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August 22, 2001

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555
Attn: Mr. Robert Clark (Mail Stop O-8-E9)
Project Directorate I-1

Subject: Revision to Emergency Plan Implementing Procedures
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

Gentlemen:

In accordance with 10 CFR 50.4(b)(5), enclosed are revisions to Ginna Station Emergency Plan Implementing Procedures (EPIPs).

We have determined, per the requirements of 10 CFR 50.54(q), that these procedure changes do not decrease the effectiveness of our Nuclear Emergency Response Plan.

Very truly yours,

Peter S. Polflett
Corporate Nuclear Emergency Planner

Enclosures

xc: USNRC Region 1 (2 copies of letter and 2 copies of each procedure)
Resident Inspector, Ginna Station (1 copy of letter and 1 copy of each procedure)
RG&E Nuclear Safety and Licensing (1 copy of letter)
Dr. Robert C. Mecredy (2 copies of letter only)

PSP/jtw

A045

PROCEDURE	REVISION NUMBER
EPIP 1-0	27
EPIP 2-3	13

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

PROCEDURE NO. EPIP 1-0 REV. NO. 27

GINNA STATION EVENT EVALUATION AND CLASSIFICATION

TECHNICAL REVIEW

RESPONSIBLE MANAGER

08/22/01

EFFECTIVE DATE

CATEGORY 1.0

REVIEWED BY:

THIS PROCEDURE CONTAINS 41 PAGES

EPIP 1-0

GINNA STATION EVENT EVALUATION AND CLASSIFICATION

1.0 **PURPOSE:**

1.1 The purpose of this procedure is to provide guidance to personnel in evaluating situations which may require activation of the Nuclear Emergency Response lan and direct them to appropriate implementing procedures. Prompt recognition and classification is necessary to ensure the timely activation of support functions and notification of offsite organizations.

2.0 **RESPONSIBILITY:**

2.1 The Shift Supervisor/Emergency Coordinator (SS/EC) is responsible for initiating this procedure.

2.2 Once the EOF assumes command and control of the emergency, the EOF/Recovery Manager becomes responsible for continuing this procedure.

3.0 **REFERENCES:**

3.1 Developmental References

3.1.1 10CFR50 Appendix E

3.1.2 NUREG-0654

3.1.3 NUREG-0696

3.1.4 Nuclear Emergency Response Plan.

3.1.5 NUMARC Methodology for Development of Emergency Action Levels (NESP-007).

3.1.6 R.E. Ginna EAL Technical Basis Revision 27

3.2 Implementing References

3.2.1 ER-SC.4, Earthquake Emergency Plan.

3.2.2 TEG-2.0, Response Spectrum Calculation.

3.2.3 TEG-2.1, Safe Shutdown Earthquake (SSE) & Operating Basis Earthquake (OBE) Exceedence Determination.

4.0 **PRECAUTIONS:**

4.1 For emergency events involving the Emergency Operating Procedures, classification should only be made after the diagnostic steps of E-0 have been completed.

4.2 In the event that multiple "Initiating Conditions" are identified, the SS/EC shall review each condition and classify according to the highest Emergency Classification Level obtained.

4.3 During any event, the entire procedure should be reviewed for possible reclassification of the event.

4.4 See Definitions (Attachment 2) for terms used in this procedure.

4.5 Any time a current set of conditions is identified which requires an Emergency Classification, the event shall be classified and declared, even if the condition identified is quickly corrected.

4.5.1 Conditions which depend on delayed evaluation results, i.e., chemistry, RP analysis, etc., shall be classified and declared as soon as the results are known.

5.0 **PREREQUISITES:**

5.1 Entry to this procedure may be directed by various other plant procedures or at the discretion of the SS/EC.

6.0 **ACTIONS:**

6.1 In the event of an abnormal condition the Control Room Personnel will:

6.1.1 Perform the immediate responses defined in the appropriate plant procedures.

6.1.2 Identify the initiating conditions using either the guidelines of the EAL wallchart or Attachment 1 of this procedure.

6.1.3 Implement applicable Emergency Plan procedures based on Appendix guidelines.

6.1.3.1 EPIP 1-4, General Emergency

6.1.3.2 EPIP 1-3,Site Area Emergency

6.1.3.3 EPIP 1-2, Alert

6.1.3.4 EPIP 1-1, Unusual Event

6.2 Periodically re-evaluate the condition after initial classification of accident using the EAL wall chart or Attachment 1.

6.3 At the conclusion of the event, refer to EPIP 3-4, Emergency Termination and Recovery.

6.4 Any time previous initiating conditions are identified that would have warranted an Emergency Classification but they are no longer in effect at the time of identification, and do not require further evaluation or analysis, the event will be classified, but not declared.

6.4.1 Conditions which are corrected, but may require further safety evaluation or analysis, will be classified and declared.

6.4.2 The NRC will be notified any time an event is classified. This will be made by means of the NRC Emergency Notification System (ENS) phone using procedure O-9.3 "NRC Immediate Notification".

6.4.3 The Plant Manager and Corporate Nuclear Emergency Planner (or their alternates) shall also be informed of this notification as soon as possible for notifications to Wayne County, Monroe County and New York State. For these notifications, there is no 15 minute requirement.

7.0 ATTACHMENTS

1. Detailed Accident Classification
2. Definitions
3. Barrier loss/potential loss

EPIP 1-0
EMERGENCY ACTION LEVELS (EALS)

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NOTE: Changes to this attachment are required to be reflected on the EAL wall chart.

1.0 CRITICAL SAFETY FUNCTION STATUS TREES STATUS
1.1 Sub-criticality CSFST Status

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
1.1.3 RED path in F-0.1, SUB-CRITICALITY AND Actual or imminent entry into either: - RED path in F-0.2, CORE COOLING OR - RED path in F-0.3, HEAT SINK Mode Applicability - (1) Power Operations - (2) Startup - (3) Hot Shutdown	1.1.2 RED path in F-0.1, SUB-CRITICALITY Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown	1.1.1 Any failure of an automatic trip signal to reduce power range <5% AND Manual trip is successful. Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown	

1.2 Core Cooling CSFST Status

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
1.2.2 RED path in F-0.2, CORE COOLING AND Functional restoration procedures not effective within 15 minutes. Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	1.2.1 ORANGE or RED path in F-0.2, CORE COOLING Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby		

1.3 Heat Sink CSFST Status

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
	1.3.1 RED path in F-0.3, HEAT SINK Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby		

1.4 Integrity CSFST Status

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
		1.4.1 RED path on F-0.4, INTEGRITY Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	

1.5 Containment CSFST Status

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
1.5.1 RED path on F-0.5, CONTAINMENT resulting from loss of reactor coolant Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby			

2.0 REACTOR FUEL

2.1 Coolant Activity

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
	2.1.3 Coolant sample activity >300 µCi/gm of I-131 equivalent AND Any of the following: - RED path on F-0.4, INTEGRITY - Primary system leakage >46 gpm - RCS subcooling <EOP figure MIN SUBCOOLING due to RCS leakage - Containment radiation monitor R-29/30 reading >10R/hr Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	2.1.2 Coolant sample activity >300 µCi/gm of I-131 equivalent. Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	2.1.1 Coolant sample activity: >100% of 100/E-Bar µCi/gm total specific activity OR >1.0 µCi/gm I-131 equivalent and entry into conditions of Tech. Spec. section 3.4.16.b. Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby

2.2 Failed Fuel Detectors

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
	2.2.3 Letdown line monitor R-9 >10R/hr AND any of the following: - RED path on F-0.4, INTEGRITY - Primary system leakage >46gpm - RCS subcooling <EOP figure MIN SUBCOOLING due to RCS leakage - Containment radiation monitor R-29/30 reading >10R/hr Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	2.2.2 Letdown line monitor R-9 >10R/hr. Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	2.2.1 Letdown line monitor R-9 >2R/hr AND Tave >500°F Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown

2.3 Containment Radiation

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
2.3.3 Containment radiation monitor R-29/30 reading >1000R/hr Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	2.3.2 Containment radiation monitor R-29/30 reading >100R/hr Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	2.3.1 Containment radiation monitor R-29/30 reading >10R/hr due to RCS leakage. Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	

2.4 Refueling Accidents or Other Radiation Monitors

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
		2.4.2 Confirmed sustained alarm on any of the following radiation monitors resulting from an uncontrolled fuel handling process. - R-2 Containment Area Monitor - R-5 Spent Fuel Pit - R-12 Containment Noble Gas Mode Applicability: - All 2.4.3 Report of visual observation of irradiated fuel uncovered. Mode Applicability: - All	2.4.1 Spent fuel pool (reactor cavity during Refueling) water level cannot be restored and maintained above the spent fuel pool low water level alarm setpoint Mode Applicability: - All

3.0 REACTOR COOLANT SYSTEM

3.1 RCS Leakage

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
	3.1.3 RVLIS cannot be maintained >77% with no RCPs running OR With the Reactor Vessel head removed, it is reported that water level in the Reactor Vessel is dropping in an uncontrolled manner and core uncovery is likely Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby - (5) Cold Shutdown - (6) Refueling	3.1.2 Primary system leakage >46gpm Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	3.1.1 Unidentified or pressure boundary leakage greater than 10gpm OR Identified leakage greater than 25gpm Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby

3.2 Primary to Secondary Leakage

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
	3.2.2 Unisolable release of secondary side to atmosphere with primary to secondary leakage >46 gpm. Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby 3.2.3 Unisolable release of secondary side to atmosphere with primary to secondary leakage >0.1 gpm in the affected AND EITHER - Coolant activity >300 µCi/gm of I-131 equivalent OR - Letdown line monitor R-9 >10 R/hr Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	(See 3.1.2 above)	3.2.1 Unisolable release of secondary side to atmosphere with primary to secondary leakage greater than 0.1gpm in the affected S/G Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby

3.3 RCS Subcooling

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
		3.3.1 RCS subcooling <EOP figure MIN SUBCOOLING due to RCS leakage Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	

4.0 CONTAINMENT
4.1 Containment Integrity Status

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
4.1.4 Safety injection signal due to LOCA with less than minimum operable containment heat removal equipment of CNMT PRESS / RECIRC FANS OPER / SPRAY PUMPS REQ'D < 28 psig / 2 / N/A ≥28 psig / 2 / 1 < 2 / 2 AND one or more of the following fuel clad loss indicators: - Coolant activity >300 µCi/gm of I-131 equivalent - Containment radiation monitor (R-29/30) reading >100R/hr - Letdown monitor R-9 reading >10R/hr - RED path in F-0.2, CORE COOLING Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby (Continued on next page)	4.1.2 Rapid uncontrolled decrease in containment pressure following initial increase due to LOCA. OR Loss of primary coolant inside containment with containment pressure or sump level response not consistent with LOCA conditions. Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby (Continued on next page)		4.1.1 Both doors open on containment airlock OR Inability to close containment pressure relief or purge valves which results in a radiological release pathway to the environment OR CI or CVI valve(s) not closed when required which results in a radiological release pathway to the environment OR Rapid uncontrolled pressure decrease following initial increase due to steam line break. Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby

4.1 Containment Integrity Status

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
4.1.5 EITHER Rapid uncontrolled decrease in containment pressure following initial increase due to LOCA OR Loss of primary coolant inside containment with containment pressure or sump level response not consistent with LOCA conditions AND one or more of the following fuel clad damage indicators: - ORANGE or RED path in F-0.2, CORE COOLING - RED path in F-0.3, HEAT SINK - Coolant activity >300μ Ci/gm of I-131 equivalent - Containment radiation monitor R-29/R-30 reading >100R/hr - Letdown line monitor R-9 reading >10R/hr Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby (Continued on next page)	4.1.3 EITHER: CI or CVI valve(s) not closed when required following confirmed LOCA OR Inability to isolate any primary system discharging outside containment AND Radiological release pathway to the environment exists as a result. Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby		

4.1 Containment Integrity Status

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
4.1.6 EITHER CI or CVI valve(s) not closed when required following confirmed LOCA OR Inability to isolate any primary system discharging outside containment AND Radiological release pathway to environment exists as a result AND one or more of the following fuel clad damage indicators: - ORANGE or RED path in F-0.2, CORE COOLING - RED path in F-0.3, HEAT SINK - Coolant activity >300μ Ci/gm of I-131 equivalent - Containment radiation monitor reading >100R/hr - Letdown monitor R-9 reading >10R/hr Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby			

4.2 Steam Generator Tube Rupture with Secondary Release

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
4.2.2 Unisolable secondary side line break with S/G tube rupture as identified in E-3 "Steam Generator Tube Rupture". AND one or more of the following fuel clad damage indicators: - ORANGE or RED path in F-0.2, CORE COOLING - RED path in F-0.3, HEAT SINK - Coolant activity >300 µCi/gm of I-131 equivalent - Containment radiation monitor R-29/30 reading >100R/hr - Letdown monitor R-9 reading >10R/hr Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	4.2.1 Unisolable secondary side line break with S/G tube rupture as identified in E-3 "Steam Generator Tube Rupture" Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby		

4.3 Combustible Gas Concentrations

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
4.3.1 ≥4% hydrogen concentration in containment Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby			

