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CALLAWAY PLANT

EMERGENCY PLAN IMPLEMENTING PROCEDURE

EIP-ZZ-00213

TECHNICAL ASSESSMENT

RESPONSIBLE DEPARTMENT **Emergency Preparedness**

PROCEDURE OWNER **W. R. Bevard**

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This procedure contains the following:

Pages	1	through	6
Attachments	1	through	4
Tables		through	
Figures		through	
Appendices		through	
Checkoff Lists		through	

This procedure has _____ checkoff list(s) maintained in the mainframe computer.

Conversion of commitments to TRS reference/hidden text completed by Revision Number:

Non-T/S Commitments 016

ORIGINAL for NRC

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TECHNICAL ASSESSMENT

1 PURPOSE AND SCOPE

1.1 To provide guidance to the Technical Support Center (TSC) engineering staff in performing technical assessment and maintaining plant status boards during an emergency. Also provides guidance for actions necessitated in the event of Plant Computer System (PCS) failure.

2 RESPONSIBILITIES

2.1 TECHNICAL ASSESSMENT COORDINATOR

2.1.1 The Technical Assessment Coordinator (TAC):

2.1.1.1 The TAC reports to the Emergency Coordinator (EC). The TAC is responsible for technical assessment of Plant conditions to identify EALs and emergency mitigating recommendations to the EC. The TAC is also responsible for coordinating Protective Action Recommendations (PARs) consistent with Plant Conditions with the Recovery Manager and Dose Assessment Coordinator in the EOF prior to the arrival of the Protective Measures Coordinator (PMC) or Plant Assessment Coordinator (PAC). **(COMN 3333)**

2.1.1.2 Provides the TSC Engineering Staff with direction and control.

2.1.1.3 Ensures coordination with other groups and sources of information.

2.1.1.4 Provides oversight and direction of the TSC until the EC arrives.

2.2 TSC LEAD ENGINEER (TLE)

2.2.1 The TLE reports to the Technical Assessment Coordinator in the TSC. The TLE is responsible for assisting the TAC in directing and controlling the Engineering staff. **(COMN 3351)**

2.3 TSC ENGINEERING STAFF

The TSC Engineering Staff reports to the Technical Assessment Coordinator in the TSC. They are responsible for diagnosing and analyzing potential and actual Plant problems, and providing recommended courses of action to the Technical Assessment Coordinator. These responsibilities include; assessment of core physics, thermal hydraulics, and general plant conditions. They may be dispatched to Plant areas for surveillance purposes as directed by the Technical Assessment Coordinator.

2.4 ENGINEERING STATUS BOARD LOGKEEPERS (ESL)

2.4.1 The ESLs report to the TAC and are responsible for maintaining the logs and status boards for the Technical Assessment Group.

3 PROCEDURE

3.1.1 Place the TSC HVAC system in recirculation per **OOA-UB-00005**.

3.1.2 Use **EIP-ZZ-00217** to activate the Emergency Response Data System (ERDS) as soon as possible, but NOT later than one hour after a declared plant Alert or higher emergency, The ERDS can be activated from the Control Room or from the Technical Support Center Plant Computer terminals. **(COMN 42625)**

3.1.3 Develop strategies, using Severe Accident Management Guidelines (SAMGs), for severe accident conditions.

3.1.4 Evaluate the condition of the Reactor Core using: **(COMN 42534)**

a. Radiation Monitoring System.

b. Plant instrumentation and Plant Computer System.

c. Post Accident Sampling System.

3.1.5 Assess essential safety-related systems using:

a. Appropriate Callaway Plant drawings.

b. Plant Operating/Emergency, Engineering, I & C, and Maintenance procedures, and Severe Accident Management Guidelines.

c. The Plant Computer System or parameters as given through communications.

d. The Callaway Plant Final Safety Analysis Report and Callaway Technical Specifications.

e. Equipment technical manuals.

f. Information obtained from other sources.

3.1.6 Assist the Control Room staff by relieving the reactor operators of peripheral duties such as:

a. Plotting key parameters to backup or assist in trend analysis, as requested.

b. Evaluating the adequacy of natural circulation flow or heat sink efficiency.

3.1.7 Coordinate the design and installation of temporary modifications.

3.1.8 Recommend any changes to plant operations to mitigate damage or to place the plant in a safe mode of operation.

3.1.9 Dispatch engineers to plant areas for surveillance purposes or to assist repair teams as required. **(COMN 3351)**

3.1.10 Assist in the preparation of emergency repairs including material suitability and/or procedure preparation.

3.1.11 Monitor Emergency Action levels per **EIP-ZZ-00101**, Classification of Emergencies.

3.1.12 Prior to the arrival of the Protective Measures Coordinator (PMC) and the Plant Assessment Coordinator (PAC) to the EOF, monitor criteria for protective action recommendations per **EIP-ZZ-00212**, Protective Action Recommendations.

3.1.13 Provide an estimation of radiological release duration and core damage assessment to the Health Physics Coordinator, Dose Assessment Coordinator and Emergency Coordinator.

3.1.14 Upon entry into the recirculation phase of RHR:

3.1.14.1 Direct the Chemistry Coordinator to obtain samples from the RWST once every 12 hours, using **CSP-ZZ-07540**.

NOTE:	Local samples should be taken from BN-V-0023 and BN-V-0029. Increased activity indicates valve leakage back to the RWST.

3.1.14.2 Inform the Health Physics Coordinator of probable increase in Auxillary Building radiation levels and have him inform any Teams in the field.

3.1.14.3 Inform the Health Physics Coordinator of possible valve leakage to the RWST so that Health Physics support for sampling, sample counting, and possible release calculations can be arranged.

3.2 MAINTAINING THE PLANT STATUS BOARDS

3.2.1 Maintain the plant status boards using the Plant Computer.

3.2.1.1 Call up the plant status boards displays on the Plant Computer to obtain plant status. The information needed to maintain the plant status boards is contained on these displays.

3.2.1.1.1 On the Plant Computer command line enter PSB (Plant Status Board). This brings up the first screen and from that you can move to the next screen.

3.2.1.1.2 Either print each display or, if the printer is inoperable, transfer the data to Attachment 1, Plant Status Board.

3.2.1.2 If data points are not available on the PSB displays, they can be obtained from the Plant Computer using Attachment 3.

NOTE:	A cross reference of the information required for the status board with Plant Computer data points is available by using Attachment 2, Plant Status Board Key and Attachment 3, Plant Status Board / Plant Computer Cross Reference.

