Written Examination

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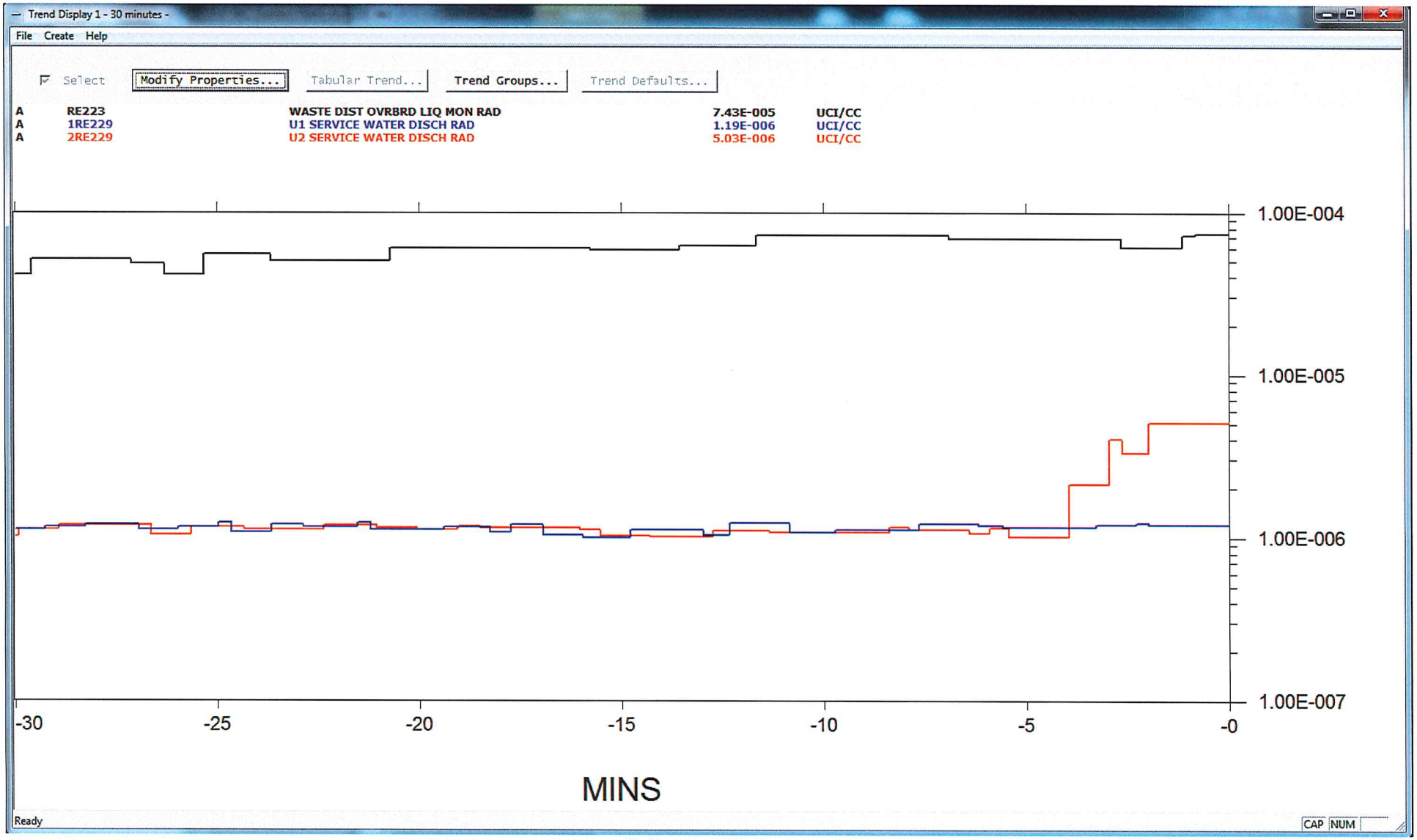
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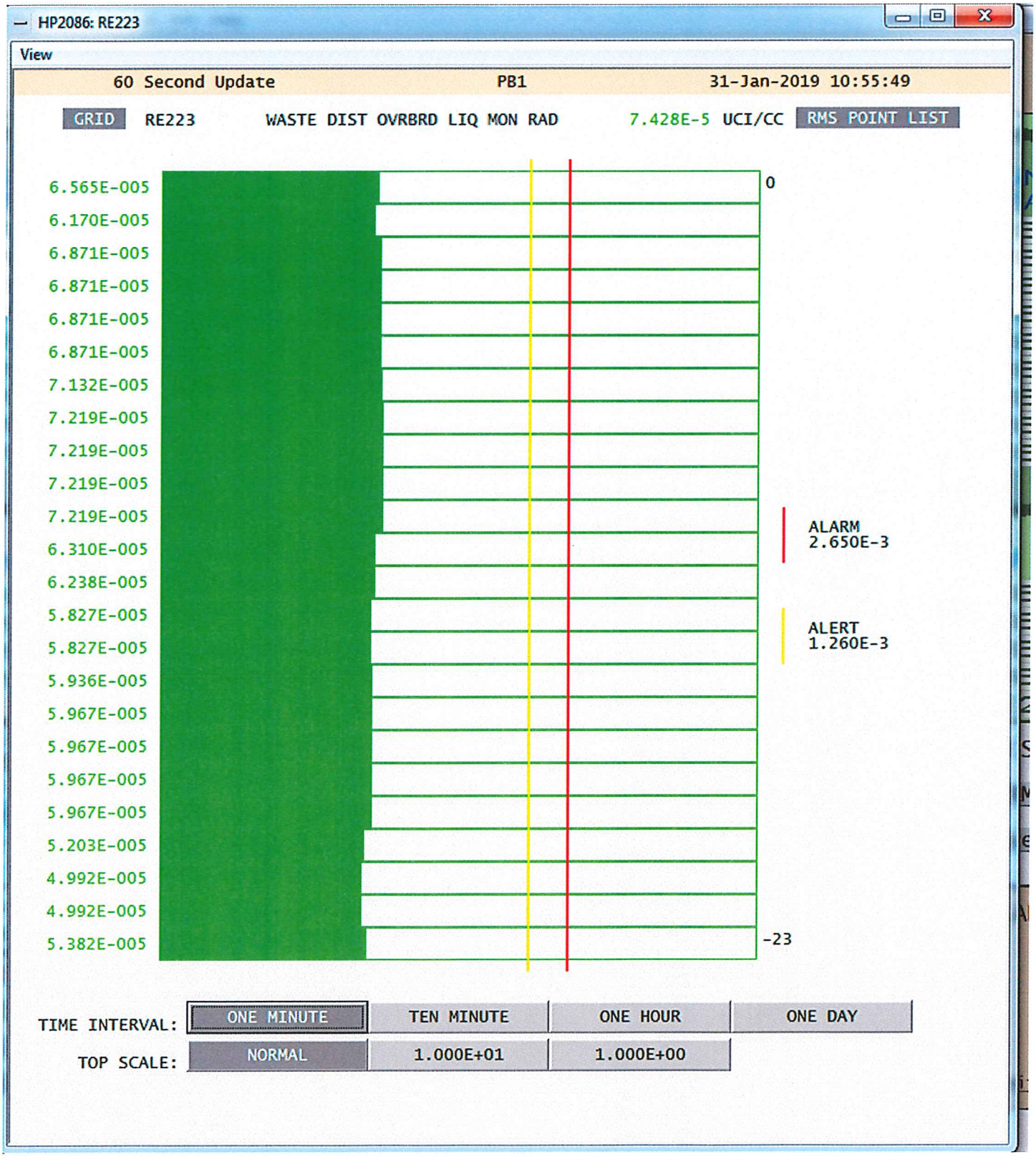
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ONE HOUR
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TOP SCALE:
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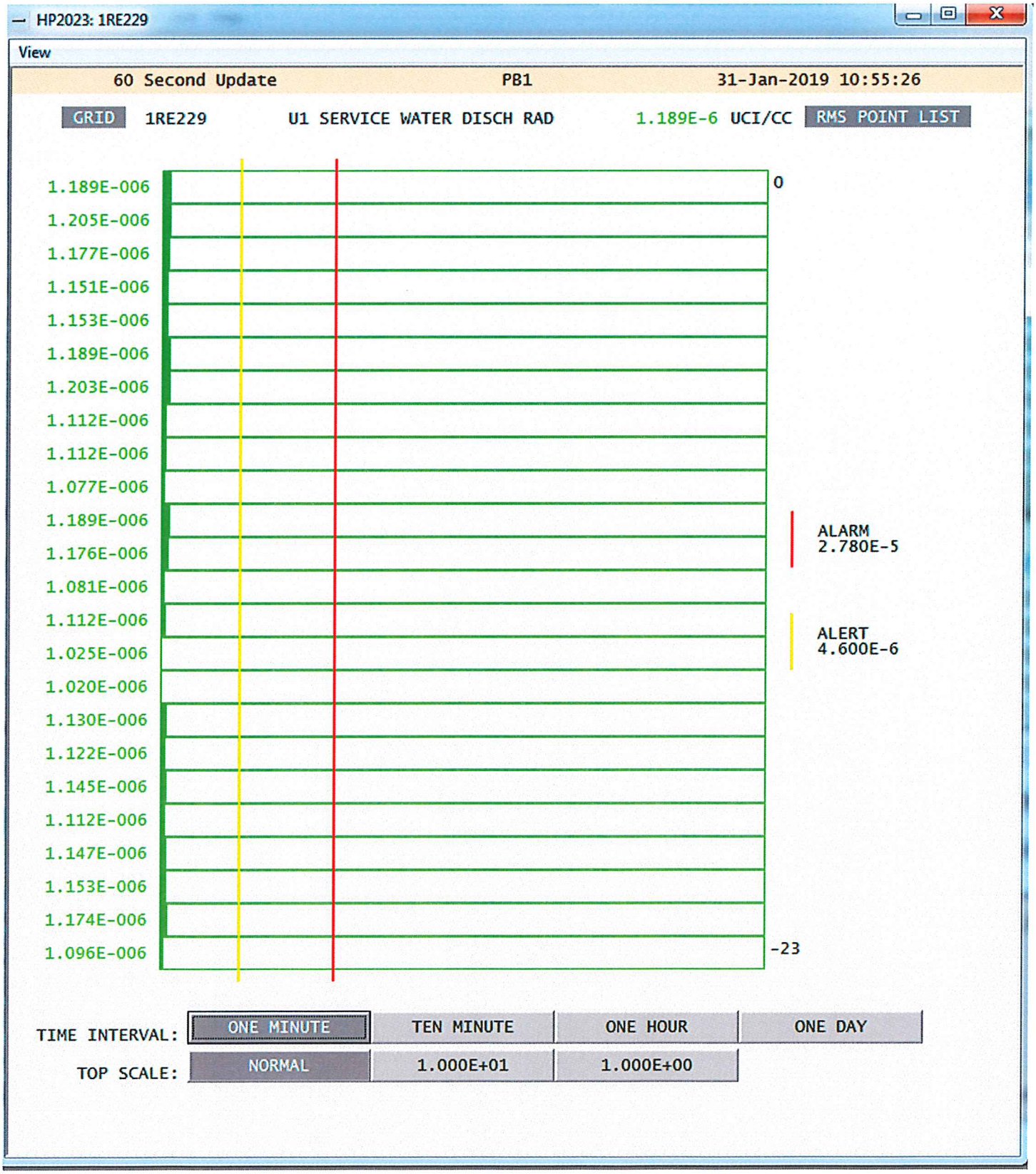
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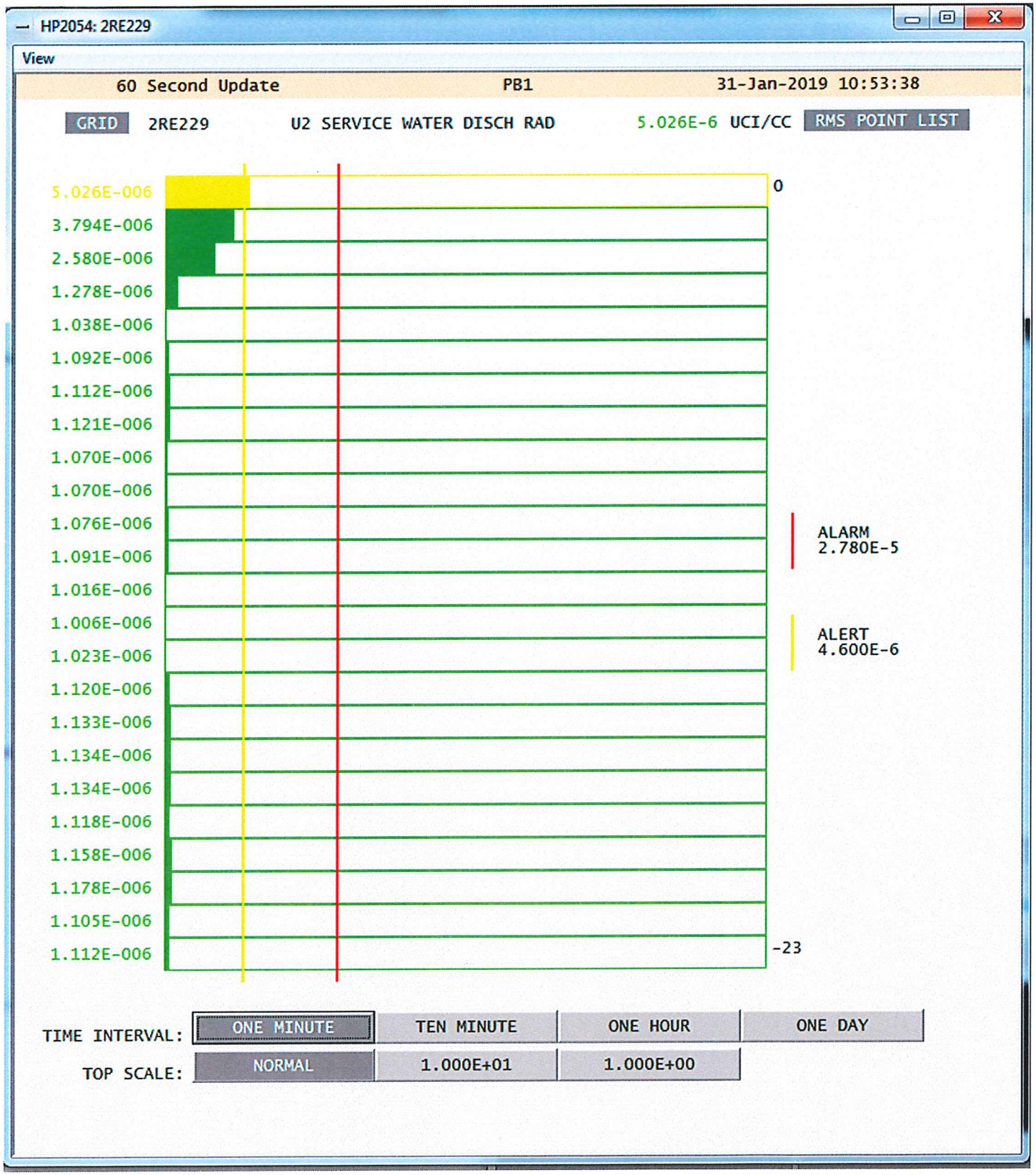
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ALARM
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ALERT
4.600E-6
TIME INTERVAL:
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TEN MINUTE
ONE HOUR
ONE DAY
TOP SCALE:
NORMAL
1.000E+01
1.000E+00

