provided. Each ADV flow path consists of an ADV and an associated block valve. The ADVs are provided within upstream block valves to permit their being tested at power, to provide an alternate means of isolation should the ADV not close on demand, and to allow maintenance of the valves with the steam headers pressurized. The ADVs are equipped with pneumatic controllers to permit control of the steam release rate and associated cooldown rate. The controllers provide both automatic and manual ADV operating modes. The ADVs are normally operated using the plant non-safety instrument air supply. Separate safety-related nitrogen accumulators are provided as backups to each of the ADVs in the event of a loss of instrument air.

The ADVs are one of the systems required to meet Branch Technical Position (BTP) RSB 5-1, Design Requirements of the Residual Heat Removal System, and 10 CFR 50, Appendix R for taking the plant from normal operating conditions to cold shutdown. A cooldown analysis was performed assuming loss of offsite power and the failure of one ADV to open. The analysis determined that shutdown cooling entry conditions would be reached in approximately ten hours. The Safety Class 3, Seismic Category I accumulators provide a ten hour minimum backup supply of motive gas for the ADV actuators to assure the valves remain operable from the control room until shutdown cooling entry conditions are satisfied. This is based on the time needed to reach shutdown cooling (SDC) conditions when both hot leg temperatures are reduced to 400°F. This temperature is the design temperature for the shutdown cooling system (SDCS) components.

The ADVs are used during normal plant startups and for cooldowns when either a vacuum in the condenser or the Steam Bypass Control System (SBCS) is not available. The ADVs are capable of being operated remotely from either the Control Room or the Remote Shutdown Panel (LCP-43), and locally from the local pneumatic panel or with manual handwheels.

In the accident analysis presented in the FSAR, the ADVs are assumed to be used by the operator to cooldown the plant to SDC System entry conditions for accidents accompanied by a loss of offsite power. Prior to the operator action, the main steam safety valves (MSSVs) are used to maintain steam generator pressure and temperature at the MSSV setpoint. Operator action is assumed to be 30 minutes following the initiation of an event. The limiting events are those that render one steam generator unavailable for RCS heat removal, with a coincident loss of offsite power. Typical initiating events falling into this category are a main steam line break (MSLB) between the main steam isolation valves and the steam generators, a feedwater line break (FWLB), and a steam generator tube rupture (SGTR).
← (DRN 02-1794)

3/4.7.1.7 ATMOSPHERIC DUMP VALVES (Continued)

One ADV is required to be OPERABLE on each steam generator to ensure that one ADV is OPERABLE to conduct a plant cooldown following an event in which one steam generator and the condenser become unavailable. An ADV is considered OPERABLE if it can be stroked through a complete cycle in accordance with Specification 4.0.5. Failure to meet the LCO can result in the inability to cool the plant to shutdown cooling entry conditions following an event in which the condenser is unavailable. The ADVs are required to be OPERABLE in MODES 1, 2, 3, and 4. In these MODES the ADVs provide the safety grade cooldown for the RCS to shutdown cooling entry conditions.

→ (DRN 02-1923)
If one ADV is inoperable, 72 hours is provided to return it to an OPERABLE status. The 72 hour allowed outage time takes into account the capability afforded by the remaining OPERABLE ADV and a non-safety backup in the SBCS and MSSVs. If both ADVs are inoperable, 1 hour is provided to return one ADV to an OPERABLE status. If the ADVs cannot be restored to OPERABLE status within the associated Completion Time, the plant must be placed in a MODE in which the LCO does not apply. To achieve this status, the plant must be placed in at least MODE 3 within 6 hours and in COLD SHUTDOWN within the following 30 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant safety systems.
← (DRN 02-1923)

The TRM is annotated with a 3.0.4 exemption, allowing entry into the applicable MODES to be made with an inoperable ADV.

To perform a controlled cooldown of the RCS, the ADVs must be able to be opened and throttled through their full range. The surveillance requirements ensure the ADVs are tested through a full cycle in accordance with Specification 4.0.5.

← (DRN 02-1794)

3/4.7.3 COMPONENT COOLING WATER SYSTEM - APPENDIX R

The Action of this TRM is required to be entered for component cooling water (CCW) pump A and CCW pump B, separately. Also, the allowed outage time (AOT) of 7 days is tracked separately for each pump.

TRM 3/4.7.3 was developed to control the amount of time CCW pumps A and B are allowed to remain inoperable. The Limiting Condition For Operation (LCO) requires CCW pumps A and B to be Operable in Modes 1, 2, 3, and 4. The Applicability of Modes 1, 2, 3, and 4 is consistent with Technical Specifications (TS) 3.7.3 Applicability for the CCW pumps. For the purposes of this TRM, a CCW pump does not have to be aligned for service to be considered Operable; it only has to be readily available and capable of being aligned to perform its specified function.

The Action when the LCO cannot be met requires the inoperable CCW pump(s) to be restored to Operable status within 7 days. If for some reason the inoperable CCW pump(s) cannot be restored within 7 days, an hourly fire watch in the designated fire areas must be established within the next one hour. TRM Table 3.7-1, "Impacted Fire Areas with CCW Pumps Inoperable" lists the required fire areas that need fire watches when a required CCW pump is inoperable.

The allowed outage time of 7 days is consistent with the "Remote Shutdown System" TS (TS 3.3.3.5). The requirement to establish an hourly fire watch compensates for not having one level of fire protection for greater than 7days. The Waterford 3 fire hazards analysis relies on defense in depth for fire protection, but credits detection followed by timely extinguishing via the fire brigade.

No Surveillance Requirements are required per this TRM other than those required by Technical Specification 4.7.3.