5.0 RADIOACTIVITY RELEASE/ AREA RADIATION

5.1 Effluent Monitors

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
5.1.4 A valid reading on one or more of the following monitors for >15 minutes - R12A7 6.00E+1 µCi/cc - R14A7 5.33E0 µCi/cc - R15A9 1.15E+2 µCi/cc - R31/32 reading with the following condition: 1 ARV 1.90E+2 mR/hr 1 Safety 9.51E+1 mR/hr 2 Safeties 4.76E+1 mR/hr 3 Safeties 3.17E+1 mR/hr 4 Safeties 2.38E+1 mR/hr unless dose assessment can confirm releases at the site boundary are below the following within the 15 minute limit - 1000 mR TEDE - 5000 mR CDE thyroid - 1000 mR/hr external exposure rate - 5000 mR/hr thyroid exposure for 1 hour of inhalation Mode Applicability: - All	5.1.3 A valid reading on one or more of the following monitors for >15 minutes - R12A7 6.00E+0 µCi/cc - R14A7 5.33E-1 µCi/cc - R15A9 1.15E+1 µCi/cc - R31/32 reading with the following condition: 1 A RV 1.90E+1 mR/hr 1 Safety 9.51E0 mR/hr 2 Safeties 4.76E0 mR/hr 3 Safeties 3.17E0 mR/hr 4 Safeties 2.38E0 mR/hr unless dose assessment can confirm releases at the site bou ndary are below the following within the 15 minute limit - 100 mR TEDE - 500 mR CDE thyroid - 100 mR/hr external exposure rate - 500 mR/hr thyroid exposure rate for 1 hour of inhalation Mode Applicability: - All	5.1.2 A valid reading on one or more of the following monitors for >15 minutes - R12A7 6.00E-1 µCi/cc - R14A7 5.33E-2 µCi/cc - R15A7 1.15E+0 µCi/cc - R18 Offscale High with no isolation - R20A Offscale High - R20B Offscale High - R21 Offscale High with no isolation - R22 Offscale High with no isolation - R31/32 reading with the following condition: 1 ARV 1.90E0 mR/hr 1 Safety 9.51E-1 mR/hr 2 Safeties 4.76E-1 mR/hr 3 Safeties 3.17E-1 mR/hr 4 Safeties 2.38E-1 mR/hr unless dose assessment can confirm releases at the site boundary are below - 10 mR TEDE or - 10 mR/hr external exposure rate within the 15 minute limit Mode Applicability: - All	5.1.1 A valid reading on one or more of the following monitors for >60 minutes unless sample analysis can confirm release rates are less than two times release rate limits within the 60 minute time limit. - R11 1.72E5 cpm during containment purge - R12 7.80E6 cpm during containment purge - R13 2.20E4 cpm - R14 6.40E5 cpm - R15 2.94E5 cpm - R18 3.60E5 cpm with no isolation - R20A 4.08E4 cpm - R20B 5.20E3 cpm - R21 5.00E4 cpm with no isolation - R22 9.20E4 cpm with no isolation - R31/32 reading 0.2 mR/hr with 1 ARV or 1 Safety open. Mode Applicability: - All

5.2 Dose Projections/ Environmental Measurements/Release Rates

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
5.2.5 Dose projections or field surveys resulting from actual or imminent release which indicate doses/dose rates in excess of 1000mR/hr external exposure rate at the Site Boundary or beyond OR Dose projections or field surveys resulting from actual or imminent release which indicate ≥5000mR/hr thyroid exposure dose rate at the Site Boundary or beyond OR Dose projections or field surveys resulting from actual or imminent release which indicate ≥1000mR TEDE dose at the Site Boundary or beyond OR Dose projections or field surveys indicate ≥5000mR CDE thyroid dose at the Site Boundary or beyond. Mode Applicability: - All	5.2.4 Dose projections or field surveys resulting from actual or imminent release which indicate dose rates in excess of 100mR/hr external exposure rate at the Site Boundary or beyond OR Dose projections or field surveys resulting from actual or imminent release which indicate ≥500mR/hr thyroid exposure dose rate at the Site Boundary or beyond OR Dose projections or field surveys resulting from actual or imminent release which indicate ≥100mR TEDE dose at the Site Boundary or beyond OR Dose projections or field surveys resulting from actual or imminent release which indicate ≥500mR CDE thyroid dose at the Site Boundary or beyond. Mode Applicability: - All	5.2.2 Confirmed sample analysis for gaseous or liquid release rates in excess of two hundred times release rate limits for >15 min Mode Applicability: - All 5.2.3 Dose projections or field surveys resulting from actual or imminent release which indicate ≥10mR/hr external exposure rate at the Site Boundary or beyond OR Dose projections or field surveys resulting from actual or imminent release which indicate ≥10mR TEDE dose the Site Boundary or beyond Mode Applicability: - All	5.2.1 Confirmed sample analysis for gaseous or liquid release rates in excess of two times release rate limits for >60 min Mode Applicability: - All

5.3 Area Radiation Levels

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
		5.3.2 Sustained area radiation levels > 15 mR/hr in either Control Room OR Central Alarm Station and Secondary Alarm Station Mode Applicability: - All 5.3.3 Sustained abnormal area radiation levels > 8 R/hr within any of the following areas: - Containment - Auxiliary Building - Turbine Building - Emergency Diesel Bldg. - Screen house - Standby Auxiliary Feedwater Building AND Access is required to establish or maintain Cold Shutdown Mode Applicability: - All	5.3.1 Any sustained direct area radiation monitor readings > 100 times alarm or off-scale high resulting from an uncontrolled process. Mode Applicability: - All

6.1 Loss of AC Power Sources

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
6.1.5 Loss of all safeguards bus AC power AND EITHER: power restoration to any safeguards train is not likely in 4 hours OR Actual or imminent entry into ORANGE or RED path on F-0.2, CORE COOLING Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	6.1.4 Loss of both trains of AC busses for greater than 15 minutes Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	6.1.2 Loss of both trains of AC busses for greater than 15 minutes Mode Applicability: - (5) Cold Shutdown - (6) Refueling - (D) Defueled 6.1.3 Available safeguards train AC power reduced to only one of the following sources for >15 minutes. - EDG 1A (14/18) - EDG 1B (16/17) - Station Auxiliary Transformer 12A - Station Auxiliary Transformer 12B Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	6.1.1 Loss of ability to supply power to the safeguard trains from offsite circuits 751 and 767 for greater than 15 minutes Mode Applicability: - All

6.2 Loss of DC Power Sources

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
	6.2.2 <108vdc bus voltage indications on 125vdc batteries 1A AND 1B for >15 minutes. Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby		6.2.1 <108vdc bus voltage indications on 125vdc batteries 1A AND 1B for >15 minutes. Mode Applicability: - (5) Cold Shutdown - (6) Refueling

7.0 EQUIPMENT FAILURES

7.1 Technical Specification Requirements

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
			7.1.1 Plant is not brought to the required operating mode within Technical Specifications LCO Required Action Completion Time <u>Mode Applicability:</u> - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby

7.2 Safety Failures or Control Room Evacuation

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
	7.2.5 Entry into AP-CR.1 "Control Room Inaccessability" AND Control of core cooling cannot be established per AP-CR.1 "Control Room Inaccessibility" within 20 minutes Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby - (5) Cold Shutdown - (6) Refueling	7.2.2 Turbine failure generated missiles results in any visible structural damage to plant vital equipment. Mode Applicability - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby 7.2.3 Entry into AP-CR.1 "Control Room Inaccessability" Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby - (5) Cold Shutdown - (6) Refueling 7.2.4 Reactor coolant temperature cannot be maintained <200°F Mode Applicability: - (5) Cold Shutdown - (6) Refueling	7.2.1 Report of main turbine failure resulting in casing penetration or damage to turbine seals or generator seals Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby

7.3 Loss of Indications/Communication Capability

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
	7.3.4 Loss of annunciators or indications on any of the following Control Room Panels - A - AA - B - C - D - E - F - G AND Complete loss of ability to monitor any critical safety function status AND A plant transient in progress Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	7.3.3 Unplanned loss of annunciators or indications on any of the following Control Room Panels for greater than 15 minutes - A - AA - B - C - D - E - F - G AND increased surveillance is required for safe plant operation AND EITHER - A plant transient in progress OR - PPCS and SAS are unavailable Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	7.3.1 Unplanned loss of annunciators or indications on any of the following Control Room Panels for greater than 15 minutes - A - AA - B - C - D - E - F - G AND increased surveillance is required for safe plant operation Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby 7.3.2 Loss of all communications capability affecting the ability to either: - perform routine operations OR - Notify offsite agencies or personnel Mode Applicability: - All

8.0 HAZARDS

8.1 Security Threats

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
8.1.4 Security event which results in: - Loss of plant control from the control room OR - Loss of remote shutdown capability Mode Applicability: - All	8.1.3 Intrusion into plant security vital area by an adversary OR Any security event which represents actual or likely failures of plant systems needed to protect the public Mode Applicability: - All	8.1.2 Intrusion into plant Protected Area by an adversary OR Any security event which represents an actual or substantial degradation of the level of safety of the plant Mode Applicability: - All	8.1.1 Bomb device or other indication of attempted sabotage discovered within plant Protected Area OR Any security event which represents a potential degradation in the level of safety of the plant Mode Applicability: - All

8.2 Fire or Explosion

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
		8.2.2 Fire or explosion in any of the following plant areas which results in EITHER visible damage to plant equipment or structures needed for safe shutdown OR Loss of a safety system - Intermediate Building - TSC - Service Building - Contaminated Storage Building - Control Building - Containment Building - Auxiliary Building - Turbine Building - Emergency Diesel Building - Standby Auxiliary Feedwater Building - Screen House Mode Applicability: - All	8.2.1 Confirmed fire in any of the following plant areas not extinguished within 15 minutes of control room notification - Intermediate Building - TSC - Service Building - Contaminated Storage Building - Control Building - Containment Building - Auxiliary Building - Turbine Building - Emergency Diesel Building - Standby Auxiliary Feedwater Building - Screen House Mode Applicability: - All

8.3 Man-Made Events

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
		8.3.4 Vehicle crash or projectile impact which precludes personnel access to or damages equipment in the following plant vital areas - Control Building - Containment Building - Auxiliary Building - Intermediate Building - Emergency Diesel Building - Standby Auxiliary Feedwater Building - Screen House Mode Applicability: - All 8.3.5 Report or detection of toxic or flammable gases within the following plant areas, in concentrations that will be life threatening to plant personnel or precludes access to equipment needed for safe plant operations - Control Building - Containment Building - Auxiliary Building - Intermediate Building - Emergency Diesel Building - Standby Auxiliary Feedwater Building - Screen House Mode Applicability: - All	8.3.1 Vehicle crash into or projectile which impacts plant structures or systems within Protected Area Boundary Mode Applicability: - All 8.3.2 Report by plant personnel of an explosion within Protected Area Boundary resulting in visible damage to permanent structures or equipment Mode Applicability: - All 8.3.3 Report or detection of toxic or flammable gases that could enter or have entered within the Protected Area Boundary in amounts that could affect the health of plant personnel or safe plant operation OR Report by local, county or state officials for potential evacuation of site personnel based on offsite event Mode Applicability: - All

8.4 Natural Events

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
		8.4.4 Earthquake felt in plant by any plant operations personnel AND Confirmation of earthquake of an intensity greater than 0.08g per ER-SC.4 "Earthquake Emergency Plan" Mode Applicability: - All 8.4.5 Sustained winds >75mph OR Tornado strikes one of the following plant vital areas - Control Building - Containment Building - Auxiliary Building - Intermediate Building - Emergency Diesel Building - Standby Auxiliary Feedwater Building - Screen House Mode Applicability: - All (Continued on next page)	8.4.1 Earthquake felt in plant by any plant operations personnel AND Confirmation of earthquake of an intensity greater than 0.01g per ER-SC.4 "Earthquake Emergency Plan" Mode Applicability: - All 8.4.2 Report by plant personnel of tornado striking within plant Protected Area Boundary Mode Applicability: - All (Continued on next page)

8.4 Natural Events

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
		8.4.6 Any natural event which results in a report of visible structural damage or assessment by control room personnel of actual damage to equipment needed for safe plant operation in any of the following plant areas: - Control Building - Containment Building - Auxiliary Building - Intermediate Building - Emergency Diesel Building - Standby Auxiliary Feedwater Building -Screen House Mode Applicability: - All 8.4.7 Flood water accumulating on screen house operating floor OR Lake level >253 ft OR Screen House Suction Bay water level ≤ 16 feet or ≤14.5 feet by manual level measurement Mode Applicability: - All	8.4.3 Deer Creek flooding over entrance road bridge handrail OR Lake level >252 ft OR Screen House Suction Bay water level <19 feet or ≤ 17.5 feet by manual level measurement Mode Applicability: - All

9.0 OTHER

GENERAL EMERGENCY PROCEED TO EPIP 1-4	SITE AREA EMERGENCY PROCEED TO EPIP 1-3	ALERT PROCEED TO EPIP 1-2	UNUSUAL EVENT PROCEED TO EPIP 1-1
9.1.7 In the opinion of the Shift Supervisor or Emergency Coordinator, events are in progress which indicate actual or imminent core damage and the potential for a large release of radioactive material in excess of EPA PAGs outside the site boundary Mode Applicability: - All 9.1.8 Any event, which in the opinion of the Shift Supervisor or Emergency Coordinator, that could or has led to a loss of any two fission product barriers and loss or potential loss of the third (Attachment 3) Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	9.1.5 In the opinion of the Shift Supervisor or Emergency Coordinator, events are in progress which indicate actual or likely failures of plant systems needed to protect the public. Any releases are not expected to result in exposures which exceed EPA PAGs Mode Applicability: - All 9.1.6 Any event, which in the opinion of the Shift Supervisor or Emergency Coordinator, that could or has led to either: - Loss or potential loss of both fuel clad and RCS barrier (Attachment 3) OR - Loss or potential loss of either fuel clad and RCS barrier in conjunction with a loss of containment (Attachment 3) Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	9.1.3 Any event, which in the opinion of the Shift Supervisor or Emergency Coordinator, that could cause or has caused actual substantial degradation of the level of safety of the plant Mode Applicability: - All 9.1.4 Any event, which in the opinion of the Shift Supervisor or Emergency Coordinator, that could lead or has led to a loss or potential loss of either fuel clad or RCS barrier (Attachment 3) Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby	9.1.1 Any event, which in the opinion of the Shift Supervisor or Emergency Coordinator, that could lead to or has led to a potential degradation of the level of safety of the plant Mode Applicability: - All 9.1.2 Any event, which in the opinion of the Shift Supervisor or Emergency Coordinator, that could lead to or has led to a potential loss of containment (Attachment 3) Mode Applicability: - (1) Power Operations - (2) Startup - (3) Hot Shutdown - (4) Hot Standby

ATTACHMENT 2

DEFINITIONS

Actuate	-	To put into operation; to move into action; commonly used to refer to automated, multi-faceted operations. "Actuate ECCS".
Adversary	-	As applied to security EALs, an individual whose intent is to commit sabotage, disrupt station operations or otherwise commit a crime on station property.
Adverse Meteorology	-	Low wind speed and low dispersion of effluents.
Alert	-	Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.
Available	-	The state or condition of being ready and able to be used (placed into operation) to accomplish the stated (or implied) action or function. As applied to a system, this requires the operability of necessary support systems (electrical power supplies, cooling water, lubrication, etc).
Can/Cannot be determined	-	The current value or status of an identified parameter relative to that specified can/cannot be ascertained using all available indications (direct and indirect, singly or in combination).
Can/Cannot be maintained above/below	-	The value of the identified parameter(s) is/is not able to be kept above/below specified limits. This determination includes making an evaluation that considers both current and future system performance in relation to the current value or trend of the parameter(s). Neither implies that the parameter must actually exceed the limit before the action is taken nor that the action must be taken before the limit is reached.
Can/Cannot be restored above/below	-	The value of the identified parameter(s) is/is not able to be returned to above/below specified limits after having passed those limits. This determination includes making an evaluation that considers both current and future systems performances in relation to the current value and trend of the parameter(s). Does not imply any specific time interval but does not permit prolonged operation beyond a limit without taking the specified action. As applied to loss of electrical power sources (ex.:power cannot be restored to any vital bus in $\leq$4 hrs) the specified power source cannot be returned to service within the specified time. This determination includes making an evaluation that considers both current and future restoration capabilities. Implies that the declaration should be made as soon as the determination is made that the power source cannot be restored within the specified time.
Classified	-	Identify an EAL that corresponds to plant conditions