Reactivity Plan for Power Changes

Burnup Range (8000 - 9000) MWD/MTU

Assumptions:

1. No Xenon effect (except for dilution gal first hour after power reduction)
2. All power reductions starting at 100% steady state power at 576 degrees F
3. Boration is at a constant rate
4. Bank D starts at 220 steps
5. Calculations are based on the midpoint of the burnup range.
6. Power coefficients and Xenon worths are based on a 10% power reduction.
7. Peak Xenon Worth per percent change linearly increases from 3.1 to 3.9 pcm/% power from BOC to EOC.

Table 1: Rapid Power Changes (≥1% per minute) IAW AOP-17A

Amount of Power (%) Reduction	Approximate Gallons of Boration	Estimated Final Bank D Position (steps)	Dilution gal first hour after power reduction
2	28	215	41
5	67	206	103
10	131	195	205
15	199	187	308
25	333	171	513
50	646	126	1027

Table 2: Power Changes IAW OP 2A Attachment A

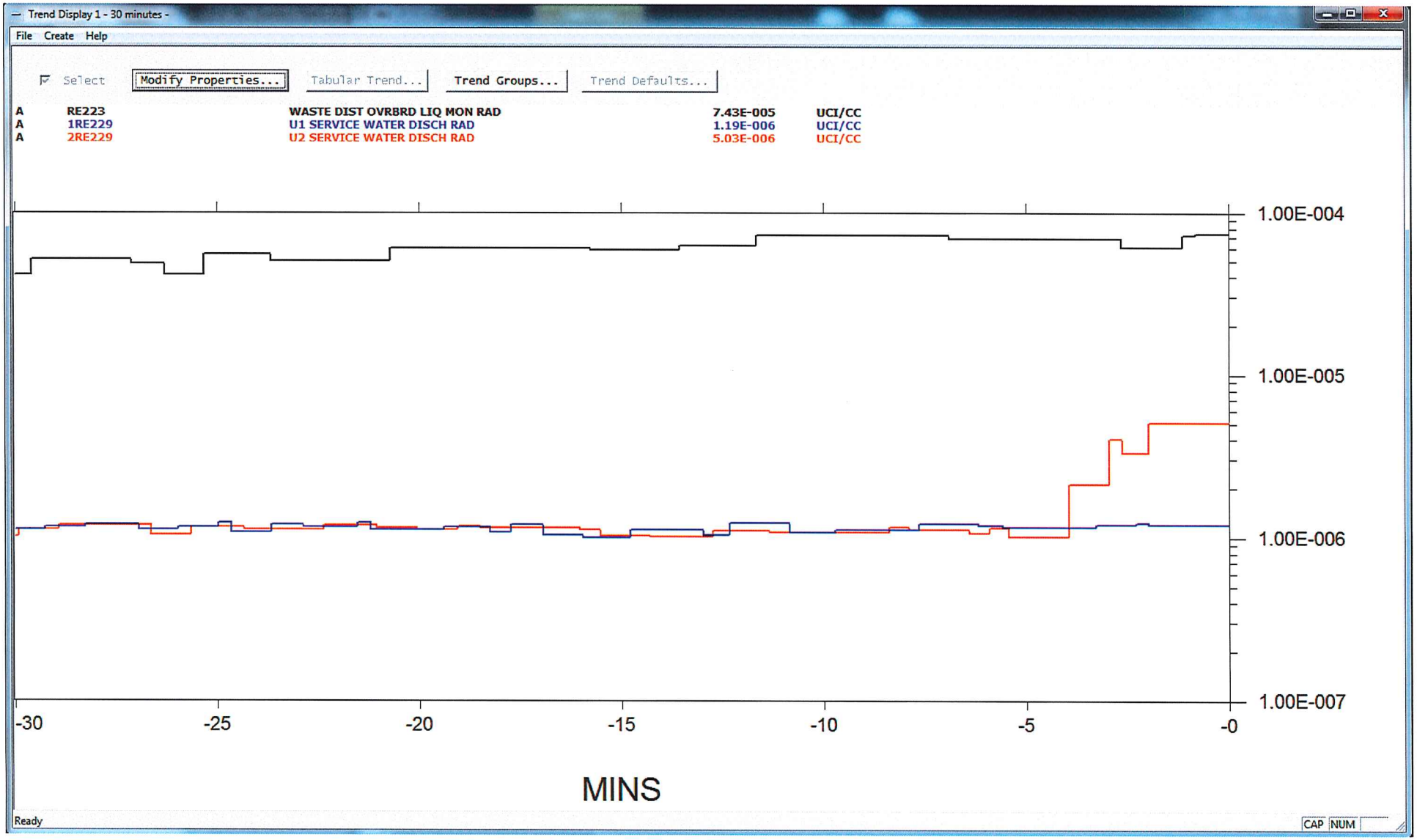
	Boration (gal acid)	Dilution (gal water)	Rod Movement	
For each 1% power increase (dilution AND rod movement)		79	3	steps out Bank D>200
			1	steps out Bank D≤200
For each 1% power decrease (boration AND rod movement)	14		3	steps in Bank D>200
			1	steps in Bank D≤200
For each 1 degree F Tave increase (dilution OR rod movement)		125	8	steps out Bank D>200
			5	steps out Bank D≤200
For each 1 degree F Tave decrease (boration OR rod movement)	22		8	steps in Bank D>200
			5	steps in Bank D≤200

Table 3: Reactivity Parameters

	Value	Reference
HFP Differential Boron Worth [pcm/ppm]	-6.4	ROD 6.6
MTC [pcm/degree F]	-21.0	ROD 8.6
Power Coefficient [pcm/%power]	-20.1	ROD 7
Differential Rod Worth [pcm/step] Bank D > 200 steps	-2.6	ROD 4
Differential Rod Worth [pcm/step] Bank D ≤ 200 steps	-4.5	ROD 4
Boric acid required for 1 ppm change [gal/ppm]	6.7	Blender Book
Dilution required for 1 ppm change [gal/ppm]	38.1	Blender Book
Peak Xenon Worth per percent power change (pcm/% power)	3.5	Assumption 7