CCW Pump AB is not required to be Operable for Appendix R purposes per this TRM. There are no fire areas that credit only CCW pump AB as the Appendix R protected pump.

Technical Specification 3.7.3 Action requires a plant shutdown when the inoperable CCW pump cannot be restored within 72 hours. This TRM requires a fire watch to be established if the pump is not restored within 7 days. If a TS required shutdown to Cold Shutdown is completed within 108 hours (72 hour AOT + 36 hours to CSD = 4.5 days), which is less than 7 days, fire watch patrols would not have to be deployed. However, if one pump is restored to Operable status (shutdown not required) and the other pump is inoperable for more than 7 days, fire watch patrols are required to be deployed.
← (DRN 02-1794)

BASES

3/4.7.10 FIRE SUPPRESSION SYSTEMS

The OPERABILITY of the fire suppression systems ensures that adequate fire suppression capability is available to confine and extinguish fires occurring in any portion of the facility where safety-related equipment is located. The fire suppression system consists of the water system spray and/or sprinklers, fire hose stations, and yard fire hydrants. The collective capability of the fire suppression systems is adequate to minimize potential damage to safety-related equipment and is a major element in the facility fire protection program.

In the event that portions of the fire suppression systems are inoperable, alternate backup fire fighting equipment is required to be made available in the affected areas until the inoperable equipment is restored to service. When the inoperable fire fighting equipment is intended for use as a backup means of fire suppression, a longer period of time is allowed to provide an alternate means of fire fighting than if the inoperable equipment is the primary means of fire suppression.

The Surveillance Requirements provide assurance that the minimum OPERABILITY requirements of the fire suppression systems are met.

In the event the fire suppression water system becomes inoperable, immediate corrective measures must be taken since this system provides the major fire suppression capability of the plant.

3/4.7.11 FIRE RATED ASSEMBLIES

The OPERABILITY of the fire barriers and barrier penetrations ensure that fire damage will be limited. These design features minimize the possibility of a single fire involving more than one fire area prior to detection and extinguishment. The fire barriers, fire barrier penetrations for conduits, cable trays and piping, fire windows, fire dampers, and fire doors are periodically inspected to verify their OPERABILITY.

3/4.7.12 ESSENTIAL SERVICES CHILLED WATER SYSTEM CHILLERS - APPENDIX R

The Action of this TRM is required to be entered for each train of chilled water (CHW) chiller and associated pump separately. Also, the allowed outage time (AOT) of 7 days is tracked separately for each chiller and/or associated pump.

TRM 3/4.7.12 was developed to control the amount of time the CHW chillers and associated pumps are allowed to remain inoperable. The Limiting Condition For Operation (LCO) requires the CHW chillers and associated pumps to be Operable in Modes 1, 2, 3, and 4. The Applicability of Modes 1, 2, 3, and 4 is consistent with Technical Specifications (TS) 3.7.12 Applicability for the CHW chillers and associated pumps. For the purposes of this TRM, a CHW chiller and/or associated pump does not have to be aligned for service to be considered Operable; they only have to be readily available and capable of being aligned to perform their specified function.

The Action when the LCO cannot be met requires the inoperable CHW chiller(s) and/or associated pump(s) to be restored to Operable status within 7 days. If for some reason the inoperable CHW chiller(s) and/or pump(s) cannot be restored within 7 days, an hourly fire watch in the designated fire areas must be established within the next one hour. TRM Table 3.7-12, "Impacted Fire Areas with CHW Pumps or Chillers Inoperable" lists the required fire areas that need fire watches when a CHW pump or chiller is inoperable.

The allowed outage time of 7 days is consistent with the "Remote Shutdown System" TS (TS 3.3.3.5). The requirement to establish an hourly fire watch compensates for not having one level of fire protection for greater than 7 days. The Waterford 3 fire hazards analysis relies on defense in depth for fire protection, but credits detection followed by timely extinguishing via the fire brigade.

No Surveillance Requirements are required per this TRM other than those required by Technical Specification 4.7.12.

Technical Specification 3.7.12 Action requires a plant shutdown when the inoperable CHW chiller and/or associated pump can not be restored within 72 hours. This TRM requires a fire watch to be established if the pump(s) and/or chiller(s) can not be restored within 7 days. If a TS required shutdown to Cold Shutdown is completed within 108 hours (72 hour AOT + 36 hours to CSD = 4.5 days), which is less than 7 days, fire watch patrols would not have to be deployed. However, if one pump and/or chiller is restored to Operable status (shutdown not required) and the other pump and/or chiller is inoperable for more than 7 days, fire watch patrols are required to be deployed.

3/4.7.13 SWITCHGEAR AREA VENTILATION SYSTEM

→ (DRN 02-1609)

The OPERABILITY of the switchgear area ventilation system ensures that sufficient cooling is supplied to spaces containing electrical equipment located in the reactor auxiliary building cable vault and switchgear areas required for safety-related operations and, during normal plant operation, some nonessential spaces. The portions of the system applicable to this limiting condition for operation include two separate air handling systems, one comprised of two 100% capacity air handling units AH-25 and the other comprised of two 100% capacity air handling units AH-30 and associated coolers, dampers and ducting. A train consists of one AH-25 supply fan, its associated cooler, one AH-30 exhaust fan, and associated dampers and ducting required to supply air to and from the electrical equipment rooms. Both fans of a train are supplied from the same power source. As the switchgear area coolers are a subsystem of the essential services chilled water systems, it is conservative to use the allowed outage times of Technical Specification 3/4.7.12 (essential services chilled water system) for the switchgear area ventilation system. Technical Specifications are not entered for individual components located in rooms supplied by the switchgear area ventilation system. This is fitting as the air handling units offer complete redundancy (including dampers, coolers and power supplies) and share common ducting to supply and exhaust the affected rooms.