Close	- To position a valve or damper so as to prevent flow of the process fluid. - To make an electrical connection to supply power
Confirm/Confirmation	- To validate, through visual observation or physical inspection, that an assumed condition is as expected or required, without taking action to alter the "as found" configuration.
Control	- Take action, as necessary, to maintain the value of a specified parameter within applicable limits; to fix or adjust the time, amount, or rate of; to regulate or restrict.
Core Failure	- Fission product release to containment atmosphere that results in a reading of > 1000 REM/HR on containment area monitor R-2, R-29 or R-30.
Declared	- Use of the New York State Radiological Emergency Data Form in procedure EPIP 1-5 to notify offsite agencies of a classified event.
Decrease	- To become progressively less in size, amount, number, or intensity.
Discharge	- Removal of a fluid/gas from a volume or system.
ECCS	- High and low pressure safety injection - Accumulators
Enter	- To go into.
Establish	- To perform action necessary to meet a stated condition. "Establish communication with the Control Room."
Evacuate	- To remove the contents of; to remove personnel from an area.
Exceeds	- To go beyond a stated or implied limit, measure, or degree.
Exist	- To have being with respect to understood limitations or conditions.
Facility	- The Protected Area of the plant. The area within the security fence
Failed Fuel	- An increase in primary coolant activity reflected by an unexplained increase on failed fuel monitor (R-9) which exceeds its high alarm setpoint. If R-9 reading unavailable or unreliable, the failed fuel condition would be verified by a primary sample analysis.
Failure	- A state of inability to perform a normal function.
Fire	- The observance of flames <u>or</u> if any doubt exists due to excessive smoke, inaccessible location, a fire should be assumed to be present.
General Emergency	- Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential loss of containment integrity. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.

Hazards	-	Aircraft crash, explosion, missiles, toxic gas, flammable gas, or turbine blade failures.
If	-	Logic term which indicates that taking the action prescribed is contingent upon the current existence of the stated condition(s). If the identified conditions do not exist, the prescribed action is not to be taken and execution of operator actions must proceed promptly in accordance with subsequent instructions.
Increase	-	To become progressively greater in size, amount, number or intensity.
Indicate	-	To point out or point to; to display the value of a process variable; to be a sign or symbol.
Initiate	-	The act of placing equipment or a system into service, either manually or automatically. Activation of a function or protective feature (i.e. initiate a manual trip).
Injection	-	The act of forcing a fluid into a volume or vessel.
Inoperable	-	Not able to perform it's intended function.
Intrusion	-	The act of entering without authorization.
LOCA	-	Entry into E-1.
Loss	-	Failure of operability or lack of access to.
Loss of all Meteorological Indications	-	Total loss of wind speed, wind direction and temperature from the primary weather tower onsite and of wind direction and wind speed from the back up weather tower located at Station 13A (accessible using EPIP 2-2), and all off-site sources available to the on-shift RP Tech.
Loss of Secondary Coolant	-	Entry into E-1.
Maintain	-	Take action, as necessary, to keep the value of the specified parameter within the applicable limits.
Monitor	-	Observe and evaluate at a frequency sufficient to remain apprised of the value, trend, and rate of change of the specified parameter.
Notify	-	To give notice of or report the occurrence of; to make known to; to inform specified personnel; to advise; to communicate; to contact; to relay.
OBE	-	Operating Basis Earthquake. An earthquake having 0.08g peak ground acceleration.

Open	-	To position a valve or damper so as to allow flow of the process fluid.
	-	To break an electrical connection which removes a power supply from an electrical device.
	-	To make available for entry or passage by turning back, removing, or clearing away.
Operable	-	Able to perform it's intended function.
Perform	-	To carry out an action; to accomplish; to affect; to reach an objective.
Periodically	-	As plant conditions change.
Plant Building	-	Turbine Building, Serv. Building, Containment, Aux. Building, Standby Aux. Feed Building or the Screen House, Contaminated Storage Building or Upper Radwaste Storage Building.
Primary System	-	The pipes, valves, and other equipment which connect directly to the reactor vessel or reactor coolant system such that a reduction in reactor coolant system pressure will effect a decrease in the steam or water pressure being discharged through an unisolated break in the system.
Radiation Monitor	-	Any permanent or temporary area or process monitor.
Remove	-	To change the location or position of.
Report	-	To describe as being in a specific state.
Require	-	To demand as necessary or essential.
Restore	-	Take the appropriate action required to return the value of an identified parameter to within applicable limits.
Rise	-	Describes an increase in a parameter as the result of an operator or automatic system.
Safe Shutdown Equipment	-	Minimum equipment required by Appendix "R" procedures.
Sample	-	To perform an analysis on a specified media to determine its properties.
SGTR	-	Entry into E-3.
Shutdown	-	To perform operations necessary to cause equipment to cease or suspend operation; to stop. "Shutdown unnecessary equipment."
Site Area Emergency	-	Events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels except near the site boundary.

Sustained	-	Prolonged. Not intermittent or of transitory nature.
Sustained Winds	-	The steady average value for more than one minute.
SSE	-	Safe Shutdown Earthquake. An earthquake having 0.2g peak ground acceleration.
TEDE	-	Total Effective Dose Equivalent.
Thyroid Dose	-	Thyroid dose is assumed to be the same as Committed Dose Equivalent (CDE).
Trip	-	To de-energize a pump or fan motor; to position a breaker so as to interrupt or prevent the flow of current in the associated circuit; to manually activate a semi-automatic feature. - To take action to cause shutdown of the reactor by opening the reactor trip breaker.
Total Loss of All Feedwater	-	Total loss of Condensate, Mainfeed, all Auxiliary Feedwater and Standby Auxiliary Feedwater.
Uncontrolled	-	An evolution lacking control but is not the result of operator action.
Unexplained	-	A condition where parameters/condition exist that are not normal for current plant status and are not a result of operator action.
Unmonitored Release	-	A release of radioactive material to the environment which does not pass through an area or process monitor.
Unplanned	-	Not as an expected result of deliberate action.
Until	-	Indicates that the associated prescribed action is to proceed only so long as the identified condition does not exist.
Unusual Event	-	Events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.
Valid	-	Supported or corroborated on a sound basis.
Vent	-	To open an effluent (exhaust) flowpath from an enclosed volume; to reduce pressure in an enclosed volume.
Verify	-	To confirm a condition and take action to establish that condition if required. "Verify reactor trip, verify SI pumps running."
Vital Areas	-	Areas of the plant containing equipment or machinery that could affect the safe operation or shutdown of the plant.
Whole Body Dose	-	Whole body dose is assumed to be the same as Total Effective Dose Equivalent (TEDE).

Attachment 3
BARRIER LOSS/POTENTIAL LOSS
Fuel Cladding

Potential Loss	Loss
ORANGE path in F-0.2, CORE COOLING	RED path in F-0.2, CORE COOLING
RED path in F-0.3, HEAT SINK	Coolant activity > 300 µCi/cc of I-131
Core Exit Thermocouple Readings > 700 °F	Core Exit Thermocouple Readings > 1200 °F
RVLIS <77% w/ no RCPs running	Containment rad monitor reading >100 R/hr
Emergency Coordinator Judgment	Letdown Monitor (R-9) reading > 10 R/hr
	Emergency Coordinator Judgment

RCS

Potential Loss	Loss
RED path on F-0.4, INTEGRITY	RCS subcooling < EOP Fig. MIN SUBCOOLING due to RCS leakage
RED path on F-0.3, HEAT SINK	Unisolable secondary side line break with SG tube rupture as identified in E-3 "Steam Generator Tube Rupture"
Primary system leakage > 46 gpm	Containment radiation monitor reading > 10 R/hr
Emergency Coordinator Judgment	Emergency Coordinator Judgment

Attachment 3
BARRIER LOSS/POTENTAIL LOSS
Containment

Potential Loss	Loss
RED path F-0.5, CONTAINMENT	Rapid uncontrolled decrease in Containment Pressure following initial increase Loss of primary coolant inside containment with containment pressure or sump level response not consistent with LOCA conditions, i.e. unexpected changes occur in these parameters that are not explainable due to operator actions or automatic system actions.
Either: Core exit thermocouples >1200 °F OR Core exit thermocouples >700 °F with RVLIS <77% (no RCPs) AND Restoration procedures not effective within 15 minutes	Either: CI or CVI isolation required and CI or CVI valve(s) not closed when required OR Inability to isolate any primary system discharging outside containment AND Radiological release pathway to the environment exists
Safety injection signal due to LOCA with < the minimum containment cooling safeguards equipment operating: CNMT pressure <28 psig: 2 CNMT Recirc Fans CNMT pressure ≥28 psig: 2 CNMT Spray Pumps OR 2 CNMT Recirc Fans and 1 CNMT Spray Pump	Release of secondary side to atmosphere with primary to secondary leakage greater than tech spec allowable of 0.1 GPM per steam generator
Containment pressure 60 psig and increasing	Both doors open on containment airlock OR Inability to close containment pressure relief or purge valves which results in a radiological release pathway to the environment OR CI or CVI valve(s) not closed when required which results in a radiological release pathway to the environment
≥4 % hydrogen concentration in containment	Emergency Coordinator Judgment
Containment radiation monitor reading >1000 R/hr	
Emergency Coordinator Judgment	

ROCHESTER GAS AND ELECTRIC CORPORATION

GINNA STATION

CONTROLLED COPY NUMBER 23

PROCEDURE NO. EPIP 2-3 REV. NO. 13

EMERGENCY RELEASE RATE DETERMINATION

RESPONSIBLE MANAGER

05/22/01
EFFECTIVE DATE

CATEGORY 1.0

THIS PROCEDURE CONTAINS 23 PAGES

EPIP 2-3

EMERGENCY RELEASE RATE DETERMINATION

1.0 PURPOSE

1.1 The purpose of this procedure is to provide method of determining the release rates of radioactive material from the plant vent, containment vent, air ejector, and Atmosphere Relief Valve, ARV, and code safety valves during accident conditions.

2.0 RESPONSIBILITY

2.1 The TSC Dose Assessment Manager or EOF Dose Assessment Manager is responsible for implementing this procedure.

3.0 REFERENCES

3.1 Developmental References

3.1.1 Eberline System Server Operation Manual

3.1.2 CH-RETS-SPING High Range Effluent Monitors (SPING-4) RM-12A, RM-14A, RM-15A, R-31 and R-32 Operation.

3.1.3 Technology for Energy Corporation Report No. R-81-020, Calculation of Dose to Activity Conversion Curves for Determination of Activity Concentrations Within Steam Lines A & B of Ginna Nuclear Station, August 1981.

3.1.4 Knoll, W.K., "Dose Rate to Activity Concentration Algorithm", internal memorandum, May 25, 1989.

3.1.5 EPA-400, Manual of Protective Action Guides and Protective Actions for Nuclear Incidents. (1991).

3.1.6 I&E Information Notice 86-30 Design Limitation of Gaseous Effluent Monitoring System.

3.1.7 40CFR302.4 EPA reporting criteria for radioactive effluents.

4.0 PRECAUTIONS

4.1 The assumed initial average gamma energy for noble gas, as measured by the SPING middle and upper ranges, is 0.5 MEV (from t=0 to 4.5 hours after shutdown, based on References 3.1.4 and 3.1.5). The technical basis behind this is found in Attachment 5.

Attachment 2 provides an average energy vs time after shutdown for help in interpreting the SPING readings.

4.2 See Attachment 1 of this procedure for alarm set points.

4.3 The alert alarm will clear when the level falls below 80% of the set point.

NOTE: TWO SEPARATE CHANNELS CAN BE USED FOR BACKGROUND SUBTRACTION. NORMALLY CH. 4 IS USED, BUT THE CPM CAN BE BACK CALCULATED FROM CH. 8 IF CH. 4 IS OFF SCALE.

4.4 There have been two generic problems identified with SPING units and listed in I&E information Notice 86-30.

a. In extremely high dose fields, the electronics can fail. At Ginna Station, the projected doses even in a complete core release should not cause this failure based on a letter from George Daniels to the NRC addressing this concern. (Reference 3.1.6)

b. When the low range gas detector is exposed to increases of ~ 2 decades, it may absorb some noble gas on the inner and outer mylar windows and when the release rates decrease, they may not return to the correct concentration indications immediately. This should not be a serious problem since the normal plant monitoring systems will be reading correctly.

NOTE: HIGH ALARM IS A NORMAL STATUS CONDITION.

4.5 "Normal" indicated by the channel status means that the data for that time period has been normalized. In other words, any portion of data accumulated for that time period when the unit was another status is dropped.

4.6 It will usually take 10 min for a status change such as failed to clear (this is the time period of the next data update).

4.7 The paper change switch provides a short term means of preserving the contents of the printer buffer when replenishing the paper supply or repair.

5.0 PREREQUISITES:

None.

6.0 ACTIONS:

6.1 The following sample points are available on the Eberline SS-1:

See Attachment 1. The concentration value of the noble gas calculated is dependent upon the average gamma energy per disintegration of the gas mixture. Concentration values should be corrected for actual isotopic mixture. The correction factor programmed in the Eberline SS-1 is for 0.5 MEV as indicated in Reference 3.1.4 and 3.1.5 .