3.2.1.3 If the PSB data is questionable Attachment 4 may be used to compare redundent but sometimes less desirable data. If data remains questionable the data should be annotated with a question mark to indicate the data is questionable. **(SOS 97-0904)**

3.2.2 If the Plant Computer is inoperable.

3.2.2.1 The Technical Assessment Coordinator should designate and direct the necessary individuals to report to the Control Room and provide regular plant status board updates. **(SOS 97-0904)**

3.2.2.1.1 The individuals reporting to the Control Room should establish communication with the TSC upon arrival.

3.2.2.2 Using Attachment 4, Plant Status Board / Main Control Board Cross Reference to assist in collecting the data and Attachment 2, Plant Status Board Key, complete Attachment 1 in as close to 15 minute intervals as practical.

NOTE:	Relay of Attachment 1 information from the Control Room can be done using the fax machine.

3.2.2.3 Relay the information on the completed Attachment 1 to the TSC Engineering Staff to update the plant status boards.

3.2.3 As much as possible and appropriate, arrows should be placed next to specified values on the PSB to indicate upward {↑} or downward {↓} trends.

3.3 EMERGENCY RESPONSE DATA SYSTEM DEACTIVATION

3.3.1 The ERDS is deactivated on the Plant Computer terminal by going to the ERDS display and pressing <F3>. Pressing <F3> terminates the modem program and returns the Plant Computer terminal to the user.

4 FINAL CONDITIONS

4.1 The Emergency Coordinator or the designee has determined that technical assessment is no longer required.

5 REFERENCES

5.1 Callaway Plant Radiological Emergency Response Plan (RERP)

5.2 NRC Information Notice 91-56

5.3 NUREG-1394, Rev. 1 - Emergency Response Data System (ERDS) Implementation

5.4 **ETP-ZZ-02000** - TECHNICAL ASSESSMENT

5.5 10 CFR 50, Appendix E, part V

5.6 **EIP-ZZ-00217** - Emergency Response Data System Activation

5.7 **CSP-ZZ-07540** - Water Storage Tank Activity

5.8 Severe Accident Management Guidelines

6 RECORDS

NOTE:	Position logs, screenprints, forms, memos, notes, etc. should be attached to each Coordinator's checklist and turned in to the Admin Coordinator and/or Emergency Preparedness (EP).

6.1 QA RECORDS

6.1.1 Plant Status Report, Attachment 1 (K171.0010)

6.2 COMMERCIAL RECORDS

None

PLANT STATUS BOARD

UPDATE TIME: _____ **EMERGENCY PROCEDURE:** _____ **DESCRIPTION** _____

RCS CONDITIONS

Rx TRIP	Rx PWR	RCS WR PRESS.	RVLIS DYNAMIC	SUB-COOLING (NEG. IF SUPER-HEAT)
_____ date _____ time	_____ %	_____ psig	_____ % STATIC _____ %	_____ °F

HIGHEST CORE EXIT T/C	PZR LVL	RCS ACTIVITY	PRT
_____ °F	_____ %	_____ mCi/cc	TEMP _____ °F PRESS _____ PSIG LEVEL _____ %

PZR PORV 'A'	'A' PORV BLOCK VLV	PZR PORV 'B'	'B' PORV BLOCK VLV
OP / CL	OP / CL	OP / CL	OP / CL

RCS LOOP	A	B	C	D
Thot (wr/nr)				
Tcold (wr/nr)				
LOOP FLOW (%)				
RCP (ON/OFF/ UNAVAIL)				

CONTROL ROD POSITIONS

CTRL BANK A	CTRL BANK B	CTRL BANK C	CTRL BANK D	
_____	_____	_____	_____	
S/D BANK A	S/D BANK B	S/D BANK C	S/D BANK D	S/D BANK E
_____	_____	_____	_____	_____

STEAM GENERATORS

	A	B	C	D
LVL % NR				
LVL % WR				
PRESS PSIG				
MAIN FEED FLOW Klbm/Hr				
AUX FEED FLOW Klbm/Hr				
STEAM FLOW Klbm/Hr				
MSIV OP/CL				
FWIV OP/CL				
S/G ATM PORV OP/CL				

MDAFP 'A' ON / OFF / UNAVAIL

MDAFP 'B' ON / OFF / UNAVAIL

TDAFP ON / OFF / UNAVAIL

CST LVL _____ %

ECCS STATUS

	ON/OFF	TRAIN 'A'	TRAIN 'B'	FLOW (GPM)
CCP				
NCP			N/A	
SI				
RHR				

SI ACC 'A'	SI ACC 'B'	SI ACC 'C'	SI ACC 'D'
_____ % _____ psig	_____ % _____ psig	_____ % _____ psig	_____ % _____ psig

RWST LVL _____ %

ELECTRICAL SYSTEMS STATUS

SWYD BUS A	SWYD BUS B	NK01
_____ (KV)	_____ (KV)	_____ VDC
D/G 'A' ON/OFF/ UNAVAIL.	D/G 'B' ON/OFF/ UNAVAIL.	NK02 _____ VDC
NB01 ENERGIZED YES/NO	NB02 ENERGIZED YES/NO	NK03 _____ VDC
PA01 ENERGIZED YES/NO	PA02 ENERGIZED YES/NO	NK04 _____ VDC

CONTAINMENT CONDITIONS

PRESS.	TEMP	HUMIDITY	RAD LVL	H2 CONC
_____ psig	_____ °F	_____ %	_____ R/HR	_____ %

CTMT SPRAY PUMP 'A'; ON / OFF

CTMT SPRAY PUMP 'B'; ON / OFF

CTMT RECIRC SUMP 'A'; _____ IN.

CTMT RECIRC SUMP 'B'; _____ IN.

ESFAS ACTUATIONS		CSF STATUS	COLOR	REASON (if not green)
SIS	CIS-A	SUBCRIT		
CIS-B	CSAS	CORE COOLING		
CPIS	MSLIS	HEAT SINK		
FWIS	AFAS	RCS INTEGRITY		
CRVIS	FBIS	CTMT		
		RCS INVEN-TORY		

NOTES AND MISC ITEMS

Tank Volumes

Pressurizer: 120 gal/% Cold 62 gal/% Hot
PRT: 132.6 gal/% 64-88%
Accumulators: 7.291 gal/%

VCT: 20.4 gal/%
RWST: 4007.23 gal/%
CST: 4608.85 gal/%

CTMT Normal Sumps: 15.6 gal/% or 10 gal/in
CTMT Emergency Sumps: 40 gal/% <96 in
Instrument Tunnel Sump: 15 gal/%

Notify Chemistry and HP Coordinator when entering recirc phase

ATTACHMENT 1
CA-#238

PLANT STATUS BOARD KEY

UPDATE TIME: _____ **EMERGENCY PROCEDURE:** _____ **DESCRIPTION** _____

RCS CONDITIONS

Rx TRIP	Rx PWR	RCS WR PRESS.	RVLIS	SUB-COOLING
__(1)__ date ____(1)__ time	__(2)__ %	__(3)__ psig	DYNAMIC __(4)__ % STATIC __(4)__ %	*(NEG. IF SUPER-HEAT)* __(5)__ °F