Written Examination

SRO References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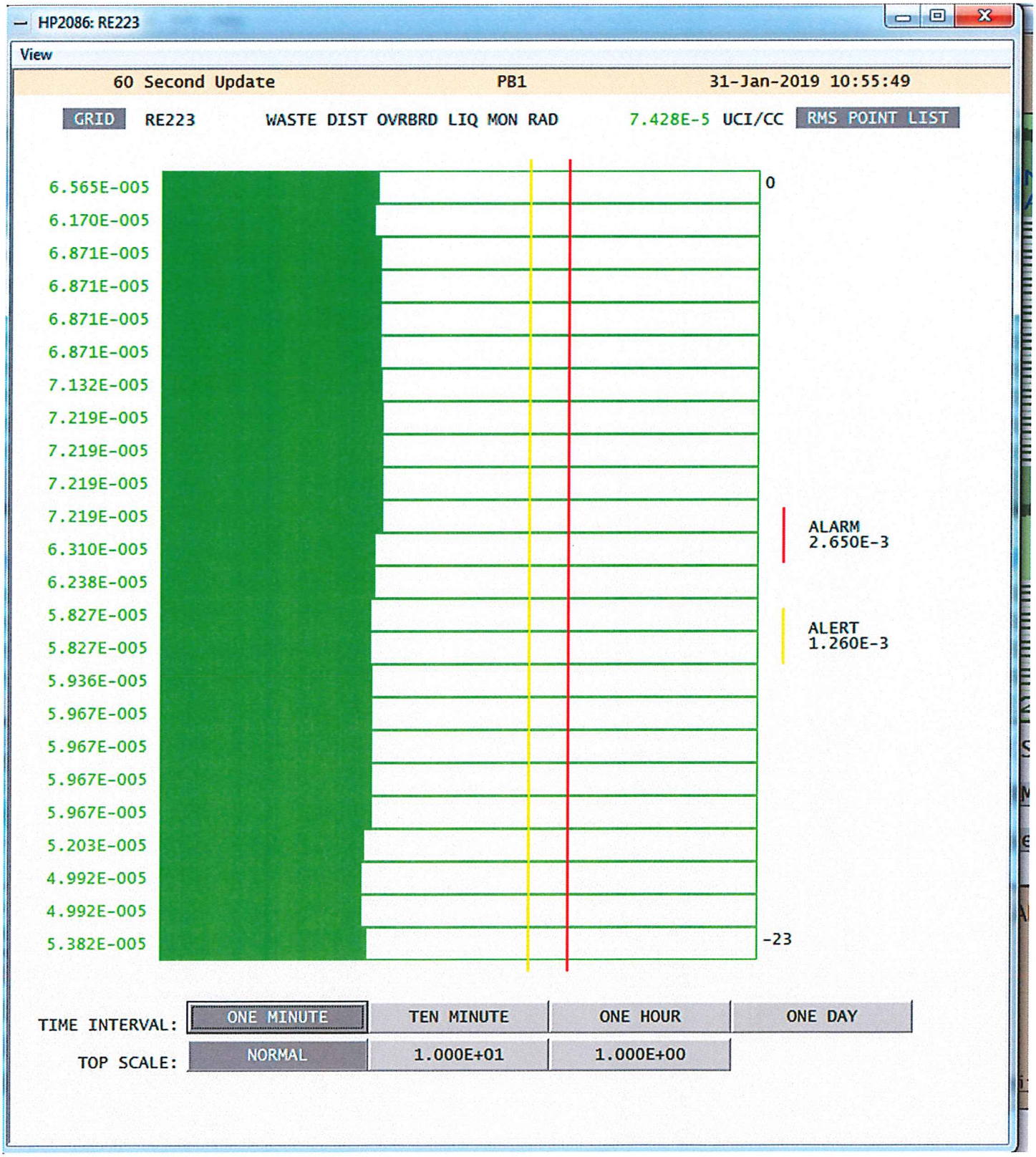
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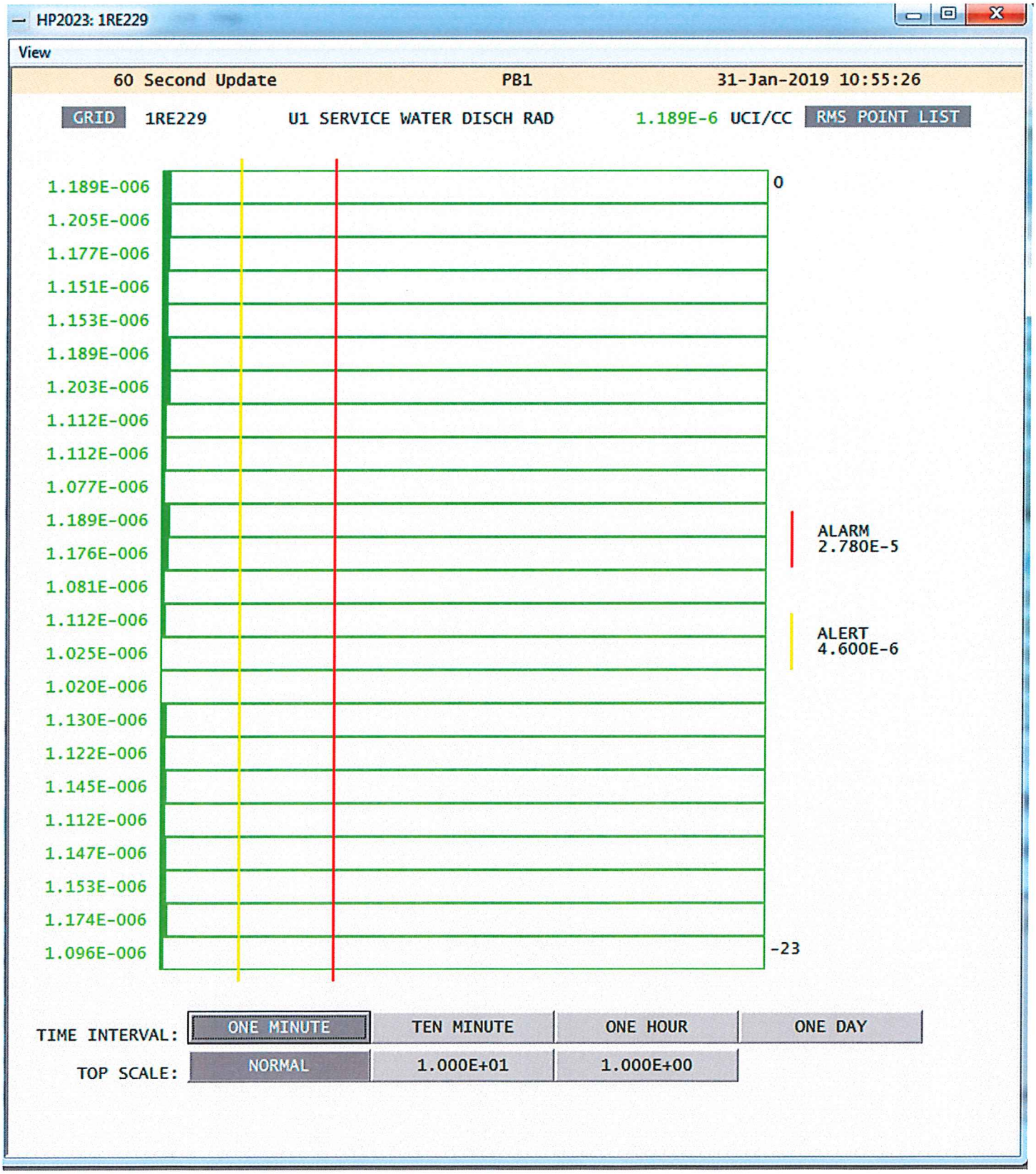
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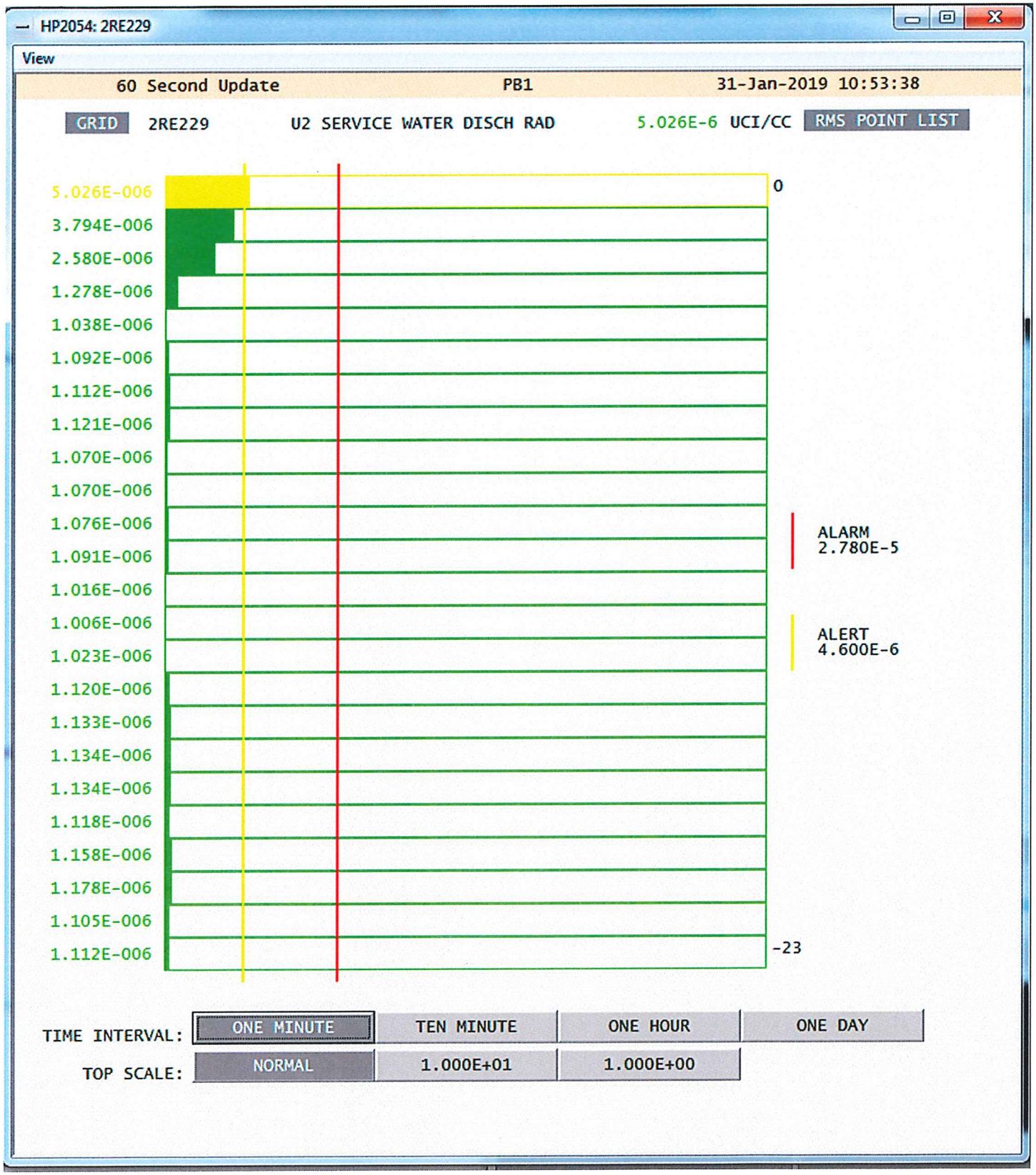
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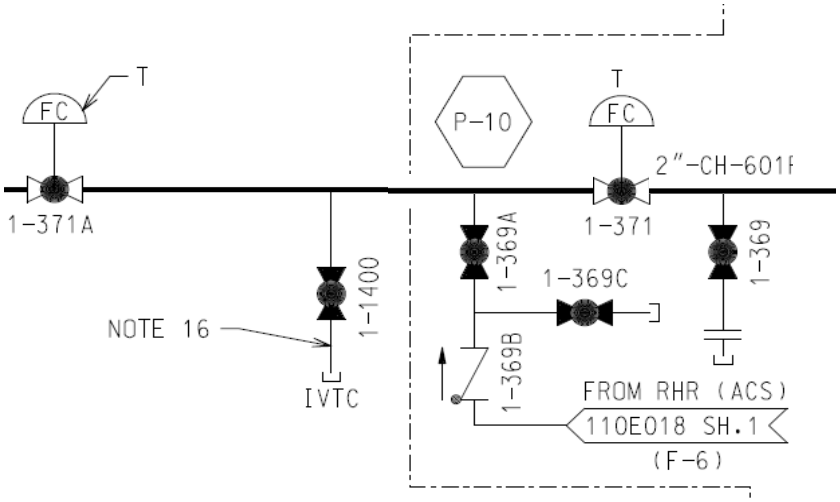
Dilution required for 1 ppm change [gal/ppm]	38.1	Blender Book
Peak Xenon Worth per percent power change (pcm/% power)	3.5	Assumption 7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NOTE 16
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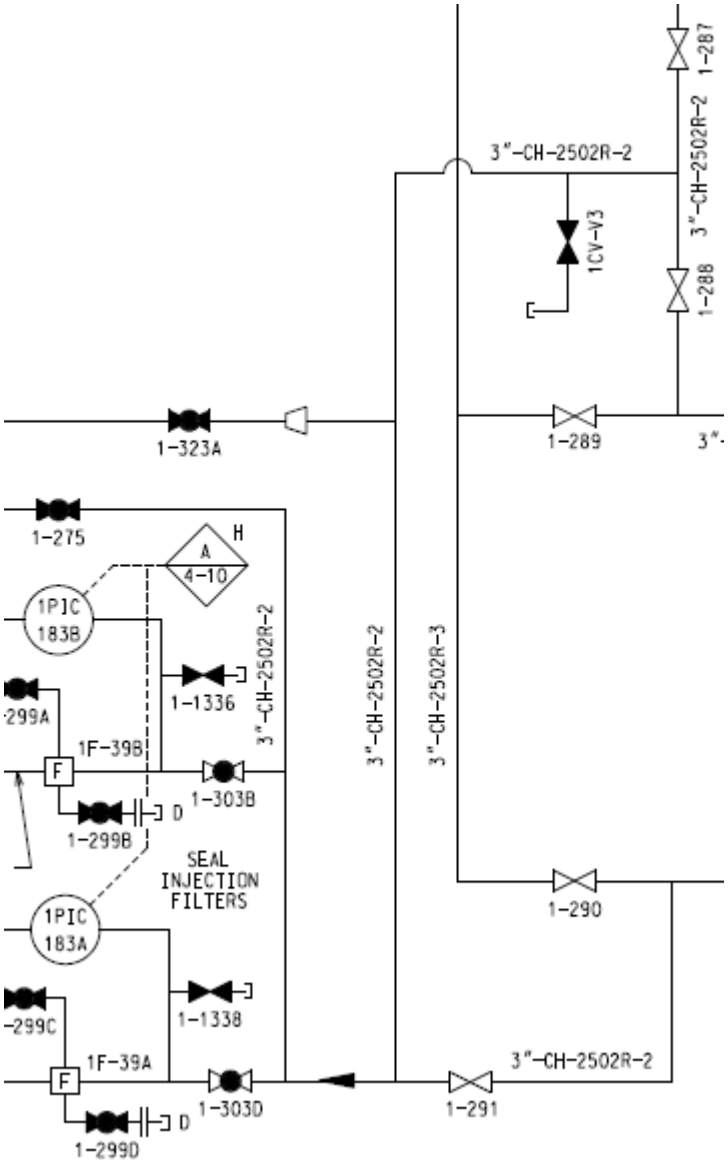
FROM RHR (ACS)
110E018 SH.1
(F-6)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D
1-299B
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1-291
D
1-299D

3.5.1 Chemical and Volume Control System

TLCO 3.5.1 Two flow paths from the boric acid storage tank(s) (BAST) and/or the refueling water storage tank (RWST) to the reactor coolant system (RCS) shall be FUNCTIONAL with at least two FUNCTIONAL charging pumps. Flow paths from the BAST(s) shall include:

a. one FUNCTIONAL boric acid transfer pump per flow path;

b. one BAST flow path lined up to supply boric acid to the reactor; and

c. BAST boric acid concentration, volume, and solution temperature within the limits of TRM Table 3.5.1-1.

----------NOTES----------

1. Only one flow path for boric acid injection to the reactor is required to be FUNCTIONAL in MODES 5 and 6.

2. If the RCS has been depressurized below the safety injection (SI) pump shutoff head, boration of the RCS may be accomplished via boric acid flow path(s) from the RWST and/or BAST(s) through the SI system.

APPLICABILITY: MODES 1, 2, 3, 4, 5 and 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required boron injection flow path non-functional in MODE 5 or 6.	A.1 Initiate actions to restore required boron injection flow path to FUNCTIONAL status.	Immediately
B. One required charging pump non-functional in MODE 1, 2, 3 or 4.	B.1 Restore charging pump to FUNCTIONAL status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One required boron injection flow path non-functional in MODE 1, 2, 3 or 4.	C.1 Restore boron injection flow path to FUNCTIONAL status.	72 hours
D. Required Action and associated Completion Time for Condition B or C not met.	D.1 Be in MODE 3, borated to a SDM ≥ 1% Δk/k at cold shutdown, no xenon conditions. AND D.2 Be in MODE 5.	6 hours 204 hours
E. Two required charging pumps or boron injection flow paths non-functional in MODE 1, 2, 3 or 4.	E.1 Be in MODE 3. AND E.2 Be in MODE 5.	7 hours 37 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.5.1.1	Verify BAST and piping temperatures within limits of TRM Table 3.5.1-1.	-----NOTE------- Only required when BAST relied on as a source of borated water. ---------- 24 hours

(continued)

3.6 CONTAINMENT SYSTEMS

3.6.3 Containment Isolation Valves

LCO 3.6.3 Each containment isolation valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTES----------

1. Penetration flow path(s) except for the purge supply and exhaust flow paths may be unisolated intermittently under administrative controls.