6.1.1 Containment Vent RM-12A Unit

Channel #	Type	Units	Range	Bkgnd Subtract Fixed + chan 2
1	Particulate - Beta	μCi	1E-6 to 1E+0	None
2	Particulate - Alpha	CPM	1E+0 to 1E+6	Chan 4
3	Iodine - 131	μCi	1E-5 to 1E+6	None
4	Background Iodine	CPM	1E+0 to 1E+6	None
5	Noble Gas - Low	μCi/cc	1E-8 to 1E-2	Fixed
6	Area Monitor	mR/h	1E-3 to 1E+3	Fixed
*7	Noble Gas-Mid	μCi/cc	1E-5 to 1E+1	Fixed
8	Gamma Background	CPM	1E+0 to 1E+6	Fixed
*9	Noble Gas-High	μCi/cc	1E-3 to 1E +3	Fixed

* Precaution 4.1

6.1.2 Plant Vent RM-14A Unit

Channel #	Type	Units	Range	Bkgnd Subtract Fixed + chan 2
1	Particulate - Beta	μCi	1E-6 to 1E+0	None
2	Particulate - Alpha	CPM	1E+0 to 1E+6	Chan 4
3	Iodine - 131	μCi	1E-5 to 1E+6	None
4	Background Iodine	CPM	1E+0 to1E+6	None
5	Noble Gas - Low	μCi/cc	1E-8 to 1E-2	Fixed
6	Area Monitor	mR/h	1E-3 to 1E+3	Fixed
*7	Noble Gas-Mid	μCi/cc	1E-5 to 1E+1	Fixed
8	Gamma Background	CPM	1E+0 to 1E+6	Fixed
*9	Noble Gas-High	μCi/cc	1E-3 to 1E+3	Fixed

* Precaution 4.1

6.1.3 Air Ejector RM-15A Unit

Channel #	Type	Units	Range	Bkgnd Subtract Fixed + chan 2
5	Noble Gas - Low	μCi/cc	1E-8 to 1E-2	Fixed
6	Area Monitor	mR/h	1E-3 to 1E+3	Fixed
*7	Noble Gas-Mid	μCi/cc	1E-5 to 1E+1	Fixed
8	Gamma Background	CPM	1E+0 to 1E+6	Fixed
*9	Noble Gas-High	μCi/cc	1E-3 to 1E+3	Fixed

* Precaution 4.1

6.1.4 Steam Line Monitors Unit

Channel #	Type	Units	Range	Bkgnd Subtract
1 R-31 "A" Steam	Gamma	mR/h	1E-2 to 1E+4	Fixed
2 R-32 "B" Steam	Gamma	mR/h	1E-2 to 1E+4	Fixed

6.2 To display the Eberline SS-1 System Server Screen from Windows, select the Eberline SPING-SS-1 icon. The program automatically boots to SS-1 screen.

NOTE: PRESS THE ESCAPE KEY TO RETURN TO THE MAIN MENU.

6.3 To obtain the current data from a unit, perform the following:

6.3.1 Highlight "display status" using the arrow keys.

6.3.2 Press enter.

6.3.3 Highlight "data" then "group display".

6.3.4 Select the group number of interest and press enter.

- RM12A for containment vent
- RM14A for plant vent
- RM15A for air ejector
- DAM for the steam line monitor

6.3.5 Observe data.

6.3.6 If a print out of the data is desired, highlight "print" using the arrow keys and press enter.

6.4 To obtain a history of the data from a unit, perform the following:

6.4.1 Highlight "data" using the arrow keys.

6.4.2 Press enter.

6.4.3 Select one of the following:

- 10 minute history
- 1 hour history
- 1 day history

6.4.4 Select the unit of interest:

- RM12A for containment vent
- RM14A for plant vent
- RM15A for air ejector
- DAM for the steam line monitor.

6.4.5 Select the channel of interest:

RM-12A or RM-14A	RM-15A	DAM
1 - Beta particulate 2 - Alpha particulate 3 - Iodine 4 - Iodine background 5 - Low range noble gas 6 - Gamma area 7 - Mid-range noble gas 8 - Gamma background 9 - High range noble gas	4 - Iodine background 5 - Low range noble gas 6 - Gamma area 7 - Mid-range noble gas 8 - Gamma background 9 - High range noble gas	1- R-31 - A steam line 2- R-32 - B steam line

6.4.6 Observe data.

6.4.7 With "Toggle"highlighted, press "enter" to toggle until "time" is displayed along the left hand side of the chart.

6.4.8 If a print out of the data is desired, highlight "print" using the arrow keys and press enter.

6.4.9 To obtain the release rate, enter the flow rate then press enter.

6.4.10 If a print out of the data is desired, highlight "print" using the arrow keys and press enter.

6.4.11 Release rates can be converted to Ci/sec by multiplying 1E-6 to convert μCi to curies and dividing by 60. Dose Assessment can make offsite dose projections entering this release rate into the dose assessment computer programs.

6.4.12 Release rates can be refined by lab analysis of grab samples which can be obtained from the appropriate SPING field unit.

6.5 Radioactivity release from steam line code safety valves and ARV's.

6.5.1 Primary to secondary leakage is indicated by an increased reading of Air Ejector Monitor or Steam Generator Blowdown Monitor, or an unexpected rise in water level of one steam generator. Air ejector release rates are determined by steps described in section 6.5 through 6.6. The first steam line monitor to alarm should be the leaking steam generator.

6.5.2 If steam is released by the safety valves or PORV's determine the time elapsed since the shutdown of the reactor and select the dose rate vs concentration conversion factor on Attachment 3 corresponding to the nearest elapsed time since reactor shutdown. Conversion factors were calculated for various times after shutdown to reflect radioactive decay of the isotopic mix.

6.5.3 Determine, using the data calculation sheet, (Attachment 4) the equivalent μCi/cc of the radioactivity released by multiplying the appropriate conversion factor (μCi/cc per mR/hr) by the steam line dose rate (mR/hr) from Attachment 3 or activity from the steam generator blowdown if the S/G is water solid.

6.6 From the PPCS or by observation, determine the period of time and number of the ARV and steam relief valves which were open. Were they open coincidently? Was the turbine driven auxiliary feedwater pump being driven from the faulted steam generator.

6.7 Determine the maximum flow rate through steam valves relieving simultaneously to atmosphere by adding the flow rates from each valve on the data sheet.

ARV	= 153,900 cu. ft/hr = 1.33 E6 cc.sec
Each Safety	= 333,000 cu. ft/hr = 2.65 E6 cc/sec
Turbine Driven Auxiliary Feedwater	= 7,106 cu. ft/hr = 5.59 E4 cc/sec

For water solid steam generator*

Each Safety	= 2000 gal/min = 1.3 E5 cc/sec
ARV	= 1000 gal/min = 6.5 E4 cc/sec

*These values are based on vendor information provided for the 1982 steam generator tube rupture report.

6.8.1 Determine on the data sheet the Ci/sec release rate of radioactivity by multiplying the μCi/cc released (determined in 6.7.5) by 1E-6 Ci/μCi. (1E-6 converts μCi to Ci) that answer multiplied by the total release rate of steam (determined in 6.9) will yield a release rate in Ci/sec. See attached data calculation sheet Attachment 4.

6.9 A release through the S/G Safety and ARV's can be calculated using EPIP 2-5. Information on S/G release rates and total curies released can be obtained by using the PPCS monitors and calling up the SPING data, Page 2 of 2 from the Event printouts.

6.10 Waterborne or Surface Spill

6.10.1 To calculate volume released, try to obtain the initial and final levels and calculate difference. If the initial level is unknown, assume the container was full. If the final level is unknown, assume container is empty. Attachment 6 has volumes for some of the plant tanks.

6.10.2 To calculate activity, obtain a sample from the tank and perform an isotopic identification. If unable to perform an isotopic analysis, perform a gross beta/gamma analysis. If the container is empty and no sample can be obtained, correlate the effluent release monitor reading to a radioactive concentration. If release was unmonitored, look at the historical data from past analysis and if it is believed that the activity in the container did not deviate from the historical data, use the historical data activity.

6.10.3 Using the appropriate conversation factors, calculate the total activity released.

6.10.4 Using isotopic analysis or historical data, indicate the isotopic mix of the release in μCi/ml.

6.11 Notification of EPA (40 CFR302.6)

6.11.1 Using Attachment 7, determine if the release has exceed the EPA RQ curie values for any 24 hour period.

6.11.2 If the RQ curie values have been exceed for any 24 hour period, then inform the EPA.

EPA National Response Center
9-1-800-424-8802
or
9-1-202-426-2675

6.11.3 If you call the EPA, within 4 hours inform the NRC that you have notified the EPA I.A.W. 40CFR302.6 per 10CFR 50.72 (b) (2) (vi).

7.0 ATTACHMENTS:

1. SPING Alarm Setpoints
2. Noble Gas Mixture
3. Factors to convert steam line monitor dose rates to activity concentration.
4. Radioactivity release through steam vents data calculation sheet.
5. Calculation of the Gamma Becquerel MeV/μCi constant for ^{133}Xe and ^{85}Kr for determination of activity released.
6. Determination of Release from waterborne or surface spill .
7. 40CFR302.4, Appendix B, ch. 1

Attachment 1

RM-12A Containment Vent High Range
Effluent Monitor

SPING Alarm Setpoints

CHANNEL	TREND ALARM	RELEASE RATE LIMIT	HIGH ALARM SETPOINT	WARNING ALARM SETPOINT
01-Beta Particulate	100%/minute	2.57E-07μCi/cc	1.90E-01 μCi	9.00E-02 μCi/cc
02-Alpha Particulate	N/A	2.57E-07 μCi/cc	3.00E+02 cpm	2.00E+02 cpm
03-Iodine - 131	100%/minute	1.10E-08 μCi/cc	2.00E-02 μCi	1.00E-02 μCi
05-Low Range Gas	40%/minute	2.00E-01 μCi/cc	4.00E-02 μCi/cc	2.00E-02 μCi
06-Area Gamma	N/A	N/A	1.00E+02 mRad/hr	5.00+00 mRad/hr
07-Mid Range Gas	N/A	2.00E-01 μCi/cc	2.00E-01μCi/cc	8.00-02 μCi/cc
09-High Range Gas	N/A	2.00E-01 μCi/cc	2.00E+00 μCi/cc	2.00E μCi/cc

* The alarm values for these fixed filters represent the number of microcuries collected in one hour of sampling to give the specified fraction of the release rate limit. The containment flow rate was assumed to be 11,000 cfm using either the A and B fans or 3.1 E+8 cc/min.

** Trend alarms indicate the percent per minute increase over the last channel reading.

Attachment 1
SPING Alarm Setpoints

RM-14A Plant Vent High Range Effluent Monitor

CHANNEL	TREND ALARM**	RELEASE RATE LIMIT	HIGH ALARM SET POINT	WARNING ALARM SETPOINT
01Beta-Particulate	100%/minute	2.90E-08 μCi/cc	4.12E-02 μCi	2.00E-02 μCi
02-Alpha Particulate	N/A	2.90E-08 μCi/cc	3.00E+02 cpm	2.00+02 cpm
03-Iodine - 131	100%/minute	1.75E-09 μCi/cc	1.79-03 μCi	8.95E-04 μCi
05-Low Range Gas	40%/minute	1.80E-02 μCi/cc	6.92E-03 μCi/cc	3.46E-03 μCi/cc
06-Area Gamma	N/A	N/A	1.00E+02 mRad/hr	5.00E+00 mRad/hr
07-Mid Range Gas	N/A	1.80E-02 μCi/cc	3.46E-02 μCi/cc	1.73E-02 μCi/cc
09-High Range Gas	N/A	1.80E-02 μCi/cc	1.73E-01 μCi/cc	8.65E-02 μCi/cc

* The alarm values for these fixed filters represent the number of microcuries collected in one hour of sampling to give the specified fraction of the release rate limit. The plant vent flow rate was assumed to be 76,000 cfm or 2.15 E+9 cc/min.

** Trend alarms indicate the percent per minute increase over the last channel reading.

Attachment 1

SPRING Alarm Setpoint

RM-15A Ejector High Performance Effluent Monitor

DIRECT Alignment

CHANNEL	TREND ALARM	RELEASE RATE LIMIT	HIGH ALARM SETPOINTS	WARNING ALARM SETPOINTS
05-Low Range Gas	N/A	3.14E0 μCi/cc	3.14E0 μCi/cc	3.14E-02 μCi/cc
06-Area Gamma	N/A	N/A	1.00E+02 mRad/hr	5.00E+00 mRad/hr
07-Mid Range Gas	N/A	3.14E0 μCi/cc	1.26E0 μCi/cc	6.3E-01 μCi/cc
09-High Range Gas	N/A	3.14E0 μCi/cc	1.26E+-1 μCi/cc	6.28E 0 μCi/cc

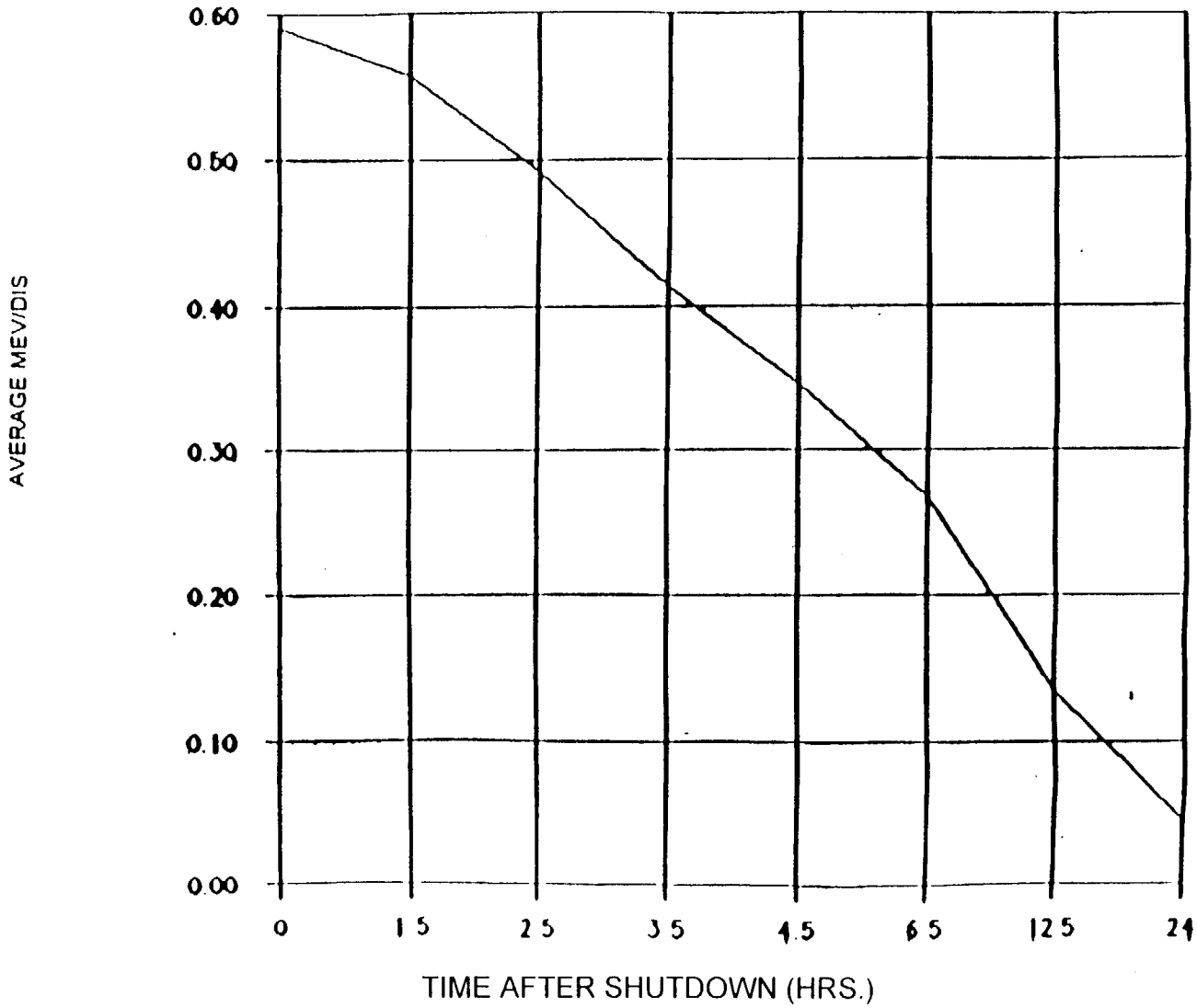
DILUTED Alignment

CHANNEL	TREND ALARM	RELEASE RATE LIMIT	HIGH ALARM SETPOINTS	WARNING ALARM SETPOINTS
05-Low Range Gas	N/A	1.56E-02 μCi/cc	6.24E-03 μCi/cc	3.12E-03 μCi/cc
06-Area Gamma	N/A	N/A	1.00E+02 mRad/hr	5.00E+00 mRad/hr
07-Mid Range Gas	N/A	1.56E-02 μCi/cc	6.24E-02 μCi/cc	3.12E-02 μCi/cc
09-High Range Gas	N/A	1.56-02 μCi/cc	1.56E-01 μCi/cc	7.8E -02 μCi/cc