← (DRN 02-1609)

The provisions of the allowed outage time specified in this TRM may decrease the availability of SVS components. However, the preventive and corrective maintenance intended for these times will improve the reliability of the system. Overall SVS unavailability will be limited by compliance with 10 CFR 50.36 Maintenance Rule Program. This program provides administrative controls to minimize increases in malfunction probability and prevent problems causing excessive SVS outage time.

→ (DRN 02-1609)

If the Switchgear Ventilation System (SVS) is not restored to OPERABLE status within the 72 hour period allowed by the ACTION statement, then a Justification for Continued Operation (JCO) evaluation should be performed. The regulatory expectations for an evaluation of this type are described in Generic Letter (GL) 91-18. Specifically, GL 91-18 revision 1, Section 4.6, "Reasonable Assurance of Safety," states:

> For SSCs that are not expressly subject to TS and that are determined to be inoperable the licensee should assess the reasonable assure of safety. If the assessment is successful, then the facility may continue to operate while prompt corrective action is taken. Items to be considered for such assessment include the following:
>
> - Availability of redundant or backup equipment
> - Compensatory measures including limited administrative controls
> - Safety function and events protected against
> - Conservatism and margin, and
> - Probability of needing the safety function.
> - PRA or Individual Plant Evaluation (IPE) results that determine how operating the facility in the manner proposed in the JCO will impact the core damage frequency.

→ (DRN 02-912; 02-1609)

← (DRN 02-912; 02-1609)

3/4.7.13 SWITCHGEAR AREA VENTILATION SYSTEM (cont'd)

The requirement for GMPO or designee approval assures plant management is in concurrence with the conclusion of the evaluation and the principle of safety conscious decision making has been appropriately applied.

Note the JCO evaluation does not relieve any operability requirements for TS systems that may be supported by SVS. The operability of TS equipment must be assured at all times or the appropriate TS action should be entered. Additionally, the design basis functions of SVS should be maintained such that there will not be more than a minimal increase in the likelihood of malfunction, or the consequences of a malfunction, of a SSC important to safety. The primary design basis functions that must be preserved are the ability to maintain a suitable operating environment and the ability to prevent the accumulation of a combustible concentration of hydrogen in the battery rooms.

No additional surveillance requirements are imposed other than those required for the essential services chilled water system.
← (DRN 02-1609)

→ (DRN 02-1876)

3/4.7.14 ESSENTIAL INSTRUMENT AIR

Essential Instrument Air (EIA) is designed to provide the motive force for the operation for selected air operated valves that are required for safe shutdown and/or accident mitigation for certain design basis scenarios. Specifically the EIA provides back-up air for CC-641, CC-710, and CC-713 containment isolation air operated valves during post accident operations with a loss of Instrument Air (IA) coincident with a Containment Spray Actuation Signal (CSAS). In addition, it also provides the motive power to containment isolation valves CC-807A, CC-807B, CC-808A, CC-808B, CC-822A, CC-822B, CC-823A, CC-823B, CS-125A, CS-125B and CVC-209 assuming associated Emergency Core Cooling System (ECCS) system malfunctions.

The EIA system is isolated during normal plant operations.

The essential instrument air system consists of 4 stations each with:

- five high pressure accumulator bottles
- high pressure filter
- regulating valve
- relief valve

← (DRN 02-1876)

3/4.7.14 ESSENTIAL INSTRUMENT AIR (cont'd)

The EIA supports the IA system, and is used to supply accumulators/valve operators associated with the above identified safety related containment isolation valves. The EIA is designed to provide air to maintain containment isolation for 30 days post accident. The air in the accumulator stations is designed to be maintained between 2250 and 2500 psig. The system is periodically tested in accordance with the IST program to verify leakdown rates which assures the 30 day capability with an initial pressure of at least 2250 psig.

In some cases, valve specific accumulators do not fully support all required valve actions and manual operation is required to place the EIA system in service. In these cases, a standard time frame of ten (10) hours has been adopted for completion of manual actions. This time period allows simplification of emergency operating procedures related to IA system loss/failure.

The Limiting Condition of Operation is applicable in modes 1, 2, 3 and 4 and it requires all four of the EIA stations to be operable with at least 2250 psig of pressure. The system is designed with two independent sets of air stations (for a total of four individual stations). Each set has a high pressure and low pressure cross-connect. The high pressure cross connect is normally closed and cross connects two stations upstream of the associated station's pressure regulator. Likewise, the low pressure cross connect is normally closed and cross connects two stations downstream of the associated station's pressure regulator. This configuration allows the valves serviced by a particular station to be supported from a backup station if a pressure regulator fails or if pressure is lost in one of the stations.

The actions are designed to accommodate various component level failures and are designed to preserve some level of functionality while efforts are underway to repair the inoperable component(s).

Action A addresses a condition of one station being inoperable (e.g., a failed regulator) and its air bank available (pressure remains $\geq$ 2250 PSIG). The action to align the high pressure and low pressure cross-connect valves within 4 hours ensures full design basis capability to both sets of valves supported by the two stations. The time frame of 4 hours is consistent with the allowed outage time provided in TS 3.6.3 for an inoperable containment isolation valve.