HIGHEST CORE EXIT T/C	PZR LVL	RCS ACTIVITY	PRT
__(6)__ °F	__(7)__ %	__(8)__ mCi/cc	TEMP __(9)__ °F PRESS __(9)__ PSIG LEVEL __(9)__ %

PZR PORV 'A' (10) OP / CL	'A' PORV BLOCK VLV (10) OP / CL	PZR PORV 'B' (11) OP / CL	'B' PORV BLOCK VLV (11) OP / CL

RCS LOOP	A	B	C	D
Thot (wr/nr)	(12)	(12)	(12)	(12)
Tcold (wr/nr)	(13)	(13)	(13)	(13)
LOOP FLOW (%)	(14)	(14)	(14)	(14)
RCP (ON/OFF/ UNAVAIL)	(15)	(15)	(15)	(15)

CONTROL ROD POSITIONS

CTRL BANK A	CTRL BANK B	CTRL BANK C	CTRL BANK D	
__(16)__	__(16)__	__(16)__	__(16)__	
S/D BANK A	S/D BANK B	S/D BANK C	S/D BANK D	S/D BANK E
__(17)__	__(17)__	__(17)__	__(17)__	__(17)__

STEAM GENERATORS

	A	B	C	D
LVL % NR	(18)	(18)	(18)	(18)
LVL % WR	(19)	(19)	(19)	(19)
PRESS PSIG	(20)	(20)	(20)	(20)
MAIN FEED FLOW Klbm/Hr	(21)	(21)	(21)	(21)
AUX FEED FLOW Klbm/Hr	(22)	(22)	(22)	(22)
STEAM FLOW Klbm/Hr	(23)	(23)	(23)	(23)
MSIV OP/CL	(24)	(24)	(24)	(24)
FWIV OP/CL	(25)	(25)	(25)	(25)
S/G ATM PORV OP/CL	(26)	(26)	(26)	(26)

MDAFP 'A' ON / OFF / UNAVAIL (27)
MDAFP 'B' ON / OFF / UNAVAIL (27)
TDAFP ON / OFF / UNAVAIL

CST LVL ___(28)___ %

ECCS STATUS

ON/OFF	TRAIN 'A'	TRAIN 'B'	FLOW (GPM)
CCP	(29)	(29)	
NCP	(30)	N/A	
SI	(31)	(31)	
RHR	(32)	(32)	

SI ACC 'A'	SI ACC 'B'	SI ACC 'C'	SI ACC 'D'
__(33)__ % (33)__psig	__(34)__ % (34)_ psig	__(35)___ % (35)_ psig	__(36)___ % (36)__psig

RWST LVL ___(38)__ %

ELECTRICAL SYSTEMS STATUS

SWYD BUS A	SWYD BUS B	NK01
___(39)_(KV)	___(40)_(KV)	___(47)___ VDC
D/G 'A'(41) ON/OFF/ UNAVAIL.	D/G 'B'(42) ON/OFF/ UNAVAIL.	NK02 ___(48)___ VDC
NB01 ENERGIZED (43) YES/NO	NB02 ENERGIZED (44) YES/NO	NK03 ___(49)__ VDC
PA01 ENERGIZED (45) YES/NO	PA02 ENERGIZED (46) YES/NO	NK04 ___(50)__ VDC

CONTAINMENT CONDITIONS

PRESS.	TEMP	HUMIDITY	RAD LVL	H2 CONC
_(51)_ psig	__(52)__ °F	__(53)___ %	__(54)___ R/HR	__(55)__ %

CTMT SPRAY PUMP 'A'; ON / OFF (56)
CTMT SPRAY PUMP 'B'; ON / OFF

CTMT RECIRC SUMP 'A'; _____ IN. (57)
CTMT RECIRC SUMP 'B'; _____ IN.

ESFAS ACTUATIONS		CSF STATUS	COLOR	REASON (if not green)
SIS (59)	CIS-A (60)	SUBCRIT	(69)	(69)
CIS-B (61)	CSAS (62)	CORE COOLING	(69)	(69)
CPIS (63)	MSLIS (64)	HEAT SINK	(69)	(69)
FWIS (65)	AFAS (66)	RCS INTEGRITY	(69)	(69)
CRVIS (67)	FBIS (68)	CTMT	(69)	(69)
		RCS INVEN-TORY	(69)	(69)

NOTES AND MISC ITEMS

Tank Volumes

Pressurizer: 120 gal/% Cold 62 gal/% Hot
PRT: 132.6 gal/% 64-88%
Accumulators: 7.291 gal/%

VCT: 20.4 gal/%
RWST: 4007.23 gal/%
CST: 4608.85 gal/%

CTMT Normal Sumps: 15.6 gal/% or 10 gal/in
CTMT Emergency Sumps: 40 gal/% <96 in
Instrument Tunnel Sump: 15 gal/%

Notify Chemistry and HP Coordinator when entering recirc phase

ATTACHMENT 2

PLANT STATUS BOARD / PLANT COMPUTER
CROSS REFERENCE

This Attachment is designed to match up information on the Plant Status Board with the appropriate computer points on the Plant Computer. The key number is the matching number from Attachment 2. If there is no associated computer point for an item number, additional information is provided as to where this information can be obtained. When there is more than one computer point that provides the information for an item number the preferred computer point is provided first separated from the secondary computer points by semi colons.

KEY	PLANT COMPUTER POINT
1	**Reactor Trip Date** = SPDS4033-35, **Reactor Trip time** SPDS4036-38; ALARM Review
2	**Rx PWR** ; Post Accident Wide Range = SEN0701; SEN0060B, 61B Power Range SPDS00059; REU1169; REN0049A-52A
3	**RCS WR PRESSURE**; SPDS0001; REP0498A , 499A
4	**RVLIS DYNAMIC** = REU0523; REL0503A , 523A **RVLIS STATIC** = SPDS0042; REL0501A, 521A
5	**SUBCOOLING**; SPDS0006; REU1734-37
6	**HIGHEST CORE EXIT T/C**; REU0090; **LOCATION** = REU0092; RET0001A - RET0050A
7	**PZR LVL**; REU0483; REL0480A - 482A
8	**RCS ACTIVITY**; SJR0001 OR CHEMISTRY COORDINATOR
9	**PRT TEMP** = RET0485A | **PRT PRESS** = REP0485A | **PRT LEV** = REL0485A
10	**PZR PORV A** = BBZ455AA | **BLOCK VALVE A** = BBZ8000A
11	**PZR PORV B** = BBZ455AB | **BLOCK VALVE B** = BBZ8000B
12	**RCS LOOPS Thot**; A = WIDE RET0419A; NARROW REU411A B = WIDE RET0439A; NARROW REU421A C = WIDE RET0459A; NARROW REU431A D = WIDE RET0479A; NARROW REU441A
13	**RCS LOOPS Tcold**; A = **NARROW** RET0402A; **WIDE** RET0406A B = **NARROW** RET0422A; **WIDE** RET0426A C = **NARROW** RET0442A; **WIDE** RET0446A D = **NARROW** RET0462A; **WIDE** RET0466A
14	**RCS LOOP FLOWS**; A = REU0400 ; REF0400A - 402A B = REU0420 ; REF0420A - 422A C = REU0440 ; REF0440A - 442A D = REU0460 ; REF0460A - 462A