** Trend alarms indicate the percent per minute increase over the last channel reading.

NOBLE GAS MIXTURE

AVG. GAMMA ENERGY



FACTORS TO CONVERT STEAM LINE MONITOR DOSE RATE TO ACTIVITY CONCENTRATION

μCi/cc per mr/hr

Time After Shutdown	"A" or "B" Steam Line
0.00	0.1295
0.25	0.1345
0.50	0.1397
0.75	0.1451
1.00	0.1507
1.25	0.1565
1.50	0.1626
1.75	0.1689
2.00	0.1754
2.25	0.1822
2.50	0.1892
2.75	0.1966
3.00	0.2042
3.5	0.2203
4.0	0.2376
4.5	0.2564
5.0	0.2766
5.5	0.2984
6.0	0.3219
6.5	0.3473
7.0	0.3747
7.5	0.4042
8.0	0.4361
12.0	0.8004
24.0	4.9477

Multiply appropriate steam line monitor (R-31 or R-32) reading in Mr/hr, by above to obtain μCi/cc in steam. Above factors do not apply to water solid steam line case.

RADIOACTIVITY RELEASE THROUGH STEAM VENTS DATA CALCULATION SHEET

1. Time of reactor shutdown: _____Hours _____Date

2. Time of this reading: _____Hours _____Date

3. Elapsed time: _____Hours
(2) - (1)

4. Steam line location and mR/hr: A_____mR/hr B_____mR/hr

5. Conversion factor (μCi/cc per mR/hr) used (from Attachment 3):_____

6. Equivalent μCi/cc (Step 4 multiplied by Step 5):_____ μCi/cc

(NOTE: FOR WATER SOLID STEAM GENERATOR, USE μCi/cc FROM STEAM GENERATOR BLOWDOWN ACTIVITY.)

FLOW DATA THROUGH RELIEF VALVES TO ATMOSPHERE

		OPERATING	FLOW cc/sec	DURATION SECONDS	VOLUME cc
Atmospheric Relief Valve (ARV)		_____	1.33E6 (6.5E4)	_____	_____
Safety Valve	1	_____	2.65E6 (1.3E5)	_____	_____
Safety Valve	2	_____	2.65E6 (1.3E5)	_____	_____
Safety Valve	3	_____	2.65E6 (1.3E5)	_____	_____
Safety Valve	4	_____ (1.3E5)	2.65E6	_____	_____
Turbine Driven Aux. Feedwater Pump		_____	5.59E4	_____	_____

NOTE 1: ( ) INDICATES FLOW RATE FOR WATER SOLID STEAM GENERATOR.

7. Total Volume through relief valves to atmosphere. Total Volume _____

8. ARV flow duration _____ seconds

9. Total Steam Release Rate _____ cc/sec
(7) / (8)

10. Curies per second release of radioactivity determined from calculation below:

$$\underset{(6)}{_____}\ \frac{uCi}{cc} \times 1E\text{-}6\ \frac{Ci}{\mu Ci} \times \underset{(9)}{_____}\ \frac{cc}{Sec} = \underset{(10)}{_____}\ \frac{Ci}{Sec} \quad \text{(Noble Gas)}$$

11. Use a default ratio of 1E-4 to determine iodine release rate.

$$\underset{(10)}{_____}\ \frac{Ci}{Sec} \times 1E\text{-}4 = _____\ \frac{Ci}{Sec} \quad \text{(Iodine)}$$

Signature:_____ Checked by:_____
Date/Time:_____ Date/Time:_____

Calculation of the Gamma Becquerel
MeV/uCi Constant for ^{133}Xe and ^{85}Kr for determination
of Activity Released

I. Calculation of the · Bq · MeV/μCi constant for ^{133}Xe

- MIRD Pamphlet No. 10 lists the following photons (x and gamma rays) originating from the decay of ^{133}Xe

RADIATION	PHOTONS/DISINTEGRATION	MEAN ENERGY/PHOTON (MeV)
Gamma	0.0061	0.0796
Gamma	0.3603	0.0809
Gamma	0.0002	0.3839
K Alpha - 1 X-Ray	0.2552	0.0309
K Alpha - 2 X-Ray	0.1321	0.0306
K Beta - 1 X-Ray	0.0712	0.0349
K Beta - 2 X-Ray	0.0150	0.0359
L X-Rays	0.0823	0.0043

NOTE: **ALL THE PHOTONS EMITTED IN LESS THAN 0.01 PERCENT OF THE DISINTEGRATIONS WERE OMITTED.**

- The mean photon energy emitted per disintegration is determined by:

$$\sum_{i=1}^{n} (i/^{d)} MeV_i)$$

This value is 0.0450 · MeV based on the MIRD photon listing.

- Since a Becquerel (Bq) is one disintegration per second and there are 3.7×10^4 disintegrations per second/μCi, the · Bq · MeV/μCi constant for ^{133}Xe is:

(0.0450 · MeV) 3.7×10^4 / · Bq/μCi) = 1.67×10^3 · Bq · MeV/μCi

II. Calculation of the · Bq · MeV/μCi constant for ^{85}Kr.

- MIRD Pamphlet No. 10 lists the following photons (x and gamma rays) originating from the decay of ^{85}Kr.

RADIATION	PHOTONS/DISINTEGRATION	MEAN ENERGY/PHOTON (MeV)
Gamma	0.0042	0.5140

NOTE: **ALL THE PHOTONS EMITTED IN LESS THAN 0.01 PERCENT OF THE DISINTEGRATIONS WERE OMITTED.**

- The mean photon energy emitted per disintegration is determined by:

$$\sum_{i=1}^{n} (i/^{d)} MeV_i)$$

This value is 0.0022 · MeV based on the MIRD photon listing.

- Since a Becquerel (Bq) is one disintegration per second and there are 3.7×10^4 disintegrations per second/μCi, the · Bq · MeV/μCi constant for ^{85}Kr is:

$$(0.0022 \cdot MeV)\ (3.7 \times 10^4\ Bq/\mu Ci) = 8.14 \times 10^1 \cdot Bq \cdot MeV/\mu Ci$$

III. Conversion from · Bq · MeV/cm^3 for ^{133}Xe or ^{85}Kr.

- The intermediate and high range noble gas channels on the SPING monitor present data in terms of · Bq · MeV/cm^3. To convert this data to units μCi/cm^3 the conversion factors (· Bq · MeV/μCi) calculated above must be known as well as the composition of the sample gas.

- For example:

If the mid-range noble gas channel on a SPING was reporting a sample stream concentration of 1.00×10^2 · Bq · MeV/cm^3 and it was known that the noble gas content was purely ^{133}Xe; the concentration of ^{133}Xe (μCi/cm^3) based on the previously determined conversion factor of 1.67×10^3 · Bq · MeV/μCi is:

$$^{133}Xe\ Concentration = \frac{1.00 \times 10^2 \cdot Bq \cdot MeV/cm^3}{1.67 \times 10^3 \cdot Bq \cdot MeV/\mu Ci}$$

$$= 5.99 \times 10^{-2}\ \mu Ci/cm^3$$

DETERMINATION OF RELEASE

FROM WATERBORNE OR SURFACE SPILL

Initial Volume		Final Volume		Release Volume
_____	-	_____	=	_____

Volume Released	x	Total Activity	x	Conversion Factors	=	Total Curies Released
_____	x	_____	x	_____	=	_____

CONVERSION FACTORS

1 curie = 10^3 millicuries

1 curie = 10^6 microcuries

1 curie = 2.22E12 dis/min

1 dis/min = 4.505E-10 millicuries

1 dis/min = 4.505E-7 microcuries

1 gallon = 0.13368 ft^3

1 ft^3 = 28.32 liters

1 liter = 0.26418 gallons

TANK VOLUMES

Waste Condensate Tank = 600 gallons

Monitor Tank = 7,500 gallons

Retention Tank = 25,699 gallons

Standby Retention Tank = 30,000 gallons

High Conductivity Waste Tank = 30,000 gallons

Spent Fuel Pit = 500 gallon/inch

Resin Cask Liner = 100 ft^3 (8-120-B)

ISOTOPIC MIX (IN μCi/m1)

NOTES

Cr-51	_____
Co-58	_____
Fe-59	_____
Co-60	_____
Kr-85	_____
Kr-88	_____
Nb-95	_____
Zr-95	_____
Sb-124	_____
I-131	_____
Xe-131M	_____
Xe-133	_____
Cs-137	_____
Ba-140	_____
Ce-144	_____
_____	_____
_____	_____
_____	_____
_____	_____
Total Act	_____ *

* Use gross beta/gamma activity if isotopic analysis information is not available.

APPENDIX B TO § 302.4—RADIONUCLIDES

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Radionuclides[a]		1& (3.7E 10)
Actinium-224	89	100 (3.7E 12)
Actinium-225	89	1 (3.7E 10)
Actinium-226	89	10 (3.7E 11)
Actinium-227	89	0.001 (3.7E 7)
Actinium-228	89	10 (3.7E 11)
Aluminum-26	13	10 (3.7E 11)
Americium-237	95	1000 (3.7E 13)
Americium-238	95	100 (3.7E 12)
Americium-239	95	100 (3.7E 12)
Americium-240	95	10 (3.7E 11)
Americium-241	95	0.01 (3.7E 8)
Americium-242m	95	0.01 (3.7E 8)
Americium-242	95	100 (3.7E 12)
Americium-243	95	0.01 (3.7E 8)
Americium-244m	95	1000 (3.7E 13)
Americium-244	95	10 (3.7E 11)
Americium-245	95	1000 (3.7E 13)
Americium-246m	95	1000 (3.7E 13)
Americium-246	95	1000 (3.7E 13)
Antimony-115	51	1000 (3.7E 13)
Antimony-116m	51	100 (3.7E 12)
Antimony-116	51	1000 (3.7E 13)
Antimony-117	51	1000 (3.7E 13)
Antimony-118m	51	10 (3.7E 11)
Antimony-119	51	1000 (3.7E 13)
Antimony-120 (16 min)	51	1000 (3.7E 13)
Antimony-120 (5.76 day)	51	10 (3.7E 11)
Antimony-122	51	10 (3.7E 11)
Antimony-124m	51	1000 (3.7E 13)
Antimony-124	51	10 (3.7E 11)
Antimony-125	51	10 (3.7E 11)
Antimony-126m	51	1000 (3.7E 13)
Antimony-126	51	10 (3.7E 11)
Antimony-127	51	10 (3.7E 11)
Antimony-128 (10.4 min)	51	1000 (3.7E 13)
Antimony-128 (9.01 hr)	51	10 (3.7E 11)
Antimony-129	51	100 (3.7E 12)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Antimony-130	51	100 (3.7E 12)
Antimony-131	51	1000 (3.7E 13)
Argon-39	18	1000 (3.7E 13)
Argon-41	18	10 (3.7E 11)
Arsenic-69	33	1000 (3.7E 13)
Arsenic-70	33	100 (3.7E 12)
Arsenic-71	33	100 (3.7E 12)
Arsenic-72	33	10 (3.7E 11)
Arsenic-73	33	100 (3.7E 12)
Arsenic-74	33	10 (3.7E 11)
Arsenic-76	33	100 (3.7E 12)
Arsenic-77	33	1000 (3.7E 13)
Arsenic-78	33	100 (3.7E 12)
Astatine-207	85	100 (3.7E 12)
Astatine-211	85	100 (3.7E 12)
Barium-126	56	1000 (3.7E 13)
Barium-128	56	10 (3.7E 11)
Barium-131m	56	1000 (3.7E 13)
Barium-131	56	10 (3.7E 11)
Barium-133m	56	100 (3.7E 12)
Barium-133	56	10 (3.7E 11)
Barium-135m	56	1000 (3.7E 13)
Barium-139	56	1000 (3.7E 13)
Barium-140	56	10 (3.7E 11)
Barium-141	56	1000 (3.7E 13)
Barium-142	56	1000 (3.7E 13)
Berkelium-245	97	100 (3.7E 12)
Berkelium-246	97	10 (3.7E 11)
Berkelium-247	97	0.01 (3.7E 8)
Berkelium-249	97	1 (3.7E 10)
Berkelium-250	97	100 (3.7E 12)
Beryllium-7	4	100 (3.7E 12)
Beryllium-10	4	1 (3.7E 10)
Bismuth-200	83	100 (3.7E 12)
Bismuth-201	83	100 (3.7E 12)
Bismuth-202	83	1000 (3.7E 13)
Bismuth-203	83	10 (3.7E 11)
Bismuth-205	83	10 (3.7E 11)
Bismuth-206	83	10 (3.7E 11)
Bismuth-207	83	10 (3.7E 11)
Bismuth-210m	83	0.1 (3.7E 9)
Bismuth-210	83	10 (3.7E 11)
Bismuth-212	83	100 (3.7E 12)
Bismuth-213	83	100 (3.7E 12)
Bismuth-214	83	100 (3.7E 12)
Bromine-74m	35	100 (3.7E 12)
Bromine-74	35	100 (3.7E 12)
Bromine-75	35	100 (3.7E 12)
Bromine-76	35	10 (3.7E 11)
Bromine-77	35	100 (3.7E 12)
Bromine-80m	35	1000 (3.7E 13)
Bromine-80	35	1000 (3.7E 13)
Bromine-82	35	10 (3.7E 11)
Bromine-83	35	1000 (3.7E 13)
Bromine-84	35	100 (3.7E 12)
Cadmium-104	48	1000 (3.7E 13)
Cadmium-107	48	1000 (3.7E 13)
Cadmium-109	48	1 (3.7E 10)
Cadmium-113m	48	0.1 (3.7E 9)
Cadmium-113	48	0.1 (3.7E 9)
Cadmium-115m	48	10 (3.7E 11)
Cadmium-115	48	100 (3.7E 12)
Cadmium-117m	48	10 (3.7E 11)
Cadmium-117	48	100 (3.7E 12)
Calcium-41	20	10 (3.7E 11)
Calcium-45	20	10 (3.7E 11)
Calcium-47	20	10 (3.7E 11)
Californium-244	98	1000 (3.7E 13)
Californium-246	98	10 (3.7E 11)
Californium-248	98	0.1 (3.7E 9)