3/4.7.14 ESSENTIAL INSTRUMENT AIR (cont'd)

Action B addresses a condition with one station inoperable and the design pressure not capable of being made available to its sister station (i.e., pressure <2250 psig or unable to align the HP cross connect). The action for this condition is to align the low pressure cross-connect valves to supply the valves served by the inoperable station within 4 hours. While this action will not necessarily establish full design basis capability for 30 days post accident, it will ensure the design capability for some reduced period of time (i.e., potentially for less than 30 days). An allowed outage time of 14 days is appropriate for this condition as functionality will be provided for some period of time; however, this functionality is not assured for the required 30 days. If operability cannot be restored in 14 days then a condition report must be initiated which requires the performance of an evaluation to evaluate whether continued plant operation is justified. The acceptability of continued operation should balance the risk associated with continued operation with the inoperable equipment against the risk associated with placing the plant in a transient, i.e., a plant shutdown or power reduction. Appropriate compensatory measures, related equipment conditions, actual/realistic operating parameters, etc., should be considered and specified in the evaluation. This evaluation should, as appropriate, include quantitative information and/or qualitative risk assessments using both risk insights and informed engineering judgements. The requirement for GMPO or designee approval assures plant management is in concurrence with the conclusion of the evaluation and that an appropriate level of conservative decision making has been applied.

→ (DRN 02-1639)

3/4.8 ELECTRICAL POWER SYSTEMS

BASES

3/4.8.3 ONSITE POWER DISTRIBUTION SYSTEMS

Technical Specification 3/4.8.3 requires that the SUPS be powered from their associated inverters connected to the DC bus. Each of the inverters is normally supplied though its associated rectifier from a 480 V AC MCC. Should this supply fail, the inverters are supplied automatically from a 125 V DC safety related battery. SUPS 3A, 3B and 3AB have a static transfer switch that automatically transfers the load to the bypass transformer if the inverter experiences a predetermined overload, frequency deviation (SUPS 3AB only), undervoltage or overvoltage. In addition, there is a manual transfer switch that allows the operator to connect the load to the bypass transformer if the inverter is not available. Technical Specification 3/4.8.2 requires that the battery and only one of the two battery chargers be operable. When a SUPS rectifier is out of service, the SUPS could be supplied from the DC bus for an indefinite period and still be in compliance with technical specifications. Engineering calculations indicate that battery discharging could occur if a SUPS is being supplied from the DC bus during normal operations (i.e., rectifier out of service) unless the two associated battery chargers are in service. Thus, the potential exists for discharging the battery, even though all applicable technical specifications are being met. If the rectifier is not restored within 24 hours or two battery chargers are not in service within 24 hours, then an evaluation justifying continued safe operation for some defined period of time should be performed. The acceptability of continued operation should balance the risk associated with continued operation with the inoperable equipment against the risk associated with placing the plant in a transient, i.e., a plant shutdown or power reduction. Appropriate compensatory measures, environmental conditions, related equipment conditions, actual/realistic operating parameters, etc., should be considered and specified in the evaluation. This evaluation should, as appropriate, include quantitative information and/or qualitative risk assessments using both risk insights and informed engineering judgments. The requirement for GMPO or designee approval assures plant management is in concurrence with the conclusion of the evaluation and that an appropriate level of conservative decision making has been applied.

← (DRN 02-1639)

3/4 8 ELECTRICAL POWER SYSTEMS

BASES

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations and penetration conductors are protected by either deenergizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance.

The Surveillance Requirements applicable to lower voltage circuit breakers and fuses provides assurance of breaker and fuse reliability by testing at least one representative sample of each manufacturers brand of circuit breaker and/or fuse. Each manufacturer's molded case and metal case circuit breakers and/or fuses are grouped into representative samples which are then tested on a rotating basis to ensure that all breakers and/or fuses are tested. If a wide variety exists within any manufacturer's brand of circuit breakers and/or fuses it is necessary to divide that manufacturer's breakers and/or fuses into groups and treat each group as a separate type of breaker or fuses for surveillance purposes.

The OPERABILITY of the motor-operated valves thermal overload protection and/or bypass devices ensures that these devices will not prevent safety related valves from performing their function. The Surveillance Requirements for demonstrating the OPERABILITY of these devices are in accordance with Regulatory Guide 1.106, "Thermal Overload Protection for Electric Motors on Motor Operated Valves," Revision 1, March 1977.

"Containment Penetration Conductor Overcurrent Protection Devices" and "Motor-Operated Valves Thermal Overload Protection and/or Bypass Devices", previously Tables 3.8-1 and 3.8-2, of the Technical Specifications have been incorporated into this manual.

3/4.9.12 FUEL HANDLING BUILDING VENTILATION SYSTEM

The OPERABILITY of the Fuel Handling Building ventilation system insures that all radioactive material released from an irradiated fuel assembly will be monitored prior to discharge to the atmosphere. The safety analysis for a fuel handling accident in the Fuel Handling Building assumes no filtration and no holdup time.

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

BASES

3/4.11.1.1 CONCENTRATION

This Requirement is provided to ensure that the concentration of radioactive materials released in liquid waste effluents to UNRESTRICTED AREAS will be less than ten times the effluent concentration levels specified in 10 CFR Part 20, Appendix B, Table 2, Column 2. This limitation provides additional assurance that the levels of radioactive materials in bodies of water in UNRESTRICTED AREAS will result in exposures within (1) the Section II.A design objectives of Appendix I, 10 CFR Part 50, to a MEMBER OF THE PUBLIC and (2) the limits of 10 CFR Part 20.1301(e) to the population. The concentration limit for dissolved or entrained noble gases is based upon the assumption that Xe-135 is the controlling radioisotope and its MPC in air (submersion) was converted to an equivalent concentration in water. This specification does not affect the requirement to comply with the annual limitations of 10 CFR 20.1301(a).

The sampling and analysis of the contents of the regenerative waste tank and the filter flush tank is performed if primary to secondary leakage occurs in a steam generator. The contents of these tanks cannot be discharged to the UNRESTRICTED AREA if any radioactivity is detected in these tanks since the discharge from these tanks is unmonitored. When radioactivity is detected in these tanks, the contents from these tanks must be discharged to the liquid radwaste system where the contents may then be monitored upon discharge.