2. Separate Condition entry is allowed for each penetration flow path.

3. Enter applicable Conditions and Required Actions for systems made inoperable by containment isolation valves.

4. Enter applicable Conditions and Required Actions of LCO 3.6.1, "Containment," when isolation valve leakage results in exceeding the overall containment leakage rate acceptance criteria.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------NOTE---------- Only applicable to penetration flow paths with two containment isolation valves. ---------- One or more penetration flow paths with one containment isolation valve inoperable.	A.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. AND	4 hours (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 ----------NOTES---------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed or otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment
B. ----------NOTE---------- Only applicable to penetration flow paths with two containment isolation valves. ---------- One or more penetration flow paths with two containment isolation valves inoperable.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ----------NOTE---------- Only applicable to penetration flow paths with only one containment isolation valve and a closed system. ---------- One or more penetration flow paths with one containment isolation valve inoperable.	C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	72 hours
	AND	
	C.2 ----------NOTES---------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside containment AND Prior to entering Mode 4 from Mode 5 if not performed within the previous 92 days for isolation devices inside containment

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time not met.	D.1 Be in MODE 3. AND D.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.3.1	Deleted	
SR 3.6.3.2	----------NOTE---------- Valves and blind flanges in high radiation areas may be verified by use of administrative controls. ---------- Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	In accordance with the Surveillance Frequency Control Program

(continued)

G-01

G-03

G-01 DIESEL GENERATOR READY FOR LOAD

G-01 DIESEL GENERATOR STARTED

G-01 DIESEL GENERATOR

DIESEL GENERATOR 001 VOLTMETER
4.1
AC KILOVOLTS

DIESEL GENERATOR 001 VARMETER
277.2
IN KILOVARS OUT

DIESEL GENERATOR 001 FREQUENCY METER
60.0
HERTZ

OTEX 601
KW

DIESEL GENERATOR 001 AMMETER
83.1
AC AMPERES

G-03 DIESEL GENERATOR READY FOR LOAD

G-03 DIESEL GENERATOR STARTED

G-03 DIESEL GENERATOR

DIESEL GENERATOR 003 VOLTMETER
0.0
AC KILOVOLTS

DIESEL GENERATOR 003 VARMETER
0.0
IN KILOVARS OUT

DIESEL GENERATOR 003 FREQUENCY METER
59.3
HERTZ

OTEX 603
KW

DIESEL GENERATOR 003 AMMETER
0.0
AC AMPERES

G-01 DIESEL GENERATOR VOLTMETER SELECTOR
A-B B-C C-A OFF

G-01 DIESEL GENERATOR VOLTAGE REGULATOR
VOLTAGE CONTROL LOWER OFF RAISE

G-03 DIESEL GENERATOR VOLTMETER SELECTOR
A-B B-C C-A OFF

G-03 DIESEL GENERATOR VOLTAGE REGULATOR
VOLTAGE CONTROL LOWER OFF RAISE

G-01 DIESEL GENERATOR CONTROL SWITCH
CIRCUIT BREAKER CONTROL AUTO STOP START

G-01 DIESEL GENERATOR GOVERNOR
LOWER OFF RAISE

G-01 DIESEL GENERATOR TO BUS 2A-05 SYNCHROSCOPE
OFF ON

G-01 DIESEL GENERATOR TO BUS 1A-05 SYNCHROSCOPE
OFF ON

G-03 DIESEL GENERATOR CONTROL SWITCH
AUTO STOP START

G-03 DIESEL GENERATOR GOVERNOR
LOWER OFF RAISE

G-03 DIESEL GENERATOR TO BUS 1A-05 SYNCHROSCOPE
OFF ON

G-03 DIESEL GENERATOR TO BUS 2A-05 SYNCHROSCOPE
OFF ON

G-01 DIESEL GENERATOR MODE SELECTOR
LOCAL AUTO EXERCISE

G-01 DIESEL GENERATOR IDLE RELEASE PUSHBUTTON
RESET

KEY 43

2AS2-73 G-01 DIESEL GENERATOR TO BUS 2A-05 BREAKER
AUTO TRIP CLOSE PULL OUT RELEASE OUT

1AS2-60 G-01 DIESEL GENERATOR TO BUS 1A-05 BREAKER
AUTO TRIP CLOSE PULL OUT

G-03 DIESEL GENERATOR MODE SELECTOR
LOCAL AUTO EXERCISE

G-03 DIESEL GENERATOR IDLE RELEASE PUSHBUTTON
RESET

1AS2-80 G-03 DIESEL GENERATOR TO BUS 1A-06 BREAKER
AUTO TRIP CLOSE PULL OUT

2AS2-87 G-03 DIESEL GENERATOR TO BUS 2A-06 BREAKER
AUTO TRIP CLOSE PULL OUT RELEASE OUT

KEY 43

F52-BS-1-2 BUS TIE BREAKER ABB

F52-BS-2-3 BUS TIE BREAKER ABB

F52-BS-3-4 BUS TIE BREAKER ABB

F52-BS-4-5 BUS TIE BREAKER ABB

1F89-112 CIRCUIT SWITCHER

1F89-122B MOTOR OPERATED DISCONNECT

2F89-142B MOTOR OPERATED DISCONNECT

2F89-152 CIRCUIT SWITCHER

1X-03 HV STATION AUX TRANSFORMER

1F52-122 UNIT 1 345 KV OUTPUT BREAKER

2F52-142 UNIT 2 345 KV OUTPUT BREAKER

2X-03 HV STATION AUX TRANSFORMER

1TG-01 TURBINE GENERATOR

G-05 GAS TURBINE GENERATOR

2TG-01 TURBINE GENERATOR

H52-05 1X-03 OUTPUT BREAKER

H52-06 2X-03 OUTPUT BREAKER

1GS2-TG-01 UNIT 1 19KV GENERATOR OUTPUT BREAKER

1X-01 MAIN POWER TRANSFORMER

H52-G05 G-05 GT GENERATOR MAIN BREAKER

2X-01 MAIN POWER TRANSFORMER

2GS2-TG-01 UNIT 2 19KV GENERATOR OUTPUT BREAKER

H52-10 G-05 GT GENERATOR FEED BREAKER

H52-20 BUS H-02 NORMAL FEED

H52-15 Z-952 CAPACITOR BANK

H52-30 BUS H-03 NORMAL FEED

H52-22 BUS H-02 FEED TO 1X-04

H52-21 H-02 TO H-01 BUS TIE

H52-31 H-03 TO H-01 BUS TIE

H52-32 BUS H-03 FEED TO 2X-04

G05 GT GENERATOR B PHASE
0.0
AC AMPERES

GAS TURBINE GENERATOR WATTMETER G05
0.0
AC MEGAWATTS

1X-02 UNIT AUX TRANSFORMER

2X-02 UNIT AUX TRANSFORMER

1X-13 ION SERVICE RMER FOR 1B-01

1X-14 ION SERVICE RMER FOR 1B-04

BUS 1A-01 NORMAL FEED SYNCHROSCOPE
OFF ON

1AS2-36 BUS 1A-03 NORMAL FEED
CIRCUIT BREAKER CONTROL TRIP CLOSE PULL LAUP OUTOUT

BUS 1A-03 NORMAL FEED SYNCHROSCOPE
OFF ON

1X-04 LV STATION AUX TRANSFORMER

BUS 1A-04 NORMAL FEED SYNCHROSCOPE
OFF ON

1AS2-56 BUS 1A-04 NORMAL FEED
CIRCUIT BREAKER CONTROL TRIP CLOSE PULL LAUP OUTOUT

BUS 1A-02 NORMAL FEED SYNCHROSCOPE
OFF ON

BUS 2A-02 NORMAL FEED SYNCHROSCOPE
OFF ON

2AS2-47 BUS 2A-04 NORMAL FEED
CIRCUIT BREAKER CONTROL TRIP CLOSE PULL LAUP OUTOUT

BUS 2A-04 NORMAL FEED SYNCHROSCOPE
OFF ON

1AS2-01 BUS 1A-01 NORMAL FEED
CIRCUIT BREAKER CONTROL TRIP CLOSE PULL LAUP OUTOUT

1A-03

1AS2-37 1A-03 TO 1A-01 BUS TIE BREAKER
CIRCUIT BREAKER CONTROL TRIP CLOSE PULL LAUP OUTOUT

1AS2-40 1A-03 TO 2A-03 BUS TIE BREAKER
CIRCUIT BREAKER CONTROL TRIP CLOSE PULL LAUP OUTOUT

1A-05

1AS2-67 1A-03 TO 1A-05 BUS TIE BREAKER
CIRCUIT BREAKER CONTROL TRIP CLOSE PULL LAUP OUTOUT

1AS2-55 BUS 1A-05 FEED TO 1X-13
TRIP CLOSE PULL OUT

1A-05

1AS2-84 BUS 1A-06 FEED TO 1X-14
CIRCUIT BREAKER CONTROL AUTO TRIP CLOSE PULL LAUP OUTOUT

1AS2-77 1A-04 TO 1A-06 BUS TIE BREAKER
CIRCUIT BREAKER CONTROL TRIP CLOSE PULL LAUP OUTOUT

1A-04

1AS2-64 BUS 1A-04 NORMAL FEED TO 1A-06
CIRCUIT BREAKER CONTROL TRIP CLOSE PULL LAUP OUTOUT

1AS2-55 1A-04 TO 1A-02 BUS TIE BREAKER
CIRCUIT BREAKER CONTROL AUTO TRIP CLOSE PULL LAUP OUTOUT

1A-02

1AS2-17 BUS 1A-02 NORMAL FEED
CIRCUIT BREAKER CONTROL TRIP CLOSE PULL LAUP OUTOUT

2AS2-27 BUS 2A-02 NORMAL FEED
CIRCUIT BREAKER CONTROL TRIP CLOSE PULL LAUP OUTOUT

2A-02

2AS2-43 2A-04 TO 2A-02 BUS TIE BREAKER
CIRCUIT BREAKER CONTROL AUTO TRIP CLOSE PULL LAUP OUTOUT

1AS2-62 1A-04 TO 2A-04 BUS TIE BREAKER
CIRCUIT BREAKER CONTROL TRIP CLOSE PULL LAUP OUTOUT

2A-04

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources—Operating

LCO 3.8.1 The following AC electrical power sources shall be OPERABLE:

a. One circuit between the offsite transmission network and the associated unit's 4.16 kV Class 1E safeguards buses, A05 and A06, utilizing the associated unit's 345/13.8 kV (X03) transformer or the opposite unit's 345/13.8 kV (X03) transformer with the gas turbine in operation, and the associated unit's 13.8/4.16 kV (X04) transformer;

b. One circuit between the offsite transmission network and the opposite unit's 4.16 kV Class 1E safeguards buses, A05 and A06; and

c. One standby emergency power source capable of supplying each 4.16 kV/480 V Class 1E safeguards bus.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTE----------
LCO 3.0.4.b is not applicable to standby emergency power sources.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Associated unit 345/13.8 kV (X03) transformer inoperable. OR Gas turbine not in operation when utilizing opposite unit's 345/13.8 kV (X03) transformer.	A.1 Verify one circuit between the offsite transmission network and the associated unit's 4.16 kV Class 1E safeguards buses, A05 and A06, utilizing the opposite unit's 345/13.8 kV (X03) transformer. AND	24 hours (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 Verify gas turbine in operation.	24 hours
B. Associated unit's 13.8/4.16 kV (X04) transformer inoperable.	B.1 Restore associated unit's 13.8/4.16 kV (X04) transformer to OPERABLE status.	24 hours
C. Associated unit's required offsite power source to buses A05 and A06 inoperable. OR Required offsite power source to buses 1A05 and 2A06 inoperable.	C.1 Restore required offsite power source(s) to OPERABLE status.	24 hours
D. One or more required offsite power source(s) to one or more required Class 1E 4.16 kV bus(es) inoperable.	D.1 Declare required feature(s) supported by the inoperable required offsite power source inoperable when its required redundant feature(s) is inoperable. AND D.2 Restore required offsite power source(s) to OPERABLE status.	12 hours from discovery of Condition D concurrent with inoperability of redundant required feature(s) 7 days AND 14 days from discovery of failure to meet LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
----------NOTE---------- Separate Condition entry is allowed for each inoperable standby emergency power source. ----------	E.1 Declare required feature(s) supported by the inoperable standby emergency power source inoperable when its required redundant feature(s) is inoperable.	4 hours from discovery of Condition E concurrent with inoperability of redundant required feature(s)
E. One or more required standby emergency power source(s) inoperable.	AND	
	E.2.1 Determine other required standby emergency power source(s) is not inoperable due to common cause failure.	24 hours
	OR	
	E.2.2 Perform SR 3.8.1.2 for other required standby emergency power source(s).	24 hours
	OR	
	E.2.3 Declare other required standby emergency power source(s) inoperable.	24 hours
	AND	
	E.3 Restore required standby emergency power source(s) to OPERABLE status.	7 days AND 14 days from discovery of failure to meet LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One or more required offsite power source to one or more Class 1E 4.16 kV safeguards bus(es) inoperable. AND Standby emergency power inoperable to redundant equipment.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems–Operating," when Condition F is entered with no AC power to any train. ---------- F.1 Restore required offsite circuit to OPERABLE status. OR F.2 Restore required standby emergency power source to OPERABLE status.	 12 hours 12 hours
G. Standby emergency power to buses 1A05/1B03 and 1A06/1B04 inoperable. OR Standby emergency power to buses 2A05/2B03 and 2A06/2B04 inoperable. OR Standby emergency power to buses 1A05/1B03 and 2A06/2B04 inoperable.	G.1 Restore one required standby emergency power source to OPERABLE status.	2 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Required Action and associated Completion Time not met.	H.1 Be in MODE 3. AND H.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	In accordance with the Surveillance Frequency Control Program
SR 3.8.1.2	----------NOTES---------- 1. All standby emergency power source starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 2. A modified standby emergency power source start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. ---------- Verify each standby emergency power source starts from standby conditions and achieves rated voltage and frequency.	In accordance with the Surveillance Frequency Control Program