Environmental Protection Agency

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Californium-249	98	0.01 (3.7E 8)
Californium-250	98	0.01 (3.7E 8)
Californium-251	98	0.01 (3.7E 8)
Californium-252	98	0.1 (3.7E 9)
Californium-253	98	10 (3.7E 11)
Californium-254	98	0.1 (3.7E 9)
Carbon-11	6	1000 (3.7E 13)
Carbon-14	6	10 (3.7E 11)
Cerium-134	58	10 (3.7E 11)
Cerium-135	58	10 (3.7E 11)
Cerium-137m	58	100 (3.7E 12)
Cerium-137	58	1000 (3.7E 13)
Cerium-139	58	100 (3.7E 12)
Cerium-141	58	10 (3.7E 11)
Cerium-143	58	100 (3.7E 12)
Cerium-144	58	1 (3.7E 10)
Cesium-125	55	1000 (3.7E 13)
Cesium-127	55	100 (3.7E 12)
Cesium-129	55	100 (3.7E 12)
Cesium-130	55	1000 (3.7E 13)
Cesium-131	55	1000 (3.7E 13)
Cesium-132	55	10 (3.7E 11)
Cesium-134m	55	1000 (3.7E 13)
Cesium-134	55	1 (3.7E 10)
Cesium-135m	55	100 (3.7E 12)
Cesium-135	55	10 (3.7E 11)
Cesium-136	55	10 (3.7E 11)
Cesium-137	55	1 (3.7E 10)
Cesium-138	55	100 (3.7E 12)
Chlorine-36	17	10 (3.7E 11)
Chlorine-38	17	100 (3.7E 12)
Chlorine-39	17	100 (3.7E 12)
Chromium-48	24	100 (3.7E 12)
Chromium-49	24	1000 (3.7E 13)
Chromium-51	24	1000 (3.7E 13)
Cobalt-55	27	10 (3.7E 11)
Cobalt-56	27	10 (3.7E 11)
Cobalt-57	27	100 (3.7E 12)
Cobalt-58m	27	1000 (3.7E 13)
Cobalt-58	27	10 (3.7E 11)
Cobalt-60m	27	1000 (3.7E 13)
Cobalt-60	27	10 (3.7E 11)
Cobalt-61	27	1000 (3.7E 13)
Cobalt-62m	27	1000 (3.7E 13)
Copper-60	29	100 (3.7E 12)
Copper-61	29	100 (3.7E 12)
Copper-64	29	1000 (3.7E 13)
Copper-67	29	100 (3.7E 12)
Curium-238	96	1000 (3.7E 13)
Curium-240	96	1 (3.7E 10)
Curium-241	96	10 (3.7E 11)
Curium-242	96	1 (3.7E 10)
Curium-243	96	0.01 (3.7E 8)
Curium-244	96	0.01 (3.7E 8)
Curium-245	96	0.01 (3.7E 8)
Curium-246	96	0.01 (3.7E 8)
Curium-247	96	0.01 (3.7E 8)
Curium-248	96	0.001 (3.7E 7)
Curium-249	96	1000 (3.7E 13)
Dysprosium-155	66	100 (3.7E 12)
Dysprosium-157	66	100 (3.7E 12)
Dysprosium-159	66	100 (3.7E 12)
Dysprosium-165	66	1000 (3.7E 13)
Dysprosium-166	66	10 (3.7E 11)
Einsteinium-250	99	10 (3.7E 11)
Einsteinium-251	99	1000 (3.7E 13)
Einsteinium-253	99	10 (3.7E 11)
Einsteinium-254m	99	1 (3.7E 10)
Einsteinium-254	99	0.1 (3.7E 9)
Erbium-161	68	100 (3.7E 12)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Erbium-165	68	1000 (3.7E 13)
Erbium-169	68	100 (3.7E 12)
Erbium-171	68	100 (3.7E 12)
Erbium-172	68	10 (3.7E 11)
Europium-145	63	10 (3.7E 11)
Europium-146	63	10 (3.7E 11)
Europium-147	63	10 (3.7E 11)
Europium-148	63	10 (3.7E 11)
Europium-149	63	100 (3.7E 12)
Europium-150 (12.6 hr)	63	1000 (3.7E 13)
Europium-150 (34.2 yr)	63	10 (3.7E 11)
Europium-152m	63	100 (3.7E 12)
Europium-152	63	10 (3.7E 11)
Europium-154	63	10 (3.7E 11)
Europium-155	63	10 (3.7E 11)
Europium-156	63	10 (3.7E 11)
Europium-157	63	10 (3.7E 11)
Europium-158	63	1000 (3.7E 13)
Fermium-252	100	10 (3.7E 11)
Fermium-253	100	10 (3.7E 11)
Fermium-254	100	100 (3.7E 12)
Fermium-255	100	100 (3.7E 12)
Fermium-257	100	1 (3.7E 10)
Fluorine-18	9	1000 (3.7E 13)
Francium-222	87	100 (3.7E 12)
Francium-223	87	100 (3.7E 12)
Gadolinium-145	64	100 (3.7E 12)
Gadolinium-146	64	10 (3.7E 11)
Gadolinium-147	64	10 (3.7E 11)
Gadolinium-148	64	0.001 (3.7E7)
Gadolinium-149	64	100 (3.7E 12)
Gadolinium-151	64	100 (3.7E 12)
Gadolinium-152	64	0.001 (3.7E 7)
Gadolinium-153	64	10 (3.7E 11)
Gadolinium-159	64	1000 (3.7E 13)
Gallium-65	31	1000 (3.7E 13)
Gallium-66	31	10 (3.7E 11)
Gallium-67	31	100 (3.7E 12)
Gallium-68	31	1000 (3.7E 13)
Gallium-70	31	1000 (3.7E 13)
Gallium-72	31	10 (3.7E 11)
Gallium-73	31	100 (3.7E 12)
Germanium-66	32	100 (3.7E 12)
Germanium-67	32	1000 (3.7E 13)
Germanium-68	32	10 (3.7E 11)
Germanium-69	32	10 (3.7E 11)
Germanium-71	32	1000 (3.7E 13)
Germanium-75	32	1000 (3.7E 13)
Germanium-77	32	10 (3.7E 11)
Germanium-78	32	1000 (3.7E 13)
Gold-193	79	100 (3.7E 12)
Gold-194	79	10 (3.7E 11)
Gold-195	79	100 (3.7E 12)
Gold-198m	79	10 (3.7E 11)
Gold-198	79	100 (3.7E 12)
Gold-199	79	100 (3.7E 12)
Gold-200m	79	10 (3.7E 11)
Gold-200	79	1000 (3.7E 13)
Gold-201	79	1000 (3.7E 13)
Hafnium-170	72	100 (3.7E 12)
Hafnium-172	72	1 (3.7E 10)
Hafnium-173	72	100 (3.7E 12)
Hafnium-175	72	100 (3.7E 12)
Hafnium-177m	72	1000 (3.7E 13)
Hafnium-178m	72	0.1 (3.7E 9)
Hafnium-179m	72	100 (3.7E 12)
Hafnium-180m	72	100 (3.7E 12)
Hafnium-181	72	10 (3.7E 11)
Hafnium-182m	72	100 (3.7E 12)
Hafnium-182	72	0.1 (3.7E 9)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Hafnium-183	72	100 (3.7E 12)
Hafnium-184	72	100 (3.7E 12)
Holmium-155	67	1000 (3.7E 13)
Holmium-157	67	1000 (3.7E 13)
Holmium-159	67	1000 (3.7E 13)
Holmium-161	67	1000 (3.7E 13)
Holmium-162m	67	1000 (3.7E 13)
Holmium-162	67	1000 (3.7E 13)
Holmium-164m	67	1000 (3.7E 13)
Holmium-164	67	1000 (3.7E 13)
Holmium-166m	67	1 (3.7E 10)
Holmium-166	67	100 (3.7E 12)
Holmium-167	67	100 (3.7E 12)
Hydrogen-3	1	100 (3.7E 12)
Indium-109	49	100 (3.7E 12)
Indium-110 (69.1 min)	49	100 (3.7E 12)
Indium-110 (4.9 hr)	49	10 (3.7E 11)
Indium-111	49	100 (3.7E 12)
Indium-112	49	1000 (3.7E 13)
Indium-113m	49	1000 (3.7E 13)
Indium-114m	49	10 (3.7E 11)
Indium-115m	49	100 (3.7E 12)
Indium-115	49	0.1 (3.7E 9)
Indium-116m	49	100 (3.7E 12)
Indium-117m	49	100 (3.7E 12)
Indium-117	49	1000 (3.7E 13)
Indium-119m	49	1000 (3.7E 13)
Iodine-120m	53	100 (3.7E 12)
Iodine-120	53	10 (3.7E 11)
Iodine-121	53	100 (3.7E 12)
Iodine-123	53	10 (3.7E 11)
Iodine-124	53	0.1 (3.7E 9)
Iodine-125	53	0.01 (3.7E 8)
Iodine-126	53	0.01 (3.7E 8)
Iodine-128	53	1000 (3.7E 13)
Iodine-129	53	0.001 (3.7E 7)
Iodine-130	53	1 (3.7E 10)
Iodine-131	53	0.01 (3.7E 8)
Iodine-132m	53	10 (3.7E 11)
Iodine-132	53	10 (3.7E 11)
Iodine-133	53	0.1 (3.7E 9)
Iodine-134	53	100 (3.7E 12)
Iodine-135	53	10 (3.7E 11)
Indium-182	77	1000 (3.7E 13)
Iridium-184	77	100 (3.7E 12)
Iridium-185	77	100 (3.7E 12)
Iridium-186	77	10 (3.7E 11)
Iridium-187	77	100 (3.7E 12)
Iridium-188	77	10 (3.7E 11)
Iridium-189	77	100 (3.7E 12)
Iridium-190m	77	1000 (3.7E 13)
Iridium-190	77	10 (3.7E 11)
Iridium-192m	77	100 (3.7E 12)
Iridium-192	77	10 (3.7E 11)
Iridium-194m	77	10 (3.7E 11)
Iridium-194	77	100 (3.7E 12)
Iridium-195m	77	100 (3.7E 12)
Iridium-195	77	1000 (3.7E 13)
Iron-52	26	100 (3.7E 12)
Iron-55	26	100 (3.7E 12)
Iron-59	26	10 (3.7E 11)
Iron-60	26	0.1 (3.7E 9)
Krypton-74	36	10 (3.7E 11)
Krypton-76	36	10 (3.7E 11)
Krypton-77	36	10 (3.7E 11)
Krypton-79	36	100 (3.7E 12)
Krypton-81	36	1000 (3.7E 13)
Krypton-83m	36	1000 (3.7E 13)
Krypton-85m	36	100 (3.7E 12)
Krypton-85	36	1000 (3.7E 13)