KEY	PLANT COMPUTER POINT
15	**RCP STATUS;** A = BBQ0001 B = BBQ0002 C = BBQ0003 D = BBQ0004
16	**CONTROL BANK POSITIONS ; A** = REU0001 ; REU0049 ; REC0041 , 42 ,45 ,46 **B** = REU0002 ; REU0050 ; REC0050 - 57 **C** = REU0003 ; REU0051 ; REC0059-66 **D** = REU0004 ; REU0052 ; REC0068 , 69, 72 ,73, 74
17	**S/D POSITIONS ; A** = REU0010 ; REU0053 ; REC0009 - 12 , REC0014 - 17 **B** = REU0011 ; REU0054 ; REC0019 - 22 , REC0024 - 27 **C** = REU0012 ; REU0055 ; REC0029 - 32 **D** = REU0013 ; REU0056 ; REC0033 - 36 **E** = REU0014 ; REU0060 ; REC0037 - 40
18	**S/G NARROW RANGE LEVELS ; A** = REU0415 ; REL0400A - 403A **B** = REU0435 ; REL0420A - 423A **C** = REU0455 ; REL0440A - 443A **D** = REU0475 ; REL0460A - 463A
19	**S/G WIDE RANGE LEVELS ; A** = REL0404A **B** = REL0424A **C** = REL0444A **D** = REL0464A
20	**S/G PRESSURES; A** = REU0414 ; REP0400A - 402A **B** = REU0434 ; REP0420A - 422A **C** = REU0454 ; REP0440A - 442A **D** = REU0474 ; REP0460A - 462A
21	**MAIN FEED FLOW ; A** = REU0410A ; REF0403A , 4A **B** = REU0430A ; REF0423A , 24A **C** = REU0450A ; REF0443A , 44A **D** = REU0470A ; REF0463A , 64A
22	**AUX FEED FLOW ; A** = ALF0702 **B** = ALF0703 **C** = ALF0704 **D** = ALF0701
23	**STEAM FLOW ; A** = REU0412A ; REF0405A , 6A **B** = REU0432A ; REF0425A , 26A **C** = REU0452A ; REF0445A , 46A **D** = REU0472A ; REF0465A , 66A
24	**MSIV POSITION ; A** = ABZ0014 **B** = ABZ0017 **C** = ABZ0020 **D** = ABZ0011

KEY	PLANT COMPUTER POINT
25	**FWIV POSITION ;** **A** = AEZ0039 **B** = AEZ0040 **C** = AEZ0041 **D** = AEZ0042
26	**S/G ATM PORV ;** **A** = ABZ0001 **B** = ABZ0002 **C** = ABZ0003 **D** = ABZ0004
27	**AFP STATUS ; MDAFP A =** ALQ0023 **MDAFP B =** ALQ0022 **TDAFP =** ALQ0600
28	**CST LEVEL;** APL0004
29	**CCP STATUS AND FLOW ; CCP A** = BGQ0001 **CCP B** = BGQ0002 **BIH FLOW** = REU0503 ; REF0927A + REF0928A
30	**NCP STATUS AND FLOW; NCP** = BGQ0003 **NPC FLOW** = REF0128A
31	**SI PUMP STATUS AND FLOW;** **SIP A** = EMQ0004 **SIP B** = EMQ0005 **COLD LEG FLOW** = REU0502 ; REF0921A + REF0922A
32	**RHR PUMP STATUS: AND FLOW** **RHR PUMP A** = EJQ0001 **RHR PUMP B** = EJQ0002 **COLD LEG FLOW** = REU0501 ; REF0626A + REF0627A **HOT LEG RECIRC FLOW** = REF0948A
33	**SI ACC A LEVEL ;** REU0512 ; REL0940A , 941A **SI ACC A PRESS** ; REP0940A , 941 A
34	**SI ACC B LEVEL ;** REU0513 ; REL0942A , 943A **SI ACC B PRESS** ; REP0942A , 943 A
35	**SI ACC C LEVEL ;** REU0514 ; REL0944A , 945A **SI ACC C PRESS** ; REP0944A , 945 A
36	**SI ACC D LEVEL ;** REU0515 ; REL0946A , 947A **SI ACC D PRESS** ; REP0946A , 947 A
37	**INJECTION/RECIRC ALIGNMENT;** CONTROL ROOM (OR SYSTEM VALVE LINEUP COMPUTER POINTS/ SYSTEM DISPLAYS)
38	**RWST LEVEL** ; REU0511 ; REL0930A - 933A
39	**SWYD BUS A VOLTAGE** ; MSE0345A
40	**SWYD BUS B VOLTAGE** ; MSE0345B
41	**D/G A STATUS ;** NEE0601
42	**D/G B STATUS ;** NEE0602
43	**NB01 STATUS ;** NBQ0701; NEQ0017 , NBQ0013 , NBQ0015
44	**NB02 STATUS ;** NBQ0702; NEQ0018 , NBQ0017 , NBQ0019
45	**PA01 STATUS :** PAE0003

KEY	PLANT COMPUTER POINT
46	**PA02 STATUS ;** PAE0004
47	**NK01 VOLTAGE:** NKE0001
48	**NK02 VOLTAGE:** NKE0002
49	**NK03 VOLTAGE:** NKE0003
50	**NK04 VOLTAGE:** NKE0004
51	**CONTAINMENT PRESSURE** ; REU1000 ; REP1000A - 1002A , REP1038A , 39A
52	**CONTAINMENT TEMP** ; SPDS0007 ; GNT0060 - 0063
53	**CONTAINMENT HUMIDITY** ; SPDS0010 ; GNA0027 , 28
54	**CONTAINMENT RADIATION** ; SPDS0011 ; GTR0059 , 60
55	**CONTAINMENT H_2 CONC.** ; SPDS0053 ; GSA0019 , 10
56	**CONTAINMENT SPRAY PUMP STATUS** ; CSP 'A' ; ENQ0003 CSP 'B' ; ENQ0009
57	**CONTAINMENT RECIRC SUMP A LEVEL** ; EJL0007 **CONTAINMENT RECIRC SUMP B LEVEL** ; EJL0008
58	**H_2 RECOMBINER STATUS;** OBTAIN FROM CONTROL ROOM IF THERE IS INDICATION OF H_2 IN CONTAINMENT.
59	**SIS ACTUATION** ; SAQ0605; SAQ0010A, 10B
60	**CIS - A ACTUATION ;** SAQ0601, SAQ0005A, 5B
61	**CIS - B ACTUATION ;** SBQ0012
62	**CSAS ACTUATION ;** SBQ0013
63	**CPIS ACTUATION ;** SAQ0603, SAQ0007A, 7B
64	**MSLIS ACTUATION;** ABZ0602
65	**FWIS ACTUATION** ; AEZ0600
66	**AFAS ACTUATION** ;SAQ0606; SAQ011A/B/C
67	**CRVIS ACTUATION ;** SAQ0602, SAQ0006A, 6B
68	**FBIS ACTUATION ;** SAQ0604, SAQ0014A, 14B
69	**CSF STATUS ;** SUBCRIT ; (SPDS) CORE COOLING ; HEAT SINK ; RCS INTEGRITY; CONTAINMENT; RCS INVENTORY;