(continued)

		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
S System Malfunct.	1 Loss of Emergency AC Power	Prolonged loss of all offsite and all onsite AC power to safeguard buses [pg. 125] 1 2 3 4 **SG1.1** Loss of ALL offsite and ALL onsite AC power to 1(2)-A05 and 1(2)-A06. AND EITHER: • Restoration of at least one AC emergency bus in less than 4 hours is not likely. • Conditions requiring entry into Core Cooling – Red Path (CSP-C.1) are met.	Loss of all offsite and all onsite AC power to safeguard buses for 15 minutes or longer [pg. 122] 1 2 3 4 **SS1.1** Loss of ALL offsite and ALL onsite AC power to 1(2)-A05 and 1(2)-A06 for 15 minutes or longer.	Loss of all but one AC power source to safeguard buses for 15 minutes or longer [pg. 114] 1 2 3 4 **SA1.1** AC power capability to 1(2)-A05 AND 1(2)-A06 is reduced to a single power source for 15 minutes or longer. AND Any additional single power source failure will result in a loss of ALL AC power to SAFETY SYSTEMS.	Loss of all offsite AC power capability to safeguard buses for 15 minutes or longer [pg. 103] 1 2 3 4 **SU1.1** Loss of ALL offsite AC power capability to 1(2)-A05 and 1(2)-A06 for 15 minutes or longer.
	2 Loss of Vital DC Power	Loss of all AC and Vital DC power sources for 15 minutes or longer [pg. 126] 1 2 3 4 **SG2.1** Loss of ALL offsite and ALL onsite AC power capability power to 1(2)-A05 and 1(2)-A06 for 15 minutes or longer. AND Indicated voltage is less than 115 VDC on ALL Vital DC busses D-01, D-02, D-03 and D-04 for 15 minutes or longer.	Loss of all Vital DC power for 15 minutes or longer [pg. 123] 1 2 3 4 **SS2.1** Indicated voltage is less than 115 VDC on ALL Vital DC busses D-01, D-02, D-03, and D-04 for 15 minutes or longer.		
	3 Loss of Control Room Indications			UNPLANNED loss of Control Room indications for 15 minutes or longer with a significant transient in progress [pg. 115] 1 2 3 4 **SA3.1** An UNPLANNED event results in the inability to monitor one or more Table S-1 parameters from within the Control Room for 15 minutes or longer AND Any of the Table S-2 transient events are in progress	UNPLANNED loss of Control Room indications for 15 minutes or longer [pg. 104] 1 2 3 4 **SU3.1** An UNPLANNED event results in the inability to monitor one or more of the Table S-1 parameters from within the Control Room for 15 minutes or longer.
	4 RCS Activity		Table S-2 Significant Transients • Automatic or manual runback greater than 25% thermal reactor power • Electrical load rejection greater than 25% full electrical load • Reactor trip • SI actuation	Table S-1 Safety System Parameters • Reactor power • RCS / Pressurizer Level • RCS / Pressurizer Pressure • Core Exit / RCS Temperature • Level in at least one steam generator • Steam Generator Auxiliary Feed Water Flow	Reactor coolant activity greater than Technical Specification allowable limits [pg. 106] 1 2 3 4 **SU4.1** Failed Fuel Monitor 1(2)-RE-109 reading greater than 750 mR/hr. **SU4.2** Sample analysis indicates that a RCS Specific Activity value is greater than an allowable limit specified in Technical Specifications as indicated by ANY of the following conditions: a. Dose Equivalent I-131 greater than 50 µCi/gm OR b. Dose Equivalent I-131 greater than 0.5 µCi/gm but less than or equal to 50 µCi/gm for greater than 48 hours OR c. Dose Equivalent Xe-133 greater than 300 µCi/gm for greater than 48 hours
	5 RCS Leakage				RCS leakage for 15 minutes or longer [pg. 107] 1 2 3 4 **SU5.1** RCS unidentified or pressure boundary leakage greater than 10 gpm for 15 minutes or longer. **SU5.2** RCS identified leakage greater than 25 gpm for 15 minutes or longer. **SU5.3** Leakage from the RCS to a location outside containment, or Steam Generator tube leakage, greater than 25 gpm for 15 minutes or longer.
	6 RPS Failure		Inability to shut down the reactor causing a challenge to core cooling or RCS heat removal [pg. 124] 1 **SS6.1** An automatic or manual trip did not shut down the reactor AND All actions to shut down the reactor have been unsuccessful AND EITHER: • Conditions requiring entry into Core Cooling – Red Path (CSP-C.1) are met. • Conditions requiring entry into Heat Sink – Red Path (CSP-H.1) are met.	Automatic or manual trip fails to shut down the reactor and subsequent manual actions taken at the reactor control consoles are not successful in shutting down the reactor [pg. 117] 1 **SA6.1** An automatic or manual trip fails to shut down the reactor as indicated by reactor power greater than 5% AND Manual actions taken at the reactor control consoles are not successful in shutting down the reactor.	Automatic or manual trip fails to shut down the reactor [pg. 109] 1 **SU6.1** An automatic trip did not shut down the reactor AND A subsequent manual action taken at the reactor control consoles is successful in shutting down the reactor. **SU6.2** A manual trip did not shutdown the reactor. AND EITHER of the following: • A subsequent manual action taken at the reactor control consoles is successful in shutting down the reactor OR • A subsequent automatic trip is successful in shutting down the reactor.
	7 Loss of Comm.				Loss of all onsite or offsite communications capabilities [pg. 111] 1 2 3 4 **SU7.1** Loss of ALL of the following onsite communication methods: • Plant Public Address System (Gai-Tronics) • Commercial Phones • PBX Phones • Security Radio • Portable Radios **SU7.2** Loss of ALL of the following offsite response organization communications methods: • Nuclear Accident Reporting System (NARS) • Commercial Phones • PBX Phones • Satellite Phones • Manitowoc County Sheriff's Department Radio **SU7.3** Loss of ALL of the following NRC communications methods: • FTS Phone System • Commercial Phones • PBX Phones • Satellite Phones
	8 CMT Failure				Failure to isolate containment or loss of containment pressure control [pg. 112] 1 2 3 4 **SU8.1** Failure of containment to isolate when required by an actuation signal. AND ALL required penetrations are not closed within 15 minutes of the actuation signal. **SU8.2** Containment pressure greater than 25 psig. AND Less than one full train of Containment Cooling System equipment is operating per design for 15 minutes or longer.
	9 Hazardous Event Affecting Safety Systems		Table S-3 Hazardous Events • Seismic event (earthquake) • Internal or external flooding event • High winds or tornado strike • FIRE • EXPLOSION • Lake level greater than or equal to +9.0 ft. (Plant elevation) • Pump bay level less than -19.0 ft. • Other events with similar hazard characteristics as determined by the Shift Manager or Emergency Director	Hazardous event affecting a SAFETY SYSTEM needed for the current operating mode [pg. 119] 1 2 3 4 **SA9.1** The occurrence of ANY of the Table S-3 hazardous events: AND • Event damage has caused indications of degraded performance in one train of a SAFETY SYSTEM needed for the current operating mode. AND • EITHER of the following: • Event damage has caused indications of degraded performance to a second train of the SAFETY SYSTEM needed for the current operating mode, or • The event has resulted in VISIBLE DAMAGE to the second train of a SAFETY SYSTEM needed for the current operating mode.	
F Fission Product Barrier Degradation		FG1 1 2 3 4 Loss of any two barriers and Loss or Potential Loss of third barrier (Table F-1) [pg. 63]	FS1 1 2 3 4 Loss or potential loss of any two barriers (Table F-1) [pg. 63]	FA1 1 2 3 4 Any Loss or any Potential Loss of either Fuel Clad or RCS barrier (Table F-1) [pg. 63]	None

Table F-1 Fission Product Barrier Matrix

Category	Fuel Clad (FC) Barrier [pg. 66]		Reactor Coolant System (RCS) Barrier [pg. 68]		Containment (CNTMT) Barrier [pg. 71]	
	Loss	Potential Loss	Loss	Potential Loss	Loss	Potential Loss
1 Critical Safety Function Status	A. Conditions requiring entry into Core Cooling RED Path (CSP C.1) are met.	A. Conditions requiring entry into Core Cooling ORANGE Path (CSP C.2) are met. OR B. Conditions requiring entry into Heat Sink RED Path (CSP H.1) are met.	None	A. Conditions requiring entry into Heat Sink RED Path (CSP H.1) are met. OR B. Conditions requiring entry into RCS Integrity RED Path (CSP P.1) are met.	None	A. 1. Conditions requiring entry into Core Cooling RED Path (CSP C.1) are met. AND 2. CSP C.1 not effective within 15 minutes.
2 RCS or SG Tube Leakage	None	None	A. An automatic or manual ECCS (SI) actuation required by EITHER of the following: 1. UNISOLABLE RCS leakage OR 2. SG tube RUPTURE	A. Operation of a standby charging (makeup) pump is required by EITHER of the following: 1. UNISOLABLE RCS leakage OR 2. SG tube leakage	A. A leaking or RUPTURED SG is FAULTED outside of containment.	None
3 RCS Activity / Containment Radiation	A. Containment radiation monitor reading greater than 577 R/hr indicated on ANY of the following. • 1(2)-RE-126 • 1(2)-RE-127 • 1(2)-RE-128 OR B. 1(2)-RE-109 greater than 4,500 mR/hr	None	A. Containment radiation monitor reading greater than 11 R/hr indicated on ANY of the following. • 1(2)-RE-126 • 1(2)-RE-127 • 1(2)-RE-128	None	None	A. Containment radiation monitor reading greater than 18,500 R/hr indicated on ANY of the following. • 1(2)-RE-126 • 1(2)-RE-127 • 1(2)-RE-128
4 Containment Integrity or Bypass	None	None	None	None	A. Containment isolation is required AND EITHER of the following: 1. Containment integrity has been lost based on Emergency Coordinator judgment OR 2. UNISOLABLE pathway from containment to the environment exists OR B. Indications of RCS leakage outside of containment	A. Containment pressure greater than 60 psig OR B. 6% H^2 inside containment. OR C. 1. Containment pressure greater than 25 psig. AND 2. Less than one full train of depressurization equipment is operating per design for 15 Minutes or longer.
5 ED Judgment	A. ANY condition in the opinion of the Emergency Coordinator that indicates Loss of the Fuel Clad barrier.	A. ANY condition in the opinion of the Emergency Coordinator that indicates Potential Loss of the Fuel Clad barrier.	A. ANY condition in the opinion of the Emergency Coordinator that indicates Loss of the RCS barrier.	A. ANY condition in the opinion of the Emergency Coordinator that indicates Potential Loss of the RCS barrier.	A. ANY condition in the opinion of the Emergency Coordinator that indicates Loss of the Containment barrier.	A. ANY condition in the opinion of the Emergency Coordinator that indicates Potential Loss of the Containment barrier.

Modes: 1 Power Operation | 2 Startup | 3 Hot Standby | 4 Hot Shutdown | 5 Cold Shutdown | 6 Refueling | DEF Defueled

NEXTera ENERGY RESOURCES

Point Beach Nuclear Plant
EAL Classification Matrix
Page 2 of 3
HOT CONDITIONS
(RCS > 200°F)