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APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Krypton-87	36	10 (3.7E 11)
Krypton-88	36	10 (3.7E 11)
Lanthanum-131	57	1000 (3.7E 13)
Lanthanum-132	57	100 (3.7E 12)
Lanthanum-135	57	1000 (3.7E 13)
Lanthanum-137	57	10 (3.7E 11)
Lanthanum-138	57	1 (3.7E 10)
Lanthanum-140	57	10 (3.7E 11)
Lanthanum-141	57	1000 (3.7E 13)
Lanthanum-142	57	100 (3.7E 12)
Lanthanum-143	57	1000 (3.7E 13)
Lead-195m	82	1000 (3.7E 13)
Lead-198	82	100 (3.7E 12)
Lead-199	82	100 (3.7E 12)
Lead-200	82	100 (3.7E 12)
Lead-201	82	100 (3.7E 12)
Lead-202m	82	10 (3.7E 11)
Lead-202	82	1 (3.7E 10)
Lead-203	82	100 (3.7E 12)
Lead-205	82	100 (3.7E 12)
Lead-209	82	1000 (3.7E 13)
Lead-210	82	0.01 (3.7E 8)
Lead-211	82	100 (3.7E 12)
Lead-212	82	10 (3.7E 11)
Lead-214	82	100 (3.7E 12)
Lutetium-169	71	10 (3.7E 11)
Lutetium-170	71	10 (3.7E 11)
Lutetium-171	71	10 (3.7E 11)
Lutetium-172	71	10 (3.7E 11)
Lutetium-173	71	100 (3.7E 12)
Lutetium-174m	71	10 (3.7E 11)
Lutetium-174	71	10 (3.7E 11)
Lutetium-176m	71	1000 (3.7E 13)
Lutetium-176	71	1 (3.7E 10)
Lutetium-177m	71	10 (3.7E 11)
Lutetium-177	71	100 (3.7E 12)
Lutetium-178m	71	1000 (3.7E 13)
Lutetium-178	71	1000 (3.7E 13)
Lutetium-179	71	1000 (3.7E 13)
Magnesium-28	12	10 (3.7E 11)
Manganese-51	25	1000 (3.7E 13)
Manganese-52m	25	1000 (3.7E 13)
Manganese-52	25	10 (3.7E 11)
Manganese-53	25	1000 (3.7E 13)
Manganese-54	25	10 (3.7E 11)
Manganese-56	25	100 (3.7E 12)
Mendelevium-257	101	100 (3.7E 12)
Mendelevium-258	101	1 (3.7E 10)
Mercury-193m	80	10 (3.7E 11)
Mercury-193	80	100 (3.7E 12)
Mercury-194	80	0.1 (3.7E 9)
Mercury-195m	80	100 (3.7E 12)
Mercury-195	80	100 (3.7E 12)
Mercury-197m	80	1000 (3.7E 13)
Mercury-197	80	1000 (3.7E 13)
Mercury-199m	80	1000 (3.7E 13)
Mercury-203	80	10 (3.7E 11)
Molybdenum-90	42	100 (3.7E 12)
Molybdenum-93m	42	10 (3.7E 11)
Molybdenum-93	42	100 (3.7E 12)
Molybdenum-99	42	100 (3.7E 12)
Molybdenum-101	42	1000 (3.7E 13)
Neodymium-136	60	1000 (3.7E 13)
Neodymium-138	60	1000 (3.7E 13)
Neodymium-139m	60	100 (3.7E 12)
Neodymium-139	60	1000 (3.7E 13)
Neodymium-141	60	1000 (3.7E 13)
Neodymium-147	60	10 (3.7E 11)
Neodymium-149	60	100 (3.7E 12)
Neodymium-151	60	1000 (3.7E 13)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Neptunium-232	93	1000 (3.7E 13)
Neptunium-233	93	1000 (3.7E 13)
Neptunium-234	93	10 (3.7E 11)
Neptunium-235	93	1000 (3.7E 13)
Neptunium-236 (1.2 E 5 yr)	93	0.1 (3.7E 9)
Neptunium-236 (22.5 hr)	93	100 (3.7E 12)
Neptunium-237	93	0.01 (3.7E 8)
Neptunium-238	93	10 (3.7E 11)
Neptunium-239	93	100 (3.7E 12)
Neptunium-240	93	100 (3.7E 12)
Nickel-56	28	10 (3.7E 11)
Nickel-57	28	10 (3.7E 11)
Nickel-59	28	100 (3.7E 12)
Nickel-63	28	100 (3.7E 12)
Nickel-65	28	100 (3.7E 12)
Nickel-66	28	10 (3.7E 11)
Niobium-88	41	100 (3.7E 12)
Niobium-89 (66 min)	41	100 (3.7E 12)
Niobium-89 (122 min)	41	100 (3.7E 12)
Niobium-90	41	10 (3.7E 11)
Niobium-93m	41	100 (3.7E 12)
Niobium-94	41	10 (3.7E 11)
Niobium-95m	41	100 (3.7E 12)
Niobium-95	41	10 (3.7E 11)
Niobium-96	41	10 (3.7E 11)
Niobium-97	41	100 (3.7E 12)
Niobium-98	41	1000 (3.7E 13)
Osmium-180	76	1000 (3.7E 13)
Osmium-181	76	100 (3.7E 12)
Osmium-182	76	100 (3.7E 12)
Osmium-185	76	10 (3.7E 11)
Osmium-189m	76	1000 (3.7E 13)
Osmium-191m	76	1000 (3.7E 13)
Osmium-191	76	100 (3.7E 12)
Osmium-193	76	100 (3.7E 12)
Osmium-194	76	1 (3.7E 10)
Palladium-100	46	100 (3.7E 12)
Palladium-101	46	100 (3.7E 12)
Palladium-103	46	100 (3.7E 12)
Palladium-107	46	100 (3.7E 12)
Palladium-109	46	1000 (3.7E 13)
Phosphorus-32	15	0.1 (3.7E 9)
Phosphorus-33	15	1 (3.7E 10)
Platinum-186	78	100 (3.7E 12)
Platinum-188	78	100 (3.7E 12)
Platinum-189	78	100 (3.7E 12)
Platinum-191	78	100 (3.7E 12)
Platinum-193m	78	100 (3.7E 12)
Platinum-193	78	1000 (3.7E 13)
Platinum-195m	78	100 (3.7E 12)
Platinum-197m	78	1000 (3.7E 13)
Platinum-197	78	1000 (3.7E 13)
Platinum-199	78	1000 (3.7E 13)
Platinum-200	78	100 (3.7E 12)
Plutonium-234	94	1000 (3.7E 13)
Plutonium-235	94	1000 (3.7E 13)
Plutonium-236	94	0.1 (3.7E 9)
Plutonium-237	94	1000 (3.7E 13)
Plutonium-238	94	0.01 (3.7E 8)
Plutonium-239	94	0.01 (3.7E 8)
Plutonium-240	94	0.01 (3.7E 8)
Plutonium-241	94	1 (3.7E 10)
Plutonium-242	94	0.01 (3.7E 8)
Plutonium-243	94	1000 (3.7E 13)
Plutonium-244	94	0.01 (3.7E 8)
Plutonium-245	94	100 (3.7E 12)
Polonium-203	84	100 (3.7E 12)
Polonium-205	84	100 (3.7E 12)
Polonium-207	84	10 (3.7E 11)
Polonium-210	84	0.01 (3.7E 8)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Potassium-40	19	1 (3.7E 10)
Potassium-42	19	100 (3.7E 12)
Potassium-43	19	10 (3.7E 11)
Potassium-44	19	100 (3.7E 12)
Potassium-45	19	1000 (3.7E 13)
Praseodymium-136	59	1000 (3.7E 13)
Praseodymium-137	59	1000 (3.7E 13)
Praseodymium-138m	59	100 (3.7E 12)
Praseodymium-139	59	1000 (3.7E 13)
Praseodymium-142m	59	1000 (3.7E 13)
Praseodymium-142	59	100 (3.7E 12)
Praseodymium-143	59	10 (3.7E 11)
Praseodymium-144	59	1000 (3.7E 13)
Praseodymium-145	59	1000 (3.7E 13)
Praseodymium-147	59	1000 (3.7E 13)
Promethium-141	61	1000 (3.7E 13)
Promethium-143	61	100 (3.7E 12)
Promethium-144	61	10 (3.7E 11)
Promethium-145	61	100 (3.7E 12)
Promethium-146	61	10 (3.7E 11)
Promethium-147	61	10 (3.7E 11)
Promethium-148m	61	10 (3.7E 11)
Promethium-148	61	10 (3.7E 11)
Promethium-149	61	100 (3.7E 12)
Promethium-150	61	100 (3.7E 12)
Promethium-151	61	100 (3.7E 12)
Protactinium-227	91	100 (3.7E 12)
Protactinium-228	91	10 (3.7E 11)
Protactinium-230	91	10 (3.7E 11)
Protactinium-231	91	0.01 (3.7E 8)
Protactinium-232	91	10 (3.7E 11)
Protactinium-233	91	100 (3.7E 12)
Protactinium-234	91	10 (3.7E 11)
Radium-223	88	1 (3.7E 10)
Radium-224	88	10 (3.7E 11)
Radium-225	88	1 (3.7E 10)
Radium-226Φ	88	0.1 (3.7E 9)
Radium-227	88	1000 (3.7E 13)
Radium-228	88	0.1 (3.7E 9)
Radon-220	86	0.1 (3.7E 9)
Radon-222	86	0.1 (3.7E 9)
Rhenium-177	75	1000 (3.7E 13)
Rhenium-178	75	1000 (3.7E 13)
Rhenium-181	75	100 (3.7E 12)
Rhenium-182 (12 7 hr)	75	10 (3.7E 11)
Rhenium-182 (64 0 hr)	75	10 (3.7E 11)
Rhenium-184m	75	10 (3.7E 11)
Rhenium-184	75	10 (3.7E 11)
Rhenium-186m	75	10 (3.7E 11)
Rhenium-186	75	100 (3.7E 12)
Rhenium-187	75	1000 (3.7E 13)
Rhenium-188m	75	1000 (3.7E 13)
Rhenium-188	75	1000 (3.7E 13)
Rhenium-189	75	1000 (3.7E 13)
Rhodium-99m	45	100 (3.7E 12)
Rhodium-99	45	10 (3.7E 11)
Rhodium-100	45	10 (3.7E 11)
Rhodium-101m	45	100 (3.7E 12)
Rhodium-101	45	10 (3.7E 11)
Rhodium-102m	45	10 (3.7E 11)
Rhodium-102	45	10 (3.7E 11)
Rhodium-103m	45	1000 (3.7E 13)
Rhodium-105	45	100 (3.7E 12)
Rhodium-106m	45	10 (3.7E 11)
Rhodium-107	45	1000 (3.7E 13)
Rubidium-79	37	1000 (3.7E 13)
Rubidium-81m	37	1000 (3.7E 13)
Rubidium-81	37	100 (3.7E 12)
Rubidium-82m	37	10 (3.7E 11)
Rubidium-83	37	10 (3.7E 11)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Rubidium-84	37	10 (3.7E 11)
Rubidium-86	37	10 (3.7E 11)
Rubidium-88	37	1000 (3.7E 13)
Rubidium-89	37	1000 (3.7E 13)
Rubidium-87	37	10 (3.7E 11)
Ruthenium-94	44	1000 (3.7E 13)
Ruthenium-97	44	100 (3.7E 12)
Ruthenium-103	44	10 (3.7E 11)
Ruthenium-105	44	100 (3.7E 12)
Ruthenium-106	44	1 (3.7E 10)
Samarium-141m	62	1000 (3.7E 13)
Samarium-141	62	1000 (3.7E 13)
Samarium-142	62	1000 (3.7E 13)
Samarium-145	62	100 (3.7E 12)
Samarium-146	62	0.01 (3.7E 8)
Samarium-147	62	0.01 (3.7E 8)
Samarium-151	62	10 (3.7E 11)
Samarium-153	62	100 (3.7E 12)
Samarium-155	62	1000 (3.7E 13)
Samarium-156	62	100 (3.7E 12)
Scandium-43	21	1000 (3.7E 13)
Scandium-44m	21	10 (3.7E 11)
Scandium-44	21	100 (3.7E 12)
Scandium-46	21	10 (3.7E 11)
Scandium-47	21	100 (3.7E 12)
Scandium-48	21	10 (3.7E 11)
Scandium-49	21	1000 (3.7E 13)
Selenium-70	34	1000 (3.7E 13)
Selenium-73m	34	100 (3.7E 12)
Selenium-73	34	10 (3.7E 11)
Selenium-75	34	10 (3.7E 11)
Selenium-79	34	10 (3.7E 11)
Selenium-81m	34	1000 (3.7E 13)
Selenium-81	34	1000 (3.7E 13)
Selenium-83	34	1000 (3.7E 13)
Silicon-31	14	1000 (3.7E 13)
Silicon-32	14	1 (3.7E 10)
Silver-102	47	100 (3.7E 12)
Silver-103	47	1000 (3.7E 13)
Silver-104m	47	1000 (3.7E 13)
Silver-104	47	1000 (3.7E 13)
Silver-105	47	10 (3.7E 11)
Silver-106m	47	10 (3.7E 11)
Silver-106	47	1000 (3.7E 13)
Silver-108m	47	10 (3.7E 11)
Silver-110m	47	10 (3.7E 11)
Silver-111	47	10 (3.7E 11)
Silver-112	47	100 (3.7E 12)
Silver-115	47	1000 (3.7E 13)
Sodium-22	11	10 (3.7E 11)
Sodium-24	11	10 (3.7E 11)
Strontium-80	38	100 (3.7E 12)
Strontium-81	38	1000 (3.7E 13)
Strontium-83	38	100 (3.7E 12)
Strontium-85m	38	1000 (3.7E 13)
Strontium-85	38	10 (3.7E 11)
Strontium-87m	38	100 (3.7E 12)
Strontium-89	38	10 (3.7E 11)
Strontium-90	38	0.1 (3.7E 9)
Strontium-91	38	10 (3.7E 11)
Strontium-92	38	100 (3.7E 12)
Sulfur-35	16	1 (3.7E 10)
Tantalum-172	73	100 (3.7E 12)
Tantalum-173	73	100 (3.7E 12)
Tantalum-174	73	100 (3.7E 12)
Tantalum-175	73	100 (3.7E 12)
Tantalum-176	73	10 (3.7E 11)
Tantalum-177	73	1000 (3.7E 13)
Tantalum-178	73	1000 (3.7E 13)
Tantalum-179	73	1000 (3.7E 13)