PLANT STATUS BOARD / MAIN CONTROL BOARD CROSS REFERENCE

This reference is set up to match information on the Plant Status Board with the location and identification number of where that information is found, i.e. the Control Room instrument(s) etc.

Key # = Corresponds to the numbers on Attachment 2, Plant Status Board Key.

PANEL = Designates the panel of the main control board or elsewhere on which the desired instrument or indication is located.

LOC =General location on the panel where the instrument is located:

1st Letter	2nd Letter
U = Upper	R = Right
L = Lower	L = Left
	C = Center

Instrument = Identification number of desired instrument. This number is normally on a label under, over, or on the instrument.

When two or more instruments measure the same parameter, all instruments are listed, one under another, with the same margin. Any, or ideally a rough average of all, of these readings can be used.

In the case where it is preferable to obtain a reading from one instrument rather than another, the less favorable one will be indented. Even less favorable ones will be further indented.

INSTRUMENT EXAMPLE	
XX-XX-XXX	Three desirable instruments. Rough average the valid readings.
XX-XX-XXX	
XX-XX-XXX	
XX-XX-XXX	Less desirable instrument reading for use if desirable not valid.
XX-XX-XXX	Least desirable instrument

KEY	PSB ITEM	PANEL	INSTRUMENT ID	CONTROL BOARD LABEL/INFORMATION
1	Rx TRIP DATE/TIME	ALARM PRINTER	NA	REACTOR TRIP TIME AND DATE
2	Rx PWR	RL004 - LL ---------- RL020 - UR RL020 - UR	SE NI-41B SE NI-42B SE NI-43B SE NI-44B ---------- SE NI-60B SE NIR-61	POWER LEVEL ---------- *(USE THESE DETECTORS IN EVENT OF LOCA, MSLB OR CSAS)* POST ACCIDENT PR POST ACCIDENT PR/SR DETECTOR
3	RCS WR PRESS.	RL022 -LC RL022- LC RL002- UC RL022- LC RL002-UC	BB PI-403 BB PI-405 BB PI-406 BB PR-403 BB PI-403A	RCS WR PRESS TRN B RCS WR PRESS TRN A RCS WR PRESS TRN B RCS WR PRESS RCS LO RANGE PRESS
4	RVLIS DYNAMIC/ STATIC	RL021 - UC RL021 - UC ---------- RL021 - UC RL021 - UC	BB LI-1312 BB LI-1322 ---------- BB LI-1311 BB LI-1321	REACTOR VESSEL WTR LEV PUMPS ON REACTOR VESSEL WTR LEV PUMPS ON ---------- REACTOR VESSEL WTR LEV PUMPS OFF REACTOR VESSEL WTR LEV PUMPS OFF
5	SUB-COOLING	RL022 - LC RL022 - LC	BB TI-1390A BB TI-1390B	RCS DEGREES SUBCOOLING RCS DEGREES SUBCOOLING
6	HIGHEST CORE EXIT T/C	RP081 (in Control Room equip room)		
7	PZR LVL	RL002 - UR RL002 - UR RL002 - UR RL002 - UR RL002 - UR	BB LI-461 BB LI-460A BB LI-459A BB LR-459 BB LI-462	PZR LEV PZR LEV PZR LEV PZR PROGRAM LEV RECORDER PZR LEV COLD CALIBRATION
8	RCS ACTIVITY	RM011	SJL 016	
9	PRT TEMP PRESS LEVEL	 RL021 - LC RL021 - LC RL021 - LC	 BB TI-468 BB PI-469 BB LI-470	 PRESSURIZER RELIEF TANK TEMP PRESSURIZER RELIEF TANK PRESS PRESSURIZER RELIEF TANK LEV
10	PZR PORV A ---------- A PORV BLOCK VLV	RL021 - LC ---------- RL021 - LC	BB HIS-455A ---------- BB HIS-8000A	PZR PORV ---------- PZR PORV BLOCK VLV
11	PZR PORV B ---------- B PORV BLOCK VLV	RL021 - LC ---------- RL021 - LC	BB HIS-456A ---------- BB HIS-8000B	PZR PORV ---------- PZR PORV BLOCK VLV

KEY	PSB ITEM	PANEL	INSTRUMENT ID	CONTROL BOARD LABEL/INFORMATION
12	RCS LOOP Thot			
	A	RL022 - LC RL021 - UR	BB TR-413 BB TI-413A	LOOP 1 H/C LEGS WR TEMP LOOP 1 HOT LEG WR TEMP
	B	RL022 - LC RL021 - UR	BB TR-423 BB TI-423A	LOOP 2 H/C LEGS WR TEMP LOOP 2 HOT LEG WR TEMP
	C	RL022 - LC	BB TR-433	LOOP 3 H/C LEGS WR TEMP
	D	RL022 - LC	BB TR-443	LOOP 4 H/C LEGS WR TEMP
13	RCS LOOP Tcold			
	A	RL022 - LL RL021 - UR	BB TR-413 BB TI-413B	LOOP 1 H/C LEGS WR TEMP LOOP 1 COLD LEG WR TEMP
	B	RL022 - LL RL021 - UR	BB TR-423 BB TI-423B	LOOP 2 H/C LEGS WR TEMP LOOP 2 COLD LEG WR TEMP
	C	RL022 - LC	BB TR-433	LOOP 3 H/C LEGS WR TEMP
	D	RL022 - LC	BB TR-443	LOOP 4 H/C LEGS WR TEMP
14	RCS LOOP FLOW			
	A	RL022 - LL RL022 - LL RL022 - LL	BB FI-414 BB FI-415 BB FI-416	LOOP 1 REACTOR COOLANT FLOW
	B	RL022 - LL RL022 - LL RL022 - LL	BB FI-424 BB FI-425 BB FI-426	LOOP 2 REACTOR COOLANT FLOW
	C	RL022 - LL RL022 - LL RL022 - LL	BB FI-434 BB FI-435 BB FI-436	LOOP 3 REACTOR COOLANT FLOW
	D	RL022 - LC RL022 - LC RL022 - LC	BB FI-444 BB FI-445 BB FI-446	LOOP 4 REACTOR COOLANT FLOW
15	RCP			
	A	RL021 - UL	BB HIS-37	RCP A
	B	RL021 - UL	BB HIS-38	RCP B
	C	RL021 - UL	BB HIS-39	RCP C
	D	RL021 - UL	BB HIS-40	RCP D
16	CTRL BANK POSITION			
	A	RL022 - UR RL003 - UC RL003 - UC	SF074 SC CB-A1 SC CB-A2	PNL CONT RPI DISPLAY CTRL BANK A1 STEP COUNTER CTRL BANK A2 STEP COUNTER