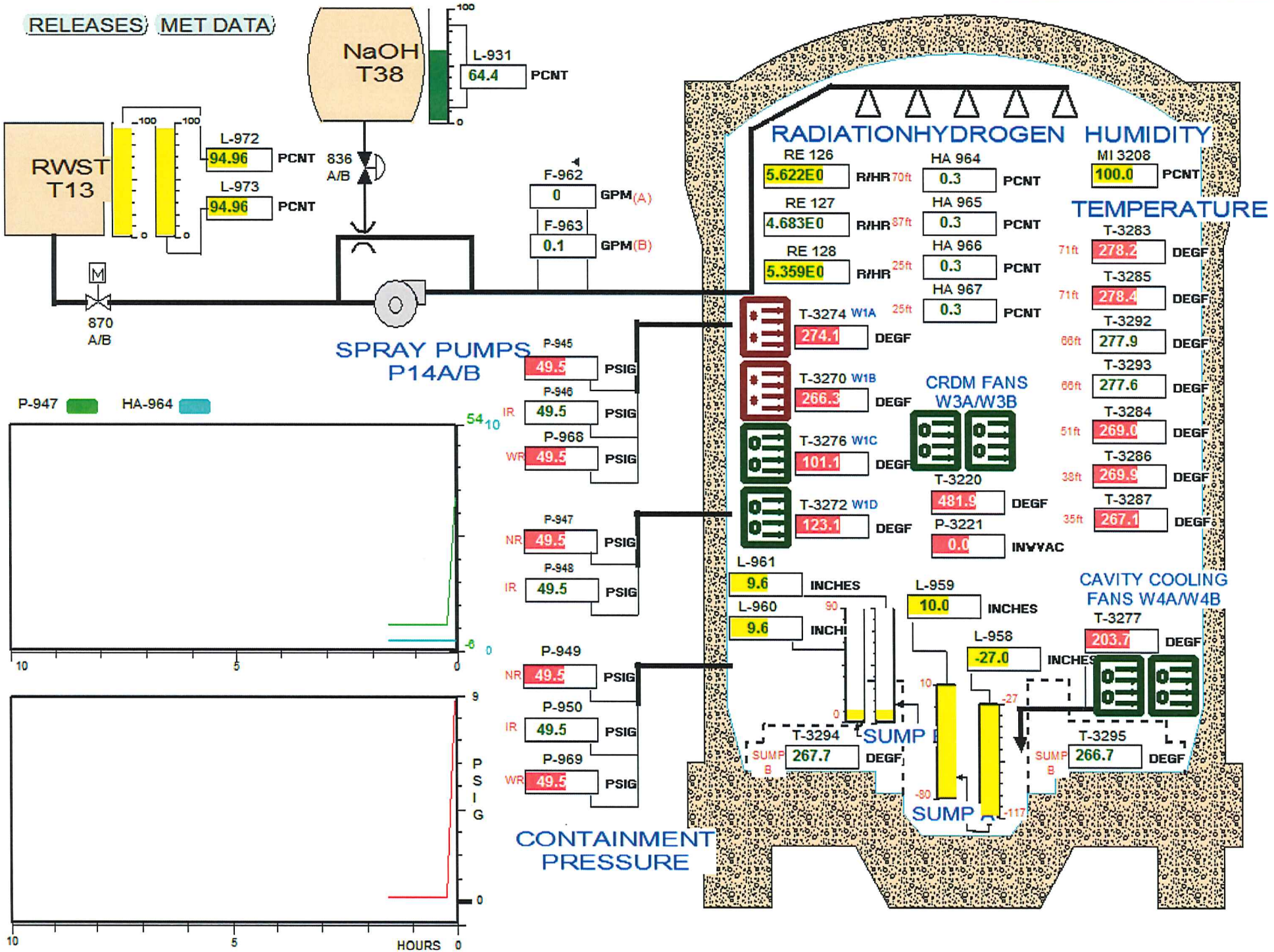
		GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
R Abnormal Rad Levels / Rad Effluent	**1** Rad Effluent	Release of gaseous radioactivity resulting in offsite dose greater than 1,000 mrem TEDE or 5,000 mrem thyroid CDE [pg. 36] 1 2 3 4 5 6 DEF **RG1.1** Reading on ANY Table R-1 effluent radiation monitor greater than column "GE" for 15 minutes or longer. **RG1.2** Dose assessment using actual meteorology indicates doses greater than 1000 mrem TEDE or 5000 mrem thyroid CDE at or beyond the SITE BOUNDARY **RG1.3** Field survey results indicate **EITHER** of the following at or beyond the SITE BOUNDARY: • Closed window dose rates greater than 1000 mR/hr expected to continue for greater than or equal to 60 min. • Analyses of field survey samples indicate thyroid CDE greater than 5000 mrem for 60 min. of inhalation.	Release of gaseous radioactivity resulting in offsite dose greater than 100 mrem TEDE or 500 mrem thyroid CDE [pg. 33] 1 2 3 4 5 6 DEF **RS1.1** Reading on ANY Table R-1 effluent radiation monitor greater than column "SAE" for 15 minutes or longer. **RS1.2** Dose assessment using actual meteorology indicates doses greater than 100 mrem TEDE or 500 mrem thyroid CDE at or beyond the SITE BOUNDARY **RS1.3** Field survey results indicate **EITHER** of the following at or beyond the SITE BOUNDARY: • Closed window dose rates greater than 100 mR/hr expected to continue for greater than or equal to 60 min. • Analyses of field survey samples indicate thyroid CDE greater than 500 mrem for 60 min. of inhalation.	Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem thyroid CDE [pg. 27] 1 2 3 4 5 6 DEF **RA1.1** Reading on ANY Table R-1 effluent radiation monitor greater than column "ALERT" for 15 minutes or longer. **RA1.2** Dose assessment using actual meteorology indicates doses greater than 10 mrem TEDE or 50 mrem thyroid CDE at or beyond SITE BOUNDARY. **RA1.3** Analysis of a liquid effluent sample indicates a concentration or release rate that would result in doses greater than 10 mrem TEDE or 50 mrem thyroid CDE at or beyond the SITE BOUNDARY for one hour of exposure. **RA1.4** Field survey results indicate **EITHER** of the following at or beyond the SITE BOUNDARY: • Closed window dose rates greater than 10 mR/hr expected to continue for 60 minutes or longer. • Analyses of field survey samples indicate thyroid CDE greater than 50 mrem for one hour of inhalation.	Release of gaseous or liquid radioactivity greater than 2 times the ODCM limits for 60 minutes or longer [pg. 23] 1 2 3 4 5 6 DEF **RU1.1** Reading on ANY Table R-1 effluent radiation monitor greater than column "UE" for 60 minutes or longer. **RU1.2** Reading on ANY effluent radiation monitor greater than 2 times the alarm setpoint established by a current radioactivity discharge permit for 60 minutes or longer. **RU1.3** Sample analyses for a gaseous or liquid release indicates a concentration or release rate greater than 2 times the ODCM limits for 60 minutes or longer.
	2 Irradiated Fuel Event	Spent fuel pool level cannot be restored to at least the top of the fuel racks for 60 minutes or longer [pg. 36] 1 2 3 4 5 6 DEF **RG2.1** Spent fuel pool level cannot be restored to at least 40 ft. 8 in. for 60 minutes or longer.	Spent fuel pool level at the top of the fuel racks [pg. 35] 1 2 3 4 5 6 DEF **RS2.1** Lowering of spent fuel pool level to 40 ft. 8 in.	Significant lowering of water level above, or damage to, irradiated fuel [pg. 29] 1 2 3 4 5 6 DEF **RA2.1** Uncovery of irradiated fuel in the REFUELING PATHWAY **RA2.2** Damage to irradiated fuel resulting in a release of radioactivity from the fuel as indicated by a reading on ANY of the following radiation monitors greater than the value shown: • RE-105 SFP Area Low Range Radiation Monitor 4 R/hr • 1(2)-RE-126 Containment High Radiation Monitor 7 R/hr • 1(2)-RE-127 Containment High Radiation Monitor 7 R/hr • 1(2)-RE-128 Containment High Radiation Monitor 7 R/hr **RA2.3** Lowering of spent fuel pool level to 49 ft.0 in.	Unplanned loss of water level above irradiated fuel [pg. 25] 1 2 3 4 5 6 DEF **RU2.1** a. UNPLANNED water level drop in the REFUELING PATHWAY as indicated by ANY of the following: • Spent fuel pool low water level alarm • Visual observation AND b. UNPLANNED rise in area radiation levels as indicated by ANY of the following radiation monitors. • RE-105 SFP Area Low Range Radiation Monitor • RE-135 SFP Area High Range Radiation Monitor • 1(2) RE-102 El. 66' CONTAINMENT Low Range Monitor
	3 Area Radiation Levels	Table R-1 Effluent Monitor Classification Thresholds Gaseous / Liquid Monitor | GE | SAE | Alert | UE 1(2)-RE-307 CTMNT Purge Exhaust Mid Range Gas (with only containment purge in operation) | ----- | 6.0E+1 µCi/cc | 6.0E+0 µCi/cc | 1.4E-2 µCi/cc 1(2)-RE-309 CTMNT Purge Exhaust High Range Gas (with only containment purge in operation) | 6.0E+2 µCi/cc | 6.0E+1 µCi/cc | 6.0E+0 µCi/cc | ----- 2-RE-305 CTMNT Purge Exhaust Low Range Gas (with both purge and GS building ventilation in operation | ----- | ----- | ----- | 9.4E-3 µCi/cc 2-RE-307 CTMNT Purge Exhaust Mid Range Gas (with both purge and GS building ventilation in operation | ----- | 4.0E+1 µCi/cc | 4.0E+0 µCi/cc | 9.4E-3 µCi/cc 2-RE-307 CTMNT Purge Exhaust Mid Range Gas (with only GS building ventilation in operation | ----- | ----- | ----- | 2.8E-2 µCi/cc 2-RE-307 CTMNT Purge Exhaust Mid Range Gas (with only forced vent of containment | ----- | ----- | ----- | 1.0E+1 µCi/cc 2-RE-309 CTMNT Purge Exhaust High Range Gas (with both purge and GS building ventilation in operation | 4.0E+2 µCi/cc | 4.0E+1 µCi/cc | 4.0E+0 µCi/cc | ----- 2-RE-309 CTMNT Purge Exhaust High Range Gas (with only GS building ventilation in operation | 1.2E+3 µCi/cc | 1.2E+2 µCi/cc | 1.2E+1 µCi/cc | ----- 2-RE-309 CTMNT Purge Exhaust High Range Gas (with only forced vent of containment | ----- | ----- | ----- | 1.0E+1 µCi/cc RE-315 AB Exhaust Low Range Gas | ----- | ----- | ----- | 5.4E-3 µCi/cc RE-317 AB Exhaust Mid Range Gas | 1.0E+2 µCi/cc | 1.0E+1 µCi/cc | 1.0E+0 µCi/cc | 5.4E-3 µCi/cc RE-319 AB Exhaust High Range Gas | 1.0E+2 µCi/cc | 1.0E+1 µCi/cc | 1.0E+0 µCi/cc | ----- RE-325 Drumming Area Exhaust Low Range Gas | ----- | ----- | ----- | 8.4E-3 µCi/cc RE-327 Drumming Area Exhaust Mid Range Gas | ----- | 1.6E+1 µCi/cc | 1.6E+0 µCi/cc | 8.4E-3 µCi/cc Liquid: 1(2)-RE-229 Service Water Overboard | ----- | ----- | ----- | 2.3E-3 µCi/cc	Radiation levels that IMPEDE access to equipment necessary for normal plant operations, cooldown or shutdown [pg. 31] 1 2 3 4 5 6 DEF **RA3.1** Dose rate greater than 15 mR/hr in ANY of the following areas: • Control Room (RE-101) • Central Alarm Station AND Secondary Alarm Station (by survey) **RA3.2** An UNPLANNED event results in radiation levels that prohibit or IMPEDE access to any Table R-2 plant rooms or areas.	Table R-2 Safe Ops, S/D, C/D Areas Room/Area | Mode U1 VCT Area | 3 / 4 / 5 U2 VCT Area | 3 / 4 / 5 U1 Primary Sample area | 3 U2 Primary Sample area | 3 CCW HX Room | 4 / 5 C-59 area | 3 / 4 / 5 Pipeway 2, 8 ft. Elev. | 3 / 4 Pipeway 3, 8 ft. Elev. | 3 / 4 1/2B-32 MCC Area | 4
E ISFSI	**1** Confinement Boundary		Table E-1 Cask On-Contact Dose Rates 32 PT DSC: HSM Front / HSM Door / End Shield Wall Ext. | 1700 mrem/hr / 400 mrem/hr / 12 mrem/hr VSC-24: Sides / Top / Air Inlets / Air Outlets | 200 mrem/hr / 400 mrem/hr / 700 mrem/hr / 200 mrem/hr	Damage to a loaded cask CONFINEMENT BOUNDARY [pg. 61] 1 2 3 4 5 6 DEF **EU1.1** Damage to a loaded cask CONFINEMENT BOUNDARY as indicated by an on-contact radiation reading greater than the values shown on Table E-1 on the surface of the spent fuel cask.
H Hazards	**1** Security	HOSTILE ACTION resulting in loss of physical control of the facility [pg. 99] 1 2 3 4 5 6 DEF **HG1.1** A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Shift Supervisor AND **EITHER** of the following has occurred: • ANY of the following safety functions cannot be controlled or maintained - Reactivity control - Core cooling - RCS heat removal OR • Damage to spent fuel has occurred or is IMMINENT	HOSTILE ACTION within the PROTECTED AREA [pg. 95] 1 2 3 4 5 6 DEF **HS1.1** A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Shift Supervisor	HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes [pg. 89] 1 2 3 4 5 6 DEF **HA1.1** A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the Security Shift Supervisor. **HA1.2** A validated notification from NRC of an aircraft attack threat within 30 minutes of the site.	Confirmed SECURITY CONDITION or threat [pg. 79] 1 2 3 4 5 6 DEF **HU1.1** A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the Security Shift Supervisor. **HU1.2** Notification of a credible security threat directed at PBNP. **HU1.3** A validated notification from the NRC providing information of an aircraft threat.
	2 Seismic Event				Seismic event greater than OBE level [pg. 81] 1 2 3 4 5 6 DEF **HU2.1** Seismic event greater than Operating Basis Earthquake (OBE) as indicated by seismic monitor indication of ground acceleration greater than 0.06 g horizontal **OR** 0.04 g vertical.
	3 Natural or Tech. Hazard				Hazardous event [pg. 82] 1 2 3 4 5 6 DEF **HU3.1** A tornado strike within the PROTECTED AREA **HU3.2** Internal room or area flooding of a magnitude sufficient to require manual or automatic electrical isolation of a SAFETY SYSTEM component needed for the current operating mode. **HU3.3** Movement of personnel within the PROTECTED AREA is impeded due to an offsite event involving hazardous materials (e.g., an offsite chemical spill or toxic gas release). **HU3.4** A hazardous event that results in on-site conditions sufficient to prohibit the plant staff from accessing the site via personal vehicles. **HU3.5** Lake level greater than or equal to +8.0 ft. (Plant elevation) **HU3.6** Pump bay level less than -15.0 ft.
	4 Fire			Table H-1 Fire Areas • Control Room • Containment • PAB • G05 building • 13.8kV Building • Cable Spreading Room • Vital Switchgear Room • AFW Pump Room • G-01/02 Rooms • EDG Building • Service Water Pump Rooms • Façade 85'	FIRE potentially degrading the level of safety of the plant [pg. 84] 1 2 3 4 5 6 DEF **HU4.1** A FIRE is **not** extinguished within 15 min. of ANY of the following FIRE detection indications: • Report from the field (i.e., visual observation) • Receipt of multiple (more than 1) fire alarms or indications • Field verification of a single fire alarm AND The FIRE is located within ANY Table H-1 plant rooms or areas **HU4.2** Receipt of a single fire alarm with no other indications of a FIRE AND The FIRE is located within ANY Table H-1 plant rooms or areas except Containment in Modes 1 and 2 AND The existence of a FIRE is not verified within 30 minutes of alarm receipt. **HU4.3** A FIRE within the plant or ISFSI PROTECTED AREA not extinguished within 60 minutes of the initial report, alarm or indication. **HU4.4** A FIRE within the plant or ISFSI PROTECTED AREA that requires firefighting support by an offsite fire response agency to extinguish.
	5 Hazardous Gases			Gaseous release impeding access to equipment necessary for normal plant operations, cooldown or shutdown [pg. 91] 1 2 3 4 5 6 DEF **HA5.1** Release of a toxic, corrosive, asphyxiant or flammable gas into any Table H-2 plant rooms or areas AND Entry into the room or area is prohibited or impeded.	Table H-2 Safe Ops, S/D, C/D Areas Room/Area | Mode U1 VCT Area | 3 / 4 / 5 U2 VCT Area | 3 / 4 / 5 U1 Primary Sample area | 3 U2 Primary Sample area | 3 CCW HX Room | 4 / 5 C-59 area | 3 / 4 / 5 Pipeway 2, 8 ft. Elev. | 3 / 4 Pipeway 3, 8 ft. Elev. | 3 / 4 1/2B-32 MCC Area | 4
	6 Control Room Evacuation		Inability to control a key safety function from outside the Control Room [pg. 97] 1 2 3 4 5 6 DEF **HS6.1** An event has resulted in plant control being transferred from the Control Room to AOP local control stations. AND Control of ANY of the following key safety functions is not reestablished within 15 minutes • Reactivity • Core cooling • RCS heat removal	Control Room evacuation resulting in transfer of plant control to alternate locations [pg. 93] 1 2 3 4 5 6 DEF **HA6.1** An event has resulted in plant control being transferred from the Control Room to AOP local control stations.	
	7 ED Judgment	Other conditions existing that in the judgment of the Emergency Coordinator warrant declaration of General Emergency [pg. 101] 1 2 3 4 5 6 DEF **HG7.1** Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or IMMINENT substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area.	Other conditions existing that in the judgment of the Emergency Coordinator warrant declaration of Site Area Emergency [pg. 98] 1 2 3 4 5 6 DEF **HS7.1** Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which involve actual or likely major failures of plant functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts, (1) toward site personnel or equipment that could lead to the likely failure of or, (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed EPA Protective Action Guideline exposure levels beyond the site boundary.	Other conditions existing that in the judgment of the Emergency Coordinator warrant declaration of an Alert [pg. 94] 1 2 3 4 5 6 DEF **HA7.1** Other conditions exist which, in the judgment of the Emergency Director, indicate that events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.	Other conditions existing that in the judgment of the Emergency Coordinator warrant declaration of a UE [pg. 88] 1 2 3 4 5 6 DEF **HU7.1** Other conditions exist which in the judgment of the Emergency Director indicate that events are in progress or have occurred which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of SAFETY SYSTEMS occurs.