The required detection capabilities for radioactive materials in liquid waste samples are tabulated in terms of the lower limits of detection (LLDs). Detailed discussion of the LLD, and other detection limits can be found in HASL Procedures Manual, HASL-300 (revised annually), Currie, L. A., "Limits for Qualitative Detection and Quantitative Determination - Application to Radiochemistry," Anal. Chem. 40, 586-93 (1968), and NUREG/CR-4007, Currie, L. A. "Lower Limit Of Detection, Definition and Elaboration of a Proposed Position for Radiological Effluent and Environmental Measurements" (September 1984).

3/4.11.1.2 DOSE

This Requirement is provided to implement the requirements of Sections II.A, III.A and IV.A of Appendix I, 10 CFR Part 50. The Limiting Condition for Operation implements the guides set forth in Section II.A of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive material in liquid effluents to UNRESTRICTED AREAS will be kept "as low as is reasonably achievable." Also, for fresh water sites with drinking water supplies that can be potentially affected by plant operations, there is reasonable assurance that the operation of the facility will not result in radionuclide concentrations in the finished drinking water that are in excess of the requirements of 40 CFR 141.16.

→ (DRN 02-216)

NOTE: TRM Specification Bases 3/4.11.1.1 and 3/4.11.1.2 are part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of these TRM Specification Bases 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)

BASES

3/4.11.1.2 DOSE (Continued)

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

3/4.11.1.3 LIQUID RADWASTE TREATMENT SYSTEM

The OPERABILITY of the LIQUID RADWASTE TREATMENT SYSTEM ensures that this system will be available for use whenever liquid effluents require treatment prior to release to the environment. The requirement that the appropriate portions of this system be used when specified provides assurance that the releases of radioactive materials in liquid effluents will be kept "as low as is reasonably achievable." This requirement implements the requirements of 10 CFR Part 50.36a, General Design Criterion 60 of Appendix A 10 CFR Part 50 and the design objective given in Section II.D of Appendix I to 10 CFR Part 50. The specified limits governing the use of appropriate portions of the LIQUID RADWASTE TREATMENT SYSTEM were specified as a suitable fraction of the dose design objectives set fourth in Section II.A of Appendix I, 10 CFR Part 50, for liquid effluents.

3/4.11.2.1 DOSE RATE

This requirement provides reasonable assurance that radioactive material discharged in gaseous effluents will not result in the exposure of a MEMBER OF THE PUBLIC in an UNRESTRICTED AREA, either at or beyond the SITE BOUNDARY in excess of the design objectives of Appendix I to 10 CFR Part 50. This requirement is provided to ensure that gaseous effluents from all units on the site will be appropriately controlled. It provides operational flexibility for releasing gaseous effluents to satisfy the Section II.A and II.C design objectives of Appendix I to 10 CFR Part 50. For MEMBERS OF THE PUBLIC who may at times be within the SITE BOUNDARY, the occupancy of that MEMBER OF THE PUBLIC will usually be sufficiently low to compensate for the reduced atmospheric dispersion of gaseous effluents relative to that for the SITE BOUNDARY. Examples of calculations for such MEMBERS OF THE PUBLIC, with the appropriate occupancy factors, shall be given in the ODCM.

→ (DRN 02-216)

NOTE: TRM Specification Bases 3/4.11.1.2, 3/4.11.1.3, and 3/4.11.2.1 are part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of these TRM Specification Bases 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)

BASES

3/4.11.2.1 DOSE RATE (Continued)

The specified release rate limits restrict, at all times, the corresponding gamma and beta dose rates above background to a MEMBER OF THE PUBLIC at or beyond the SITE BOUNDARY to less than or equal to 500 mrem/year to the total body and 3000 mrem/yr to the skin. These release rate limits also restrict, at all times, the corresponding thyroid dose rate above background to a child via the inhalation pathway to less than or equal to 1500 mrem/year. The required detection capabilities for radioactive materials in gaseous waste samples are tabulated in terms of the lower limits of detection (LLDs). Detailed discussion of the LLD, and other detection limits can be found in HASL Procedures Manual, HASL-300 (revised annually), Currie, L. A., "Limits for Qualitative Detection and Quantitative Determination - Application to Radiochemistry," Anal. Chem. 40, 586-93 (1968), and NUREG/CR-4007, Currie, L. A. "Lower Limit of Detection, Definition and Elaboration of a Proposed Position for Radiological Effluent and Environmental Measurements" (September 1984).

3/4.11.2.2 DOSE - NOBLE GASES

The Requirement is provided to implement the requirements of Sections II.B, III.A and IV.A of Appendix I, 10 CFR Part 50. It implements the guides set forth in Section II.B of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive material in gaseous effluents to UNRESTRICTED AREAS will be kept "as low as is reasonably achievable". The Surveillance Requirements implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data such that the actual exposure of a MEMBER OF THE PUBLIC through appropriate pathways is unlikely to be substantially underestimated. The dose calculation methodology and parameters established for calculating the doses due to the actual release rates of radioactive noble gases in gaseous effluents are consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977 and Regulatory Guide 1.111, "Methods for estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water Cooled Reactors," Revision 1, July 1977. The ODCM equations provided for determining the air doses at and beyond the SITE BOUNDARY are based upon the historical average atmospheric conditions.