Environmental Protection Agency

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Tantalum-180m	73	1000 (3.7E 13)
Tantalum-180	73	100 (3.7E 12)
Tantalum-182m	73	1000 (3.7E 13)
Tantalum-182	73	10 (3.7E 11)
Tantalum-183	73	100 (3.7E 12)
Tantalum-184	73	10 (3.7E 11)
Tantalum-185	73	1000 (3.7E 13)
Tantalum-186	73	1000 (3.7E 13)
Technetium-93m	43	1000 (3.7E 13)
Technetium-93	43	100 (3.7E 12)
Technetium-94m	43	100 (3.7E 12)
Technetium-94	43	10 (3.7E 11)
Technetium-96m	43	1000 (3.7E 13)
Technetium-96	43	10 (3.7E 11)
Technetium-97m	43	100 (3.7E 12)
Technetium-97	43	100 (3.7E 12)
Technetium-98	43	10 (3.7E 11)
Technetium-99m	43	100 (3.7E 12)
Technetium-99	43	10 (3.7E 11)
Technetium-101	43	1000 (3.7E 13)
Technetium-104	43	1000 (3.7E 13)
Tellurium-116	52	1000 (3.7E 13)
Tellurium-121m	52	10 (3.7E 11)
Tellurium-121	52	10 (3.7E 11)
Tellurium-123m	52	10 (3.7E 11)
Tellurium-123	52	10 (3.7E 11)
Tellurium-125m	52	10 (3.7E 11)
Tellurium-127m	52	10 (3.7E 11)
Tellurium-127	52	1000 (3.7E 13)
Tellurium-129m	52	10 (3.7E 11)
Tellurium-129	52	1000 (3.7E 13)
Tellurium-131m	52	10 (3.7E 11)
Tellurium-131	52	1000 (3.7E 13)
Tellurium-132	52	10 (3.7E 11)
Tellurium-133m	52	1000 (3.7E 13)
Tellurium-133	52	1000 (3.7E 13)
Tellurium-134	52	1000 (3.7E 13)
Terbium-147	65	100 (3.7E 12)
Terbium-149	65	100 (3.7E 12)
Terbium-150	65	100 (3.7E 12)
Terbium-151	65	10 (3.7E 11)
Terbium-153	65	100 (3.7E 12)
Terbium-154	65	10 (3.7E 11)
Terbium-155	65	100 (3.7E 12)
Terbium-156m (5.0 hr)	65	1000 (3.7E 13)
Terbium-156m (24.4 hr)	65	1000 (3.7E 13)
Terbium-156	65	10 (3.7E 11)
Terbium-157	65	100 (3.7E 12)
Terbium-158	65	10 (3.7E 11)
Terbium-160	65	10 (3.7E 11)
Terbium-161	65	100 (3.7E 12)
Thallium-194m	81	100 (3.7E 12)
Thallium-194	81	1000 (3.7E 13)
Thallium-195	81	100 (3.7E 12)
Thallium-197	81	100 (3.7E 12)
Thallium-198m	81	100 (3.7E 12)
Thallium-198	81	10 (3.7E 11)
Thallium-199	81	100 (3.7E 12)
Thallium-200	81	10 (3.7E 11)
Thallium-201	81	1000 (3.7E 13)
Thallium-202	81	10 (3.7E 11)
Thallium-204	81	10 (3.7E 11)
Thonum-226	90	100 (3.7E 12)
Thonum-227	90	1 (3.7E 10)
Thonum-228	90	0.01 (3.7E 8)
Thonum-229	90	0.001 (3.7E 7)
Thonum-230	90	0.01 (3.7E 8)
Thonum-231	90	100 (3.7E 12)
Thonum-232Φ	90	0.001 (3.7E 7)
Thonum-234	90	100 (3.7E 12)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Thulium-162	69	1000 (3.7E 13)
Thulium-166	69	10 (3.7E 11)
Thulium-167	69	100 (3.7E 12)
Thulium-170	69	10 (3.7E 11)
Thulium-171	69	100 (3.7E 12)
Thulium-172	69	100 (3.7E 12)
Thulium-173	69	100 (3.7E 12)
Thulium-175	69	1000 (3.7E 13)
Tin-110	50	100 (3.7E 12)
Tin-111	50	1000 (3.7E 13)
Tin-113	50	10 (3.7E 11)
Tin-117m	50	100 (3.7E 12)
Tin-119m	50	10 (3.7E 11)
Tin-121m	50	10 (3.7E 11)
Tin-121	50	1000 (3.7E 13)
Tin-123m	50	1000 (3.7E 13)
Tin-123	50	10 (3.7E 11)
Tin-125	50	10 (3.7E 11)
Tin-126	50	1 (3.7E 10)
Tin-127	50	100 (3.7E 12)
Tin-128	50	1000 (3.7E 13)
Titanium-44	22	1 (3.7E 10)
Titanium-45	22	1000 (3.7E 13)
Tungsten-176	74	1000 (3.7E 13)
Tungsten-177	74	100 (3.7E 12)
Tungsten-178	74	100 (3.7E 12)
Tungsten-179	74	1000 (3.7E 13)
Tungsten-181	74	100 (3.7E 12)
Tungsten-185	74	10 (3.7E 11)
Tungsten-187	74	100 (3.7E 12)
Tungsten-188	74	10 (3.7E 11)
Uranium-230	92	1 (3.7E 10)
Uranium-231	92	1000 (3.7E 13)
Uranium-232	92	0.01 (3.7E 8)
Uranium-233	92	0.1 (3.7E 9)
Uranium-234ϕ	92	0.1 (3.7E 9)
Uranium-235ϕ	92	0.1 (3.7E 9)
Uranium-236	92	0.1 (3.7E 9)
Uranium-237	92	100 (3.7E 12)
Uranium-238ϕ	92	0.1& (3.7E 9)
Uranium-239	92	1000 (3.7E 13)
Uranium-240	92	1000 (3.7E 13)
Vanadium-47	23	1000 (3.7E 13)
Vanadium-48	23	10 (3.7E 11)
Vanadium-49	23	1000 (3.7E 13)
Xenon-120	54	100 (3.7E 12)
Xenon-121	54	10 (3.7E 11)
Xenon-122	54	100 (3.7E 12)
Xenon-123	54	10 (3.7E 11)
Xenon-125	54	100 (3.7E 12)
Xenon-127	54	100 (3.7E 12)
Xenon-129m	54	1000 (3.7E 13)
Xenon-131m	54	1000 (3.7E 13)
Xenon-133m	54	1000 (3.7E 13)
Xenon-133	54	1000 (3.7E 13)
Xenon-135m	54	10 (3.7E 11)
Xenon-135	54	100 (3.7E 12)
Xenon-138	54	10 (3.7E 11)
Ytterbium-162	70	1000 (3.7E 13)
Ytterbium-166	70	10 (3.7E 11)
Ytterbium-167	70	1000 (3.7E 13)
Ytterbium-169	70	10 (3.7E 11)
Ytterbium-175	70	100 (3.7E 12)
Ytterbium-177	70	1000 (3.7E 13)
Ytterbium-178	70	1000 (3.7E 13)
Yttrium-86m	39	1000 (3.7E 13)
Yttrium-86	39	10 (3.7E 11)
Yttrium-87	39	10 (3.7E 11)
Yttrium-88	39	10 (3.7E 11)
Yttrium-90m	39	100 (3.7E 12)

APPENDIX B TO § 302.4—RADIONUCLIDES—Continued

Radionuclide	Atomic Number	Final RQ Ci (Bq)
Yttrium-90	39	10 (3.7E 11)
Yttrium-91m	39	1000 (3.7E 13)
Yttrium-91	39	10 (3.7E 11)
Yttrium-92	39	100 (3.7E 12)
Yttrium-93	39	100 (3.7E 12)
Yttrium-94	39	1000 (3.7E 13)
Yttrium-95	39	1000 (3.7E 13)
Zinc-62	30	100 (3.7E 12)
Zinc-63	30	1000 (3.7E 13)
Zinc-65	30	10 (3.7E 11)
Zinc-69m	30	100 (3.7E 12)
Zinc-69	30	1000 (3.7E 13)
Zinc-71m	30	100 (3.7E 12)
Zinc-72	30	100 (3.7E 12)
Zirconium-86	40	100 (3.7E 12)
Zirconium-88	40	10 (3.7E 11)
Zirconium-89	40	100 (3.7E 12)
Zirconium-93	40	1 (3.7E 10)
Zirconium-95	40	10 (3.7E 11)
Zirconium-97	40	10 (3.7E 11)

GINNA NUCLEAR POWER PLANT
PROCEDURES INDEX
EMERGENCY PLAN IMPLEMENTING PROCEDURE

PARAMETERS: DOC TYPES - PREPIP STATUS: EF 5 YEARS ONLY:

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
EPIP-1-0	GINNA STATION EVENT EVALUATION AND CLASSIFICATION	027	08/22/01	08/22/01	08/22/06	EF
EPIP-1-1	UNUSUAL EVENT	002	12/09/96	12/09/96	12/09/01	EF
EPIP-1-2	ALERT	003	12/09/96	12/09/96	12/09/01	EF
EPIP-1-3	SITE AREA EMERGENCY	005	12/09/96	01/23/98	01/20/02	EF
EPIP-1-4	GENERAL EMERGENCY	004	12/09/96	12/09/96	12/09/01	EF
EPIP-1-5	NOTIFICATIONS	043	06/04/01	06/04/01	06/04/06	EF
EPIP-1-6	SITE EVACUATION	012	03/12/01	03/12/01	03/12/06	EF
EPIP-1-7	ACCOUNTABILITY OF PERSONNEL	008	07/27/99	07/27/99	07/27/04	EF
EPIP-1-8	SEARCH AND RESCUE OPERATION	004	05/16/00	05/16/00	05/16/05	EF
EPIP-1-9	TECHNICAL SUPPORT CENTER ACTIVATION	019	10/06/00	10/06/00	10/06/05	EF
EPIP-1-10	OPERATIONAL SUPPORT CENTER (OSC) ACTIVATION	010	07/25/00	07/25/00	07/25/05	EF
EPIP-1-11	SURVEY CENTER ACTIVATION	022	07/20/01	07/20/01	07/20/06	EF
EPIP-1-12	REPAIR AND CORRECTIVE ACTION GUIDELINES DURING EMERGENCY SITUATIONS	008	07/20/01	07/20/01	07/20/06	EF
EPIP-1-13	LOCAL RADIATION EMERGENCY	003	08/04/95	01/23/98	01/23/02	EF
EPIP-1-15	USE OF THE HEALTH PHYSICS NETWORK HPN	005	04/24/96	03/03/99	03/03/04	EF
EPIP-1-16	RADIOACTIVE LIQUID RELEASE TO LAKE ONTARIO OR DEER CREEK	004	02/13/98	02/13/98	02/13/02	EF
EPIP-1-17	PLANNING FOR ADVERSE WEATHER	002	06/21/00	06/21/00	06/21/05	EF
EPIP-2-1	PROTECTIVE ACTION RECOMMENDATIONS	019	06/04/01	06/04/01	06/04/06	EF
EPIP-2-2	OBTAINING METEOROLOGICAL DATA AND FORECASTS AND THEIR USE IN EMERGENCY DOSE ASSESSMENT	010	04/30/01	04/30/01	04/30/06	EF
EPIP-2-3	EMERGENCY RELEASE RATE DETERMINATION	013	08/22/01	08/22/01	08/22/06	EF
EPIP-2-4	EMERGENCY DOSE PROJECTIONS - MANUAL METHOD	013	07/20/01	07/20/01	07/20/06	EF
EPIP-2-5	EMERGENCY DOSE PROJECTIONS PERSONAL COMPUTER METHOD	012	07/20/01	07/20/01	07/20/06	EF
EPIP-2-6	EMERGENCY DOSE PROJECTIONS - MIDAS PROGRAM	011	06/21/00	06/21/00	06/21/05	EF
EPIP-2-7	MANAGEMENT OF EMERGENCY [illegible]					

PARAMETERS: DOC TYPES - PREPIP STATUS: EF 5 YEARS ONLY:

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
EPIP-2-8	VOLUNTARY ACCEPTANCE OF EMERGENCY RADIATION EXPOSURE	005	05/16/00	05/16/00	05/16/05	EF
EPIP-2-9	ADMINISTRATION OF POTASSIUM IODIDE (KI)	003	12/05/97	12/05/97	12/05/01	EF
EPIP-2-10	INPLANT RADIATION SURVEYS	003	01/16/97	01/16/97	01/16/02	EF
EPIP-2-11	ONSITE SURVEYS	016	07/20/01	07/20/01	07/20/06	EF
EPIP-2-12	OFFSITE SURVEYS	019	07/20/01	07/20/01	07/20/06	EF
EPIP-2-13	IODINE AND PARTICULATE ACTIVITY DETERMINATION FROM AIR SAMPLES	008	07/27/99	07/27/99	07/27/04	EF
EPIP-2-14	POST PLUME ENVIRONMENTAL SAMPLING	014	12/04/00	12/04/00	12/04/05	EF
EPIP-2-15	POST PLUME EVALUATION OF OFFSITE DOSES DUE TO DEPOSITION	004	03/06/98	03/06/98	03/06/03	EF
EPIP-2-16	CORE DAMAGE ESTIMATION	010	02/25/00	02/25/00	02/25/05	EF
EPIP-2-17	HYPOTHETICAL (PRE-RELEASE) DOSE ESTIMATES	006	06/04/01	06/04/01	06/04/01	EF
EPIP-2-18	CONTROL ROOM DOSE ASSESSMENT	012	10/06/00	10/06/00	10/06/05	EF
EPIP-3-1	EMERGENCY OPERATIONS FACILITY (EOF) ACTIVATION AND OPERATIONS	016	06/04/01	06/04/01	06/04/06	EF
EPIP-3-2	ENGINEERING SUPPORT CENTER (ESC)	009	03/12/01	03/12/01	03/12/06	EF
EPIP-3-3	IMMEDIATE ENTRY	007	06/21/00	06/21/00	06/21/05	EF
EPIP-3-4	EMERGENCY TERMINATION AND RECOVERY	008	03/12/01	03/12/01	03/12/06	EF
EPIP-3-7	SECURITY DURING EMERGENCIES	009	11/16/99	11/16/99	11/16/04	EF
EPIP-4-1	PUBLIC INFORMATION RESPONSE TO AN UNUSUAL EVENT	006	02/13/98	02/13/98	02/13/02	EF
EPIP-4-3	ACCIDENTAL ACTIVATION OF GINNA EMERGENCY NOTIFICATION SYSTEM SIRENS	008	02/13/98	02/13/98	02/13/02	EF
EPIP-4-6	JOINT EMERGENCY NEWS CENTER ACTIVATION	008	02/11/00	02/11/00	02/11/05	EF
EPIP-4-7	PUBLIC INFORMATION ORGANIZATION STAFFING	017	06/04/01	06/04/01	06/04/06	EF
EPIP-5-1	OFFSITE EMERGENCY RESPONSE FACILITIES AND EQUIPMENT PERIODIC INVENTORY CHECKS AND TESTS	021	06/04/01	06/04/01	06/04/06	EF
EPIP-5-2	ONSITE EMERGENCY RESPONSE FACILITIES AND EQUIPMENT PERIODIC INVENTORY CHECKS AND TESTS	025	07/20/01	07/20/01	07/20/06	EF
EPIP-5-5	CONDUCT OF DRILLS AND EXERCISES	012	03/12/01	03/12/01	03/12/06	EF

PARAMETERS: DOC TYPES - PREPIP STATUS: EF 5 YEARS ONLY:

PROCEDURE NUMBER	PROCEDURE TITLE	REV	EFFECT DATE	LAST REVIEW	NEXT REVIEW	ST
EPIP-5-6	ANNUAL REVIEW OF NUCLEAR EMERGENCY RESPONSE PLAN (NERP)	004	05/28/99	05/28/99	05/28/04	EF
EPIP-5-7	EMERGENCY ORGANIZATION	032	06/04/01	06/04/01	06/04/06	EF
EPIP-5-9	TESTING THE OFF HOURS CALL-IN PROCEDURE AND QUARTERLY TELEPHONE NUMBER CHECK	006	05/28/99	05/28/99	05/28/04	EF
EPIP-5-10	EMERGENCY RESPONSE DATA SYSTEM (ERDS)	005	09/05/97	09/05/97	09/05/02	EF
NERP	GINNA STATION NUCLEAR EMERGENCY RESPONSE PLAN	020	03/21/01	03/21/01	12/09/04	EF

TOTAL FOR PREPIP 52