Modes: 1 Power Operation | 2 Startup | 3 Hot Standby | 4 Hot Shutdown | 5 Cold Shutdown | 6 Refueling | DEF Defueled

NEXTera ENERGY RESOURCES

Point Beach Nuclear Plant
EAL Classification Matrix
Page 1 of 3
ALL MODES

PB1 CONTAINMENT 2220



ECL: Unusual Event

Initiating Condition: UNPLANNED loss of water level above irradiated fuel.

Operating Mode Applicability: All

Emergency Action Levels:

RU2.1 a. UNPLANNED water level drop in the REFUELING PATHWAY as indicated by **ANY** of the following:

- Spent fuel pool low water level alarm
- Visual observation

AND

b. UNPLANNED rise in area radiation levels as indicated by **ANY** of the following radiation monitors.

- RE-105 SFP Area Low Range Radiation Monitor
- RE-135 SFP Area High Range Radiation Monitor
- 1(2)RE-102 El. 66' CONTAINMENT Low Range Monitor

Definitions:

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

REFUELING PATHWAY: The reactor refueling cavity, spent fuel pool and fuel transfer canal.

Basis:

This IC addresses a decrease in water level above irradiated fuel sufficient to cause elevated radiation levels. This condition could be a precursor to a more serious event and is also indicative of a minor loss in the ability to control radiation levels within the plant. It is therefore a potential degradation in the level of safety of the plant.

A water level decrease will be primarily determined by indications from available level instrumentation. The low level alarm is actuated by LC-634, SFP Level Indicator at 62 ft. 8 in. based on maintaining at least 6 ft. of water on a withdrawn fuel assembly. Other sources of level indications may include reports from plant personnel (e.g., from a refueling crew) or video camera observations (if available). A significant drop in the water level may also cause an increase in the radiation levels of adjacent areas that can be detected by monitors in those locations.

The effects of planned evolutions should be considered. For example, a refueling bridge area radiation monitor reading may increase due to planned evolutions such as lifting of the reactor vessel head or movement of a fuel assembly. Note that this EAL is applicable only in cases where the elevated reading is due to an UNPLANNED loss of water level.

A drop in water level above irradiated fuel within the reactor vessel may be classified in accordance Recognition Category C during the Cold Shutdown and Refueling modes.

Escalation of the emergency classification level would be via IC RA2.

ECL: Alert

Initiating Condition: Significant lowering of water level above, or damage to, irradiated fuel.

Operating Mode Applicability: All

Emergency Action Levels:

RA2.1 Uncovery of irradiated fuel in the REFUELING PATHWAY.

RA2.2 Damage to irradiated fuel resulting in a release of radioactivity from the fuel as indicated by a reading on **ANY** of the following radiation monitors greater than the value shown:

Monitor	Reading
RE-105 SFP Area Low Range Radiation Monitor	4 R/hr
1(2)RE-126 Containment High Radiation Monitor	7 R/hr
1(2)RE-127 Containment High Radiation Monitor	7 R/hr
1(2)RE-128 Containment High Radiation Monitor	7 R/hr

RA2.3 Lowering of spent fuel pool level to 49 ft.0 in.

Definitions:

REFUELING PATHWAY – The reactor refueling cavity, spent fuel pool and fuel transfer canal.

Basis:

This IC addresses events that have caused IMMINENT or actual damage to an irradiated fuel assembly, or a significant lowering of water level within the spent fuel pool. These events present radiological safety challenges to plant personnel and are precursors to a release of radioactivity to the environment. As such, they represent an actual or potential substantial degradation of the level of safety of the plant.

This IC applies to irradiated fuel that is licensed for dry storage up to the point that the loaded storage cask is sealed. Once sealed, damage to a loaded cask causing loss of the CONFINEMENT BOUNDARY is classified in accordance with IC EU1.

Escalation of the emergency would be based on either Recognition Category R or C ICs.

EAL RA2.1

This EAL escalates from RU2 in that the loss of level, in the affected portion of the REFUELING PATHWAY, is of sufficient magnitude to have resulted in uncovery of irradiated fuel. Indications of irradiated fuel uncovery may include direct or indirect visual observation (e.g., reports from personnel or camera images), as well as significant changes in water and radiation levels, or other plant parameters. Computational aids may also be used. Classification of an event using this EAL should be based on the totality of available indications, reports, and observations.

While an area radiation monitor could detect an increase in a dose rate due to a lowering of water level in some portion of the REFUELING PATHWAY, the reading may not be a reliable indication of whether or not the fuel is actually uncovered. To the degree possible, readings should be considered in combination with other available indications of inventory loss.

A drop in water level above irradiated fuel within the reactor vessel may be classified in accordance Recognition Category C during the Cold Shutdown and Refueling modes.

EAL RA2.2

This EAL addresses a release of radioactive material caused by mechanical damage to irradiated fuel. Damaging events may include the dropping, bumping or binding of an assembly, or dropping a heavy load onto an assembly. A rise in readings on radiation monitors should be considered in conjunction with in-plant reports or observations of a potential fuel damaging event (e.g., a fuel handling accident).

EAL RA2.3

Spent fuel pool water level at this value is within the lower end of the level range necessary to prevent significant dose consequences from direct gamma radiation to personnel performing operations in the vicinity of the spent fuel pool. This condition reflects a significant loss of spent fuel pool water inventory and thus it is also a precursor to a loss of the ability to adequately cool the irradiated fuel assembles stored in the pool.

Escalation of the emergency classification level would be via ICs RS1 or RS2.

ECL: Site Area Emergency

Initiating Condition: Spent fuel pool level at 40 ft. 8 in.

Operating Mode Applicability: All

Emergency Action Levels:

RS2.1 Lowering of spent fuel pool level to 40 ft. 8 in..

Definitions:

None

Basis:

This IC addresses a significant loss of spent fuel pool inventory control and makeup capability leading to IMMINENT fuel damage. This condition entails major failures of plant functions needed for protection of the public and thus warrant a Site Area Emergency declaration.

It is recognized that this IC would likely not be met until well after another Site Area Emergency IC was met; however, it is included to provide classification diversity.

Escalation of the emergency classification level would be via IC RG1 or RG2.

ECL: Unusual Event

Initiating Condition: Confirmed SECURITY CONDITION or threat.

Operating Mode Applicability: All

Emergency Action Levels:

HU1.1 A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the Security Shift Supervisor.

HU1.2 Notification of a credible security threat directed at PBNP.

HU1.3 A validated notification from the NRC providing information of an aircraft threat.

Definitions:

SECURITY CONDITION: Any Security Event as listed in the approved security contingency plan that constitutes a threat/compromise to site security, threat/risk to site personnel, or a potential degradation to the level of safety of the plant. A SECURITY CONDITION does not involve a HOSTILE ACTION.

HOSTILE ACTION: An act toward PBNP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILEs, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the nuclear power plant. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

SAFETY SYSTEM: A system required for safe plant operation, cooling down the plant and/or placing it in the cold shutdown condition, including the ECCS. These systems are classified as safety-related.

Basis:

This IC addresses events that pose a threat to plant personnel or SAFETY SYSTEM equipment, and thus represent a potential degradation in the level of plant safety. Security events which do not meet one of these EALs are adequately addressed by the requirements of 10 CFR 73.71 or 10 CFR 50.72. Security events assessed as HOSTILE ACTIONS are classifiable under ICs HA1, HS1 and HG1.

Timely and accurate communications between Security Shift Supervisor and the Control Room is essential for proper classification of a security-related event. Classification of these events will initiate appropriate threat-related notifications to plant personnel and offsite response organizations.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program].*

EAL HU1.1 references Security Shift Supervisor because these are the individuals trained to confirm that a security event is occurring or has occurred. Training on security event confirmation and classification is controlled due to the nature of Safeguards and 10 CFR § 2.390 information.

EAL HU1.2 addresses the receipt of a credible security threat. The credibility of the threat is assessed in accordance with SY-AA-102-1014, Threat Assessment and Reporting.

EAL HU1.3 addresses the threat from the impact of an aircraft on the plant. The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an aircraft. The status and size of the plane may also be provided by NORAD through the NRC. Validation of the threat is performed in accordance with AOP-29, Security Threat.

Emergency plans and implementing procedures are public documents; therefore, EALs should not incorporate Security-sensitive information. This includes information that may be advantageous to a potential adversary, such as the particulars concerning a specific threat or threat location. Security-sensitive information should be contained in non-public documents such as the Security Plan.

Escalation of the emergency classification level would be via IC HA1.

ECL: Alert

Initiating Condition: HOSTILE ACTION within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.

Operating Mode Applicability: All

Emergency Action Levels:

HA1.1 A HOSTILE ACTION is occurring or has occurred within the OWNER CONTROLLED AREA as reported by the Security Shift Supervisor.

HA1.2 A validated notification from NRC of an aircraft attack threat within 30 minutes of the site.

Definitions:

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

HOSTILE ACTION: An act toward PBNP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILES, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the nuclear power plant. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

OWNER CONTROLLED AREA: The site property owned by or otherwise under the control of the licensee.

PROJECTILE: An object directed toward a nuclear power plant that could cause concern for its continued operability, reliability, or personnel safety.

Basis:

This IC addresses the occurrence of a HOSTILE ACTION within the OWNER CONTROLLED AREA or notification of an aircraft attack threat. This event will require rapid response and assistance due to the possibility of the attack progressing to the PROTECTED AREA, or the need to prepare the plant and staff for a potential aircraft impact.

Timely and accurate communications between Security Shift Supervisor and the Control Room is essential for proper classification of a security-related event.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program].*

As time and conditions allow, these events require a heightened state of readiness by the plant staff and implementation of onsite protective measures (e.g., evacuation, dispersal or sheltering).

The Alert declaration will also heighten the awareness of Offsite Response Organizations, allowing them to be better prepared should it be necessary to consider further actions.