Grab sampling of effluents from the main condenser evacuation and turbine gland sealing system is not required when this source has been continuously discharging to the plant stack. If no primary to secondary leakage in the steam generator exists, then there should be no radioactive release from the main condenser evacuation and turbine gland sealing system and the gross beta or gamma monitoring for noble gases will be sufficient to determine if any radioactivity is present in the release. If a primary to secondary leak exists, then the release
→ (DRN 02-216)

NOTE: TRM Specification Bases 3/4.11.2.1 and 3/4.11.2.2 are part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of these TRM Specification Bases 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)

BASES

3/4.11.2.2 DOSE – NOBLE GASES (Continued)

from the main condenser evacuation and turbine gland sealing systems will be sampled and analyzed in accordance with Table 4.11-2.

3/4.11.2.3 DOSE - IODINE-131, IODINE-133, TRITIUM, AND RADIONUCLIDES IN PARTICULATE FORM

This Requirement is provided to implement the requirements of Sections II.C, III.A and IV.KA of Appendix I, 10 CFR Part 50. The Requirements are the guides set forth in Section II.C of Appendix I. The ACTION statements provide the required operating flexibility and at the same time implement the guides set forth in Section IV.A of Appendix I to assure that the releases of radioactive materials in gaseous effluents to UNRESTRICTED AREAS will be kept "as low as is reasonably achievable."

The ODCM calculational methods specified in the Surveillance Requirements implement the requirements in Section III.A of Appendix I that conformance with the guides of Appendix I be shown by calculational procedures based on models and data, such that the actual exposure of a MEMBER OF THE PUBLIC through appropriate pathways is unlikely to be substantially underestimated. The ODCM calculational methodology and parameters for calculating the doses due to the actual release rates of the subject materials are consistent with the methodology provided in Regulatory Guide 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977 and Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," Revision 1, July 1977. These equations also provide for determining the actual doses based upon the historical average atmospheric conditions. The release rate requirements for iodine-131, iodine-133, tritium, and radionuclides in particulate form with half-lives greater than 8 days are dependent upon the existing radionuclide pathways to man in the areas at and beyond the SITE BOUNDARY. The pathways that were examined in the development of these calculations were: (1) Individual inhalation of airborne radionuclides, (2) Deposition of radionuclides onto green leafy vegetation with subsequent consumption by man, (3) Deposition onto grassy areas where milk animals graze with consumption of the milk and meat by man, and (4) Deposition on the ground with subsequent exposure of man.

→ (DRN 02-216)

NOTE: TRM Specification Bases 3/4.11.2.2 and 3/4.11.2.3 are part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of these TRM Specification Bases 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)
BASES

3.4.11.2.4 GASEOUS RADWASTE TREATMENT

The OPERABILITY of the WASTE GAS HOLDUP SYSTEM and the VENTILATION EXHAUST TREATMENT SYSTEM ensures that the systems will be available for use whenever gaseous effluents require treatment prior to release to the environment. The requirement that the appropriate portions of these systems be used, when specified, provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "as low as is reasonably achievable". This Requirement implements the requirements of 10 CFR Part 50.36a, General Design Criterion 60 of Appendix A to 10 CFR Part 50 and the design objectives given in Section II.D of Appendix I to 10 CFR Part 50. The specified limits governing the use of appropriate portions of the systems were specified as a suitable fraction of the dose design objectives set forth in Section II.B and II.C of Appendix I, 10 CFR Part 50, for gaseous effluents.

3/4.11.3 SOLID RADIOACTIVE WASTE

Solidified wastes are classified in accordance with the requirements of 10 CFR 61.55, as implemented by RW-002-401 2.1.6 and plant waste classification and characterization procedure(s). Annual analysis will be performed on the waste streams to determine the isotopic abundance of gamma emitting isotopes in the streams as described in RW-002-110. Scaling factors for the non-gamma emitting and transuranic constituents will be developed from this annual analysis using RW-002-401 and RW-002-411. The activity of each radionuclide in the solidified waste will be determined by a core sample or a calculational method employing the percent abundance and scaling factors with a dose to curie conversion factor as described in RW-002-401. Solidified wastes will meet the characteristics of 10 CFR 61.56(a). Stabilized wastes will meet the characteristics of 10 CFR 61.56(b). Waste containers will be labeled to identify the waste class. The manifesting requirements of 10 CFR 20.311 are implemented and records are maintained in accordance with 10 CFR 71.91.

3/4.11.4 TOTAL DOSE

The Requirement is provided to meet the dose limitations of 40 CFR Part 190 that have been incorporated into 10 CFR Part 20.1301(d). The specification requires the preparation and submittal of a Special Report whenever the calculated doses from plant generated radioactive effluents and direct radiation exceed 25 mrem to the total body or any organ, except the thyroid, which shall be limited to less than or equal to 75 mrem. The Special Report will describe a course of action that should result in the limitation of the annual dose to a MEMBER OF THE PUBLIC to within the 40 CFR Part 190 limits. For the purposes of the Special Report, it may be assumed that the dose commitment to the MEMBER OF THE PUBLIC from other uranium fuel cycle sources is negligible, with the exception that dose contributions from other nuclear fuel cycle facilities within a radius of 8 km must be considered. If the dose to any MEMBER OF THE
→ (DRN 02-216)

NOTE: TRM Specification Bases 3/4.11.2.4 and 3/4.11.4 are part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of these TRM Specification Bases 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)
BASES

3/4.11.4 TOTAL DOSE (Continued)

PUBLIC is estimated to exceed the requirements of 40 CFR Part 190, the Special Report with a request for a variance (provided the release conditions resulting in violation of 40 CFR Part 190 have not already been corrected), in accordance with the provisions of 40 CFR 190.11 and 10 CFR 2203(a)(4), is considered to be a timely request and fulfills the requirements of 40 CFR Part 190 until NRC staff action is completed. The variance only relates to the limits of 40 CFR Part 190, and does not apply in any way to the other requirements for dose limitation of 10 CFR Part 20, as addressed in Requirements 3.11.1.1 and 3.11.2.1. An individual is not considered a MEMBER OF THE PUBLIC during in which he/she is engaged in carrying out any operation that is part of the nuclear fuel cycle. Demonstration of compliance with the limit of 40 CFR 190, or with the design objectives of Appendix I to 10 CFR 50 will be considered to demonstrate compliance with the 0.1 Rem limit of 10 CFR 20.1301.