KEY	PSB ITEM	PANEL	INSTRUMENT ID	CONTROL BOARD LABEL/INFORMATION
16		RL022 - UR	SF074	PNL CONT RPI DISPLAY
	B	RL003 - UC	SC CB-B1	CTRL BANK B1 STEP COUNTER
		RL003 - UC	SC CB-B2	CTRL BANK B2 STEP COUNTER
		RL022 - UR	SF074	PNL CONT RPI DISPLAY
	C	RL003 - UC	SC CB-C1	CTRL BANK C1 STEP COUNTER
		RL003 - UC	SC CB-C2	CTRL BANK C2 STEP COUNTER
		RL022 - UR	SF074	PNL CONT RPI DISPLAY
	D	RL003 - UC	SC CB-D1	CTRL BANK D1 STEP COUNTER
		RL003 - UC	SC CB-D2	CTRL BANK D2 STEP COUNTER
17	S/D BANK POSITION			
		RL022 - UR	SF074	PNL CONT RPI DISPLAY
	A	RL003 - LC	SC SB-A1	S/D BANK A1 STEP COUNTER
		RL003 - LC	SC SB-A2	S/D BANK A2 STEP COUNTER
		RL022 - UR	SF074	PNL CONT RPI DISPLAY
	B	RL003 - LC	SC SB-B1	S/D BANK B1 STEP COUNTER
		RL003 - LC	SC SB-B2	S/D BANK B2 STEP COUNTER
	C	RL022 - UR	SF074	PNL CONT RPI DISPLAY
		RL003 - LC	SC SB-C1	S/D BANK C1 STEP COUNTER
	D	RL022 - UR	SF074	PNL CONT RPI DISPLAY
		RL003 - LC	SC SB-D1	S/D BANK D1 STEP COUNTER
	E	RL022 - UR	SF074	PNL CONT RPI DISPLAY
		RL003 - LC	SC SB-D1	S/D BANK E STEP COUNTER
18	S/G NR LEVEL			
		RL026 - LL	AE LI-517	SG A LEV
		RL026 - LL	AE LI-518	SG A LEV
	A	RL026 - LL	AE LI-519	SG A LEV
		RL025 - UL	AE LI-551	STEAM GENERATOR A LEV
		RL006 - UL	AE FR-510	SG A STEAM/FW FLOW/LEV
		RL026 - LL	AE LI-527	SG B LEV
		RL026 - LL	AE LI-528	SG B LEV
	B	RL026 - LC	AE LI-529	SG B LEV
		RL025 - UL	AE LI-552	STEAM GENERATOR B LEV
		RL006 - UL	AE FR-520	SG B STEAM/FW FLOW/LEV
		RL026 - LC	AE LI-537	SG C LEV
		RL026 - LC	AE LI-538	SG C LEV
	C	RL026 - LC	AE LI-539	SG C LEV
		RL025 - UC	AE LI-553	STEAM GENERATOR C LEV
		RL006 - UC	AE FR-530	SG C STEAM/FW FLOW/LEV
		RL026 - LC	AE LI-547	SG D LEV
		RL026 - LC	AE LI-548	SG D LEV
	D	RL026 - LC	AE LI-549	SG D LEV
		RL025 - UC	AE LI-554	STEAM GENERATOR D LEV
		RL006 - UC	AE FR-540	SG D STEAM/FW FLOW/LEV

KEY	PSB ITEM	PANEL	INSTRUMENT ID	CONTROL BOARD LABEL/INFORMATION
19	S/G WR LEVEL			
	A	RL025 - UL	AE LI-501	SG A WR LEV
		RL026 - UL	AE LR-501	SG A & B WR LEV
	B	RL025 - UL	AE LI-502	SG B WR LEV
		RL026 - UL	AE LR-501	SG A & B WR LEV
	C	RL025 - UC	AE LI-503	SG C WR LEV
		RL026 - UL	AE LR-503	SG A & B WR LEV
	D	RL025 - UC	AE LI0504	SG D WR LEV
		RL026 - UL	AE LR-503	SG A & B WR LEV
20	S/G PRESS			
		RL026 - LL	AB PI-514A	SG A PRESS
	A	RL026 - LL	AB PI-515A	SG A PRESS
		RL026 - LL	AB PI-516A	SG A PRESS
		RL026 - UC	AB PR-514	SG A & B PRESS
		RL026 - LL	AB PI-524A	SG B PRESS
	B	RL026 - LL	AB PI-525A	SG B PRESS
		RL026 - LL	AB PI-526A	SG B PRESS
		RL026 - UC	AB PR-514	SG A & B PRESS
		RL026 - LL	AB PI-534A	SG C PRESS
		RL026 - LL	AB PI-535A	SG C PRESS
	C	RL026 - LL	AB PI-536A	SG C PRESS
		RL026 - UC	AB PR-535	SG C & D PRESS
		RL026 - LL	AB PI-544A	SG D PRESS
	D	RL026 - LL	AB PI-545A	SG D PRESS
		RL026 - LL	AB PI-546A	SG D PRESS
		RL026 - UC	AB PR-535	SG C & D PRESS
21	MAIN FEED FLOW			
		RL026 - UL	AE FI-510A	STEAM GENERATOR A FW FLOW
	A	RL026 - UL	AE FI-511A	STEAM GENERATOR A FW FLOW
		RL006 - UL	AE FR-510	SG A STEAM/FW FLOW/LEV
		RL026 - UL	AE FI-520A	STEAM GENERATOR B FW FLOW
	B	RL026 - UL	AE FI-521A	STEAM GENERATOR B FW FLOW
		RL006 - UL	AE FR-520	SG B STEAM/FW FLOW/LEV
		RL026 - UC	AE FI-530A	STEAM GENERATOR C FW FLOW
	C	RL026 - UC	AE FI-531A	STEAM GENERATOR C FW FLOW
		RL006 - UC	AE FR-530	SG C STEAM/FW FLOW/LEV
		RL026 - UC	AE FI-540A	STEAM GENERATOR D FW FLOW
	D	RL026 - UC	AE FI-541A	STEAM GENERATOR D FW FLOW
		RL006 - UC	AE FR-540	SG D STEAM/FW FLOW/LEV
22	AUX FEED FLOW			
	A	RL006 - UL	AL FI-2A	AFW TO SG A FLOW
	B	RL006 - UL	AL FI-3A	AFW TO SG B FLOW
	C	RL006 - UC	AL FI-4A	AFW TO SG C FLOW
	D	RL006 - UC	AL FI-1A	AFW TO SG D FLOW