This IC does not apply to incidents that are accidental events, acts of civil disobedience, or otherwise are not a HOSTILE ACTION perpetrated by a HOSTILE FORCE. Examples include the crash of a small aircraft, shots from hunters, physical disputes between employees, etc. Reporting of these types of events is adequately addressed by other EALs, or the requirements of 10 CFR 73.71 or 10 CFR 50.72.

EAL HA1.1 is applicable for any HOSTILE ACTION occurring, or that has occurred, in the OWNER CONTROLLED AREA. This includes any action directed against an ISFSI that is located outside the plant PROTECTED AREA.

EAL HA1.2 addresses the threat from the impact of an aircraft on the plant, and the anticipated arrival time is within 30 minutes. The intent of this EAL is to ensure that threat-related notifications are made in a timely manner so that plant personnel and offsite response organizations are in a heightened state of readiness. This EAL is met when the threat-related information has been validated in accordance with SY-AA-102-1014, Threat Assessment and Reporting.

The NRC Headquarters Operations Officer (HOO) will communicate to the licensee if the threat involves an aircraft. The status and size of the plane may be provided by NORAD through the NRC.

In some cases, it may not be readily apparent if an aircraft impact within the OWNER CONTROLLED AREA was intentional (i.e., a HOSTILE ACTION). It is expected, although not certain, that notification by an appropriate Federal agency to the site would clarify this point. In this case, the appropriate federal agency is intended to be NORAD, FBI, FAA or NRC. The emergency declaration, including one based on other ICs/EALs, should not be unduly delayed while awaiting notification by a Federal agency.

Emergency plans and implementing procedures are public documents; therefore, EALs should not incorporate Security-sensitive information. This includes information that may be advantageous to a potential adversary, such as the particulars concerning a specific threat or threat location. Security-sensitive information should be contained in non-public documents such as the Security Plan.

Escalation of the emergency classification level would be via IC HS1.

ECL: Site Area Emergency

Initiating Condition: HOSTILE ACTION within the PROTECTED AREA.

Operating Mode Applicability: All

Emergency Action Levels:

HS1.1 A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Shift Supervisor.

Definitions:

HOSTILE ACTION: An act toward PBNP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILEs, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the nuclear power plant. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTAGE: A person(s) held as leverage against the station to ensure that demands will be met by the station.

HOSTILE FORCE: One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI): A complex that is designed and constructed for the interim storage of spent nuclear fuel and other radioactive materials associated with spent fuel storage.

PROJECTILE: An object directed toward a nuclear power plant that could cause concern for its continued operability, reliability, or personnel safety.

PROTECTED AREA: The area under continuous access monitoring and control, and armed protection as described in the site Security Plan.

Basis:

This IC addresses the occurrence of a HOSTILE ACTION within the PROTECTED AREA. This event will require rapid response and assistance due to the possibility for damage to plant equipment.

Timely and accurate communications between Security Shift Supervisor and the Control Room is essential for proper classification of a security-related event.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program].*

As time and conditions allow, these events require a heightened state of readiness by the plant staff and implementation of onsite protective measures (e.g., evacuation, dispersal or sheltering). The Site Area Emergency declaration will mobilize offsite response organization resources and have them available to develop and implement public protective actions in the unlikely event that the attack is successful in impairing multiple safety functions.

This IC does not apply to a HOSTILE ACTION directed at an ISFSI PROTECTED AREA located outside the plant PROTECTED AREA; such an attack should be assessed using IC HA1. It also does not apply to incidents that are accidental events, acts of civil disobedience, or otherwise are not a HOSTILE ACTION perpetrated by a HOSTILE FORCE. Examples include the crash of a small aircraft, shots from hunters, physical disputes between employees, etc. Reporting of these types of events is adequately addressed by other EALs, or the requirements of 10 CFR 73.71 or 10 CFR 50.72.

Emergency plans and implementing procedures are public documents; therefore, EALs should not incorporate Security-sensitive information. This includes information that may be advantageous to a potential adversary, such as the particulars concerning a specific threat or threat location. Security-sensitive information should be contained in non-public documents such as the Security Plan.

Escalation of the emergency classification level would be via IC HG1.

ECL: General Emergency

Initiating Condition: HOSTILE ACTION resulting in loss of physical control of the facility.

Operating Mode Applicability: All

Emergency Action Levels:

HG1.1 a. A HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA as reported by the Security Shift Supervisor.

AND

b. **EITHER** of the following has occurred:

1. **ANY** of the following safety functions cannot be controlled or maintained.

- Reactivity control
- Core cooling
- RCS heat removal

OR

2. Damage to spent fuel has occurred or is IMMINENT.

Definitions:

HOSTILE ACTION: An act toward PBNP or its personnel that includes the use of violent force to destroy equipment, take HOSTAGES, and/or intimidate the licensee to achieve an end. This includes attack by air, land, or water using guns, explosives, PROJECTILEs, vehicles, or other devices used to deliver destructive force. Other acts that satisfy the overall intent may be included. HOSTILE ACTION should not be construed to include acts of civil disobedience or felonious acts that are not part of a concerted attack on the nuclear power plant. Non-terrorism-based EALs should be used to address such activities (i.e., this may include violent acts between individuals in the owner controlled area).

HOSTILE FORCE: One or more individuals who are engaged in a determined assault, overtly or by stealth and deception, equipped with suitable weapons capable of killing, maiming, or causing destruction.

IMMINENT: The trajectory of events or conditions is such that an EAL will be met within a relatively short period of time regardless of mitigation or corrective actions.

PROTECTED AREA: The area under continuous access monitoring and control, and armed protection as described in the site Security Plan.

Basis:

This IC addresses an event in which a HOSTILE FORCE has taken physical control of the facility to the extent that the plant staff can no longer operate equipment necessary to maintain key safety functions. It also addresses a HOSTILE ACTION leading to a loss of physical control that results in actual or IMMINENT damage to spent fuel due to 1) damage to a spent fuel pool cooling system (e.g., pumps, heat exchangers, controls, etc.) or, 2) loss of spent fuel pool integrity such that sufficient water level cannot be maintained.

Timely and accurate communications between Security Shift Supervisor and the Control Room is essential for proper classification of a security-related event.

Security plans and terminology are based on the guidance provided by NEI 03-12, *Template for the Security Plan, Training and Qualification Plan, Safeguards Contingency Plan [and Independent Spent Fuel Storage Installation Security Program].*

Emergency plans and implementing procedures are public documents; therefore, EALs should not incorporate Security-sensitive information. This includes information that may be advantageous to a potential adversary, such as the particulars concerning a specific threat or threat location. Security-sensitive information should be contained in non-public documents such as the Security Plan.

ECL: Unusual Event

Initiating Condition: UNPLANNED increase in RCS temperature.

Operating Mode Applicability: 5, 6

Emergency Action Levels:

Note: The Emergency Director should declare the Unusual Event promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

CU3.1 UNPLANNED increase in RCS temperature to greater than 200°F.

CU3.2 Loss of **ALL** RCS temperature and reactor vessel/RCS level indication for 15 minutes or longer.

Definitions:

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

CONTAINMENT CLOSURE: The procedurally defined conditions or actions taken to secure containment and its associated structures, systems, and components as a functional barrier to fission product release under shutdown conditions.

Basis:

This IC addresses an UNPLANNED increase in RCS temperature above the Technical Specification cold shutdown temperature limit, or the inability to determine RCS temperature and level, represents a potential degradation of the level of safety of the plant. If the RCS is not intact and CONTAINMENT CLOSURE is not established during this event, the Emergency Director should also refer to IC CA3.

A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when the heat removal function is available does not warrant a classification.

EAL CU3.1 involves a loss of decay heat removal capability, or an addition of heat to the RCS in excess of that which can currently be removed, such that reactor coolant temperature cannot be maintained below the cold shutdown temperature limit specified in Technical Specifications. During this condition, there is no immediate threat of fuel damage because the core decay heat load has been reduced since the cessation of power operation.

During an outage, the level in the reactor vessel will normally be maintained above the reactor vessel flange. Refueling evolutions that lower water level below the reactor vessel flange are carefully planned and controlled. A loss of forced decay heat removal at reduced inventory may result in a rapid increase in reactor coolant temperature depending on the time after shutdown.

EAL CU3.2 reflects a condition where there has been a significant loss of instrumentation capability necessary to monitor RCS conditions and operators would be unable to monitor key parameters necessary to assure core decay heat removal. During this condition, there is no immediate threat of fuel damage because the core decay heat load has been reduced since the cessation of power operation.

Fifteen minutes was selected as a threshold to exclude transient or momentary losses of indication.

Escalation to Alert would be via IC CA1 based on an inventory loss or IC CA3 based on exceeding plant configuration-specific time criteria.

ECL: Alert

Initiating Condition: Inability to maintain the plant in cold shutdown.

Operating Mode Applicability: 5, 6

Emergency Action Levels:

Note: The Emergency Director should declare the Alert promptly upon determining that the applicable time has been exceeded, or will likely be exceeded.

CA3.1 UNPLANNED increase in RCS temperature to greater than 200°F for greater than the duration specified in the following table.

Table: RCS Heat-up Duration Thresholds		
RCS Status	**CONTAINMENT CLOSURE Status**	**Heat-up Duration**
Intact (but not at reduced inventory)	Not applicable	60 minutes*
Not intact (or at reduced inventory)	Established	20 minutes*
	Not Established	0 minutes
* If RHR is in operation within this time frame and RCS temperature is being reduced, the EAL is not applicable.		

CA3.2 UNPLANNED RCS pressure increase greater than 25 psig. (This EAL does not apply during water-solid plant conditions.)

Definitions:

UNPLANNED: A parameter change or an event that is not 1) the result of an intended evolution or 2) an expected plant response to a transient. The cause of the parameter change or event may be known or unknown.

CONTAINMENT CLOSURE: The procedurally defined conditions or actions taken to secure containment and its associated structures, systems, and components as a functional barrier to fission product release under shutdown conditions.

Basis:

This IC addresses conditions involving a loss of decay heat removal capability or an addition of heat to the RCS in excess of that which can currently be removed. Either condition represents an actual or potential substantial degradation of the level of safety of the plant.

A momentary UNPLANNED excursion above the Technical Specification cold shutdown temperature limit when the heat removal function is available does not warrant a classification.

The RCS Heat-up Duration Thresholds table addresses an increase in RCS temperature when CONTAINMENT CLOSURE is established but the RCS is not intact, or RCS inventory is reduced (e.g., mid-loop operation in PWRs). The 20-minute criterion was included to allow time for operator action to address the temperature increase.

The RCS Heat-up Duration Thresholds table also addresses an increase in RCS temperature with the RCS intact. The status of CONTAINMENT CLOSURE is not crucial in this condition since the intact RCS is providing a high pressure barrier to a fission product release. The 60-minute time frame should allow sufficient time to address the temperature increase without a substantial degradation in plant safety.

Finally, in the case where there is an increase in RCS temperature, the RCS is not intact or is at reduced inventory, and CONTAINMENT CLOSURE is not established, no heat-up duration is allowed (i.e., 0 minutes). This is because

1) the evaporated reactor coolant may be released directly into the Containment atmosphere and subsequently to the environment, and
2) there is reduced reactor coolant inventory above the top of irradiated fuel.

EAL CA3.2 provides a pressure-based indication of RCS heat-up.

Escalation of the emergency classification level would be via IC CS1 or RS1.

ECL: Unusual Event

Initiating Condition: RCS leakage for 15 minutes or longer.

Operating Mode Applicability: 1, 2, 3, 4

Emergency Action Levels:

Note: The Emergency Director should declare the Unusual Event promptly upon determining that 15 minutes has been exceeded, or will likely be exceeded.

SU5.1 RCS unidentified or pressure boundary leakage greater than 10 gpm for 15 minutes or longer.

SU5.2 RCS identified leakage greater than 25 gpm for 15 minutes or longer.

SU5.3 Leakage from the RCS to a location outside containment, or Steam Generator tube leakage, greater than 25 gpm for 15 minutes or longer.

Definitions:

UNISOLABLE: An open or breached system line that cannot be isolated, remotely or locally.

Basis:

This IC addresses RCS leakage which may be a precursor to a more significant event. In this case, RCS leakage has been detected and operators, following applicable procedures, have been unable to promptly isolate the leak. This condition is considered to be a potential degradation of the level of safety of the plant.

EAL SU5.1 and EAL SU5.2 are focused on a loss of mass from the RCS due to "unidentified leakage", "pressure boundary leakage" or "identified leakage" (as these leakage types are defined in the plant Technical Specifications).

EAL SU5.3 addresses a RCS mass loss caused by an UNISOLABLE leak through an interfacing system. These EALs thus apply to leakage into the containment, a secondary-side system (e.g., steam generator tube leakage) or a location outside of containment.

The leak rate values for each EAL were selected because they are usually observable with normal Control Room indications. Lesser values typically require time-consuming calculations to determine (e.g., a mass balance calculation). EAL SU5.1 uses a lower value that reflects the greater significance of unidentified or pressure boundary leakage.

The release of mass from the RCS due to the as-designed/expected operation of a relief valve does not warrant an emergency classification. For PBNP, an emergency classification would be required if a mass loss is caused by a relief valve that is not functioning as designed/expected (e.g., a relief valve sticks open and the line flow cannot be isolated).

The 15-minute threshold duration allows sufficient time for prompt operator actions to isolate the leakage, if possible.

Escalation of the emergency classification level would be via ICs of Recognition Category R or F.