→ (DRN 02-216)

NOTE: TRM Specification Bases 3/4.11.4 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Specification Bases requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

→ (DRN 02-216; 02-912)
3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING (See note below)
← (DRN 02-216; 02-912)

BASES

3/4.12.1 MONITORING PROGRAM

The radiological environmental monitoring program required by this requirement provides representative measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides that lead to the highest potential radiation exposures of MEMBERS OF THE PUBLIC resulting from the plant operation. This monitoring program implements Section IV.B.2 of Appendix I to 10 CFR Part 50 and thereby supplements the radiological effluent monitoring program by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and the modeling of the environmental exposure pathways. Guidance for this monitoring program is provided by the Radiological Assessment Branch Technical Position on Environmental Monitoring. The initially specified monitoring program was effective for the first 3 years of commercial operation. Following this period, program changes may be initiated based on operational experience.

The required detection capabilities for environmental sample analyses are tabulated in terms of the lower limits of detection (LLDs). The LLDs required by Table 4.12-1 are considered optimum for routine environmental measurements in industrial laboratories. It should be recognized that the LLD is defined as an a priori (before the fact) limit representing the capability of a measurement system and not as an a posteriori (after the fact) limit for a particular measurement.

Detailed discussion of the LLD, and other detection limits, can be found in HASL Procedures Manual, HASL-300 (revised annually), Currie, L. A., "Limits for Qualitative Detection and Quantitative Determination - Application to Radiochemistry," Anal. Chem. 40, 586-93 (1968), and NUREG/CR-4007, Currie, L. A. "Lower Limit Of Detection, Definition and Elaboration of a Proposed Position for Radiological Effluent and Environmental Measurements," (September 1984).

→ (DRN 02-216)
NOTE: TRM Specification Bases 3/4.12.1 is part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of this TRM Specification Bases requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

→ (DRN 02-912)
3/4.12 RADIOLOGICAL ENVIRONMENTAL MONITORING
← (DRN 02-912)

BASES

→ (DRN 02-216)
3/4 12.2 LAND USE CENSUS (See note below)
← (DRN 02-216)

This specification is provided to ensure that changes in the use of areas at and beyond the SITE BOUNDARY are identified and that modifications to the radiological environmental monitoring program are made if required by the results of this census. The best information from the door-to-door survey, from aerial survey or from consulting with local agricultural authorities shall be used. This census satisfies the requirements of Section IV.B.3 of Appendix I to 10 CFR Part 50. Restricting the census to gardens of greater than 50 m^2 provides assurance that significant exposure pathways via leafy vegetables will be identified and monitored since a garden of this size is the minimum required to produce the quantity (26 kg/yr) of leafy vegetables assumed in Regulatory Guide 1.109 for consumption by a child. To determine this minimum garden size, the following assumptions were made: (1) 20% of the garden was used for growing broad leaf vegetation (i.e., similar to lettuce and cabbage), and (2) a vegetation yield of 2 kg/m^2.

3/4.12.3 INTERLABORATORY COMPARISON PROGRAM

The requirement for participation in an approved Interlaboratory Comparison Program is provided to ensure that independent checks on the precision and accuracy of the measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring in order to demonstrate that the results are valid for the purposes of Section IV.B.2 of Appendix I to 10 CFR Part 50.

→ (DRN 02-216)
NOTE: TRM Specification Bases 3/4.12.2 and 3/4.12.3 are part of the Offsite Dose Calculation Manual (ODCM), reference UNT-005-014. Revision of these TRM Specification Bases requires the approval of the General Manager Plant Operations (GMPO) in accordance with Technical Specification 6.14.
← (DRN 02-216)

ATTACHMENT 11.3

Copy of

Process Control Program (PCP)
RW-105, Revision 1

Entergy	NUCLEAR MANAGEMENT MANUAL	QUALITY RELATED INFORMATION USE	RW-105 Revision 1 Page 1 of 6

Title: **Process Control Program**

Reviews	Required
Cross Discipline Review	No
Code Reviews:	
10CFR50.59 Review	Yes
10CFR50.54 Review	No
Environmental Qualification.....	No
On-Site Safety Review Committee Reviews*	No

Procedure Owner: John L. Etheridge / Sr Project Manager
(Print Name / Title)

Approved: John L Etheridge 12/30/02
(Procedure Owners Signature) (Date)

Effective Dates:

ANO	GGNS	RBS	W3	Echelon
1/2/03	N/A	1/2/03	1/2/03	N/A

New Procedure/Revision/Cancellation Basis:

RW-105, "Process Control Program" is modified to

- Change the classification to Quality vs. Non-Quality
- Addition of vendor requirement for placement on QSL when performing services under 10CFR61 & 10CFR71 requirements
- Updated Section 8.0

TABLE OF CONTENTS

1.0 PURPOSE

The Process Control Program establishes the necessary guidance to ensure that solid radioactive waste management activities result in solid waste products meeting the criteria contained in the Code of Federal Regulations, State Regulations and Radioactive Waste Burial Site License Criteria for solid radioactive waste shipping and disposal. The scope of the Process Control Program is to assure that radioactive waste will be handled, shipped, and disposed of in a safe manner in accordance with approved site or vendor procedures, whichever is applicable.