KEY	PSB ITEM	PANEL	INSTRUMENT ID	CONTROL BOARD LABEL/INFORMATION
23	STEAM FLOW			
		RL026 - UL	AB FI-512A	STEAM GENERATOR A STEAM FLOW
	A	RL026 - UL	AB FI-513A	STEAM GENERATOR A STEAM FLOW
		RL006 - UL	AE FR-510	SG A STEAM/FW FLOW/LEV
		RL026 - UL	AB FI-522A	STEAM GENERATOR B STEAM FLOW
	B	RL026 - UL	AB FI-523A	STEAM GENERATOR B STEAM FLOW
		RL006 - UL	AE FR-520	SG B STEAM/FW FLOW/LEV
		RL026 - UC	AB FI-532A	STEAM GENERATOR C STEAM FLOW
	C	RL026 - UC	AB FI-533A	STEAM GENERATOR C STEAM FLOW
		RL006 - UC	AE FR-530	SG C STEAM/FW FLOW/LEV
		RL026 - UC	AB FI-542A	STEAM GENERATOR D STEAM FLOW
	D	RL026 - UC	AB FI-543A	STEAM GENERATOR D STEAM FLOW
		RL006 - UC	AE FR-540	SG D STEAM/FW FLOW/LEV
24	MSIV POSITION			
	A	RL025 - LL	AB HIS-14	SG A MS ISO VLV
	B	RL025 - LL	AB HIS-17	SG B MS ISO VLV
	C	RL025 -LC	AB HIS-20	SG C MS ISO VLV
	D	RL025 - LC	AB HIS-11	SG D MS ISO VLV
25	FWIV POSITION			
	A	RL025	AE HIS-39	SG A FW ISO VLV
	B	RL025	AE HIS-40	SG B FW ISO VLV
	C	RL025	AE HIS-41	SG C FW ISO VLV
	D	RL025	AE HIS-42	SG D FW ISO VLV
26	S/G PORV POSITION			
	A	RL006 - LL	AB ZL-1A	SG A STEAM DUMP TO ATM
	B	RL006 - LL	AB ZL-2A	SG B STEAM DUMP TO ATM
	C	RL006 - LC	AB ZL-3A	SG C STEAM DUMP TO ATM
	D	RL006 - LC	AB ZL-4A	SG D STEAM DUMP TO ATM
27	AFP			
	MDAFP A	RL005	AL HIS-23A	MD AFP A
	MDAFP B	RL005	AL HIS-22A	MD AFP B
	TDAFP	RL005	AL PI-21A > AL PI-26A	TD AFP DISCH PRESS > TD AFP SUCT PRESS
28	CST LEVEL	RL005 - UC	AP LI-4A	CST LEV
29	CCP			
	A	RL001 – LR	BG HIS-1A	CCP A Run/Stop
		RL018 - ML	EM-FI-917A	CCP A Flow
	B	RL001 – LR	BG HIS-2A	CCP B Run/Stop
		RL018 - MR	EM-FI-917B	CCP B Flow
30	NCP	RL001	BG HIS-3	Normal Charging Pump
		RL002	BG-FI-121A	NCP Flow
31	SI Pump			
	A	RL017 – UR	EM HIS-4	SI Pump A
		RL017 - UR	EM-FI-918	SI Pump A Flow
	B	RL017 – UL	EM HIS-5	SI Pump B
		RL017 - UL	EM-FI-922	SI Pump B Flow
32	RHR Pump			
	A	RL017 – LR	EJ HIS-1	RHR Pump A
		RL017	EJ-FI-618	RHR Pump A Flow
	B	RL017 – LL	EJ HIS-2	RHR Pump B
		RL017	EJ-FI-619	RHR Pump B Flow

KEY	PSB ITEM	PANEL	INSTRUMENT ID	CONTROL BOARD LABEL/INFORMATION
33	SI ACC 'A' LEVEL/PRESS	RL018 - UR RL018 - UR RL018 - UR RL018 - UR	EP LI-950 EP LI-951 EP PI-960 EP PI-961	ACCUMULATOR TANK A LEVEL ACCUMULATOR TANK A LEVEL ACCUMULATOR TANK A PRESSURE ACCUMULATOR TANK A PRESSURE
34	SI ACC 'B' LEVEL/PRESS	RL018 - UL RL018 - UL RL018 - UL RL018 - UL	EP LI-952 EP LI-953 EP PI-962 EP PI-963	ACCUMULATOR TANK B LEVEL ACCUMULATOR TANK B LEVEL ACCUMULATOR TANK B PRESSURE ACCUMULATOR TANK B PRESSURE
35	SI ACC 'C' LEVEL/PRESS	RL018 - UR RL018 - UR RL018 - UR RL018 - UR	EP LI-954 EP LI-955 EP PI-964 EP PI-965	ACCUMULATOR TANK C LEVEL ACCUMULATOR TANK C LEVEL ACCUMULATOR TANK C PRESSURE ACCUMULATOR TANK C PRESSURE
36	SI ACC 'D' LEVEL/PRESS	RL018 - UL RL018 - UL RL018 - UL RL018 - UL	EP LI-956 EP LI-957 EP PI-966 EP PI-967	ACCUMULATOR TANK D LEVEL ACCUMULATOR TANK D LEVEL ACCUMULATOR TANK D PRESSURE ACCUMULATOR TANK D PRESSURE
37	ECCS INJECTION OR RECIRC MODE (in the recirc mode if not in the injection mode and ECCS is activated)			*ECCS IS IN THE INJECTION MODE IF ANY OF THE FOLLOWING ARE OPEN AND THE PUMP IS RUNNING:* RL001 - UC ; BN HIS-112D (CCP A) RL001 - UC ; BN HIS- 112E (CCP B) RL017 - UR ; BN HIS-8806A (SIP A) RL017 - UL ; BN HIS-8806B (SIP B) RL017 - LR ; BN HIS-8812A (RHR PUMP A) RL017 - LL ; BN HIS-8812B (RHR PUMP B)
38	RWST LEVEL	RL018 - UR RL018 - UR RL018 - UL RL018 - UL	BN LI-930 BN LI-932 BN LI-931 BN LI-933	RWST LEV RWST LEV RWST LEV RWST LEV
39	SWYD BUS A VOLTAGE	RL014 - LC		VOLT BUS A
40	SWYD BUS B VOLTAGE	RL014 - LC		VOLT BUS B
41	D/G A	RL015 - UC	NE ZL-28/ NE ZL-29	DG NE01 AT VOLT/ AT FREQ
42	D/G B	RL015 - UC	NE ZL-30/ NE ZL-31	DG NE02 AT VOLT/ AT FREQ
43	NB01	RL015 - LL RL015 - UL	NB EI-1 NB ZL-5	4.16 KV BUS NB01 VOLT 4.16 KV BUS NB01
44	NB02	RL015 - LR RL015 - UR	NB EI-2 NB ZL-6	4.16 KV BUS NB02 VOLT 4.16 KV BUS NB02
45	PA01	RL016 - UL RL016 - UL	PA EI-1 PA ZL-1	13.8 KV BUS PA01 VOLT 13.8 KV BUS PA01
46	PA02	RL016 - UR RL016 - UR	PA EI-2 PA ZL-2	13.8 KV BUS PA02 VOLT 13.8 KV BUS PA02
47	NK01	RL016 - UL	NK EI-1	125 V DC BUS NK01 VOLT
48	NK02	RL016 - UL	NK EI-2	125 V DC BUS NK02 VOLT
49	NK03	RL016 - UR	NK EI-3	125 V DC BUS NK03 VOLT
50	NK04	RL016 - UR	NK EI-4	125 V DC BUS NK04 VOLT

KEY	PSB ITEM	PANEL	INSTRUMENT ID	CONTROL BOARD LABEL/INFORMATION
51	CTMT PRESS	RL018 - UL RL018 - UL RL018 - UC RL018 - UC RL018 - UL RL020 - UL RL020 - UL RL020 - UL	GN PI-934 GN PI-936 GN PI-935 GN PI-937 GN PR-934 GN PI-938 GN PI-939 GN PR-938	CTMT ATMS PRESS CTMT ATMS PRESS CTMT ATMS PRESS CTMT ATMS PRESS CTMT ATMS PRESS CTMT ATMS PRESS CTMT ATMS PRESS CTMT PRESS RECORDER
52	CTMT TEMP	RL020 - UL	GN TR-63	CTMT TEMP RECORDER
53	CTMT HUMIDITY	RL020 - UL RL020 - UL	GN AI-27 GN AI-28	CTMT HUMIDITY CTMT HUMIDITY
54	CTMT RAD	RL020 - UL	GT RR-60	CTMT RAD RECORDER
55	CTMT H_2 CONC	RL020 - UL RL020 - UL RL020 - UL	GS AI-10 GS AI-19 GS AR-10	CTMT H2 CONCENTRATION CTMT H2 CONCENTRATION CTMT H2 CONCENTRATION
56	CTMT SPRAY PUMP	RL017 RL017	EN HIS-3 EN HIS-9	CTMT SPRAY PUMP A CTMT SPRAY PUMP B
57	CTMT RECIRC SUMP	RL018 - UL RL018 - UR RL020 - UL	EJ LI- 8 EJ LI- 7 EJ LR- 6	CTMT RECIRC SUMP LEV CTMT RECIRC SUMP LEV CTMT RECIRC SUMP LEV RECORDER
58	H_2 RECOMB.	RL020 - LR RL020 - LC	GS HS-1A GS HS-29A	H2 RECOMBINER A H2 RECOMBINER B
59	SIS	RL018	SA 066-Y SA 066-X	ESF SYS STATUS INDICATION ESF SYS STATUS INDICATION
60	CIS-A	RL018	SA 066-Y SA 066-X	ESF SYS STATUS INDICATION ESF SYS STATUS INDICATION
61	CIS-B	RL018	SA 066-Y SA 066-X	ESF SYS STATUS INDICATION ESF SYS STATUS INDICATION
62	CSAS	RL018	SA 066-Y SA 066-X	ESF SYS STATUS INDICATION ESF SYS STATUS INDICATION
63	CPIS	RL018	SA 066-Y SA 066-X	ESF SYS STATUS INDICATION ESF SYS STATUS INDICATION
64	MSLIS	RL018	SA 066-Y SA 066-X	ESF SYS STATUS INDICATION ESF SYS STATUS INDICATION
65	FWIS	RL018	SA 066-Y SA 066-X	ESF SYS STATUS INDICATION ESF SYS STATUS INDICATION
66	AFAS	RL018	SA 066-Y SA 066-X	ESF SYS STATUS INDICATION ESF SYS STATUS INDICATION
67	CRVIS	RL018	SA 066-Y SA 066-X	ESF SYS STATUS INDICATION ESF SYS STATUS INDICATION
68	FBIS	RL018	SA 066-Y SA 066-X	ESF SYS STATUS INDICATION ESF SYS STATUS INDICATION
69	CSF STATUS		CSF STATUS TREES CSF PROCEDURES	

CALLAWAY PLANT

EMERGENCY PLAN IMPLEMENTING PROCEDURE

EIP-ZZ-00220

EMERGENCY TEAM FORMATION

RESPONSIBLE DEPARTMENT EMERGENCY PREPAREDNESS

PROCEDURE OWNER K. J. BRUCKERHOFF

WRITTEN BY K. J. BRUCKHEROFF

PREPARED BY K. J. BRUCKERHOFF

APPROVED BY Warren A. Witt

DATE ISSUED 12-27-00

This procedure contains the following:

Pages	1	through	7
Attachments	1	through	1
Tables		through	
Figures		through	
Appendices		through	
Checkoff Lists		through	

This procedure has _____ checkoff list(s) maintained in the mainframe computer.

Conversion of commitments to TRS reference/hidden text completed by Revision Number:

Non-T/S Commitments 011

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Attachment 1 - Emergency Team Briefing and Debriefing 5 Pages

EMERGENCY TEAM FORMATION

1 PURPOSE AND SCOPE

1.1 PURPOSE

1.1.1 To provide guidance to individuals responsible for forming, briefing, dispatching and debriefing Emergency Teams.

1.2 SCOPE

1.2.1 Upon declaration of an emergency, establishes responsibilities for coordinating the activities of the Fire Brigade, Medical Emergency Response Team (MERT), Search & Rescue Teams, and Emergency Repair Team. **(SOS 00-1029)**

1.2.2 Provides a checklist for briefing and debriefing emergency teams.

1.2.3 On shift activities are not included in the scope of this procedure. **(SOS 00-1029)**

NOTE:	On shift activities are performed in accordance with Attachment 2 of **EIP-ZZ-00102,** Emergency Implementing Actions.

2 RESPONSIBILITIES

2.1 EMERGENCY COORDINATOR / SHIFT SUPERVISOR (EC)

2.1.1 Requests the formation of emergency teams. This responsibility may be delegated to the Operations Support Coordinator.

2.1.2 Initially, the Shift Supervisor assumes the responsibilities of the EC. At the ALERT (or higher) emergency classification levels, the