2.0 REFERENCES

2.1 Entergy Nuclear - Southwest

- Entergy Quality Assurance Program Manual
- Title 49, Code of Federal Regulations
- Title 10, Code of Federal Regulations
- Branch Technical Position on Final Waste Classification and Waste Form
- Disposal Site Criteria and License
- Waste Processor Acceptance Criteria

2.2 River Bend Specific References

- RBS Technical Requirements Manual Section 5.8
- RWS-0336, Set-up and Operation of the RDS-1000 Dewatering Unit
- RWS-0310, Operation of the Nuclear Packaging Model WC-1800 Waste Compactor

2.3 Arkansas Nuclear One Specific References

- 1601.5XX series procedures

2.4 Waterford Specific References

- FSAR Chapter 11.4, Solid Waste Management System
- FSAR Chapter 13.4, Review and Audit
- FSAR Chapter 13.2, Training
- FSAR Chapter 13.5, Plant Procedures

3.0 DEFINITIONS

3.1 De-watering - The removal of water or liquid from a waste form, usually by gravity or pumping.

3.2 Compaction - The process of volume reducing solid waste by applying external pressure.

3.3 Incineration – The process of burning a combustible material to reduce its volume and yield an ash residue.

3.4 Solid Dry Waste - Radioactive waste which exist primarily in a non-liquid phase and includes such items as dry materials, metals, resins, filter media and sludges.

3.5 Solid Liquid Waste - Radioactive waste that exist primarily in a liquid form and is contained in other than installed plant systems, to include such items as oil, EHC fluid, and other concentrated liquids.

3.6 Solidification – Conversion of liquid or liquid like materials, including wet solids, into a solid free standing form.

3.7 Stability – Structural stability per 10CFR61.2. This can be provided by the waste form, or by placing the waste in a disposal container or structure that provides stability after disposal.

3.8 Volume Reduction – any process that reduces the volume of waste. This includes but is not limited to, compaction and incineration.

4.0 RESPONSIBILITY

4.1 The Vice President Operations Support (VPOS) is responsible for the implementation of this procedure and must approve any changes or revisions to this procedure.

4.2 Each site Senior Nuclear Executive (SNE) is responsible for ensuring that necessary site staff implements this procedure.

4.3 The Low Level RadWaste (LLRW) Peer Group is responsible for evaluating and recommending changes and revisions to this procedure.

5.0 DETAILS

5.1 Solid Dry Waste Management

> **NOTE**
> If the provisions of the Process Control Program are not satisfied, suspend shipment of the defectively processed or defectively packaged solid waste from the site. Shipment may be accomplished when the waste is processed/packaged in accordance with the Process Control Program.

5.1.1 Solid waste may be packaged and processed either on-site or at an offsite waste processing facility.

5.1.2 Solid waste will meet applicable regulatory requirements, vendor waste acceptance criteria and disposal site acceptance criteria.

5.1.3 Solid waste processing may include, but is not limited to compaction, incineration, bulk processing, dewatering, or any other acceptance technologies available.

5.1.4 River Bend Specific Requirement - Radioactive waste processed at RBS will either be, dewatered in accordance with RWS-0336, Set-up and Operation of the RDS-1000 Dewatering Unit, or compacted in accordance with RWS-0310, Operation of the Nuclear Packing Model WC-1800 Waste Compactor.

5.2 Liquid Waste Management

NOTE
The solidification of liquid wastes will be verified with surveillance activities of an approved Process Control Program.

5.2.1 Solid Liquid waste may be packaged and processed either on-site or at an offsite waste processing facility.

5.2.2 Solid Liquid waste will meet applicable regulatory requirements, vendor waste acceptance criteria and disposal site acceptance criteria.

5.2.3 Solid Liquid waste processing may include, but is not limited to incineration, solidification, or any other acceptance technologies available.

5.3 Quality Assurance

5.3.1 Reviews of solid waste activities performed under the guidance of the Process Control Program are completed through audits and selected monitoring activities.

5.3.2 Certain elements of the Entergy Quality Assurance Program Manual are applied to the Process Control Program.

5.4 Administrative Controls

5.4.1 Information on solid radioactive waste shipped offsite is reported annually to the Nuclear Regulatory Commission.

5.4.2 All changes in the Process Control Program and supporting documentation are included in each site's next annual Radiological Effluent Release Report to the Nuclear Regulatory Commission as required.

5.4.3 All changes that do not affect procedure content are reviewed through the site's Safety Review Committees and up to the site's Vice Presidents.

5.4.4 Each site will maintain applicable state and federal regulations, vendor waste acceptance criteria and disposal site waste acceptance criteria.

5.4.5 Vendors performing radwaste services under 10CFR61 and 10CFR71 requirements will be on the Entergy QSL.

6.0 **INTERFACES**

6.1 None

7.0 **RECORDS**

7.1 None

8.0 **REQUIREMENTS AND COMMITMENT CROSS REFERENCE**

Document	Document Section	Procedure Section	Site Applicability
RBS Technical Requirements	5.5.14	*	RBS
RBS Technical Requirements	5.5.14.1	5.4	RBS
RBS Technical Requirements	5.5.14.2	5.4.3	RBS
RBS Technical Requirements	5.8.2	5.4.3	RBS
WF3 Technical Specifications	1.22	*	WF3
WF3 Technical Specifications	6.9.18	5.4.1	WF3
WF3 Technical Specifications	6.13.2.b	5.4.3	WF3

* Covered by directive as a whole or by various paragraphs of the directive.

9.0 **ATTACHMENTS**

9.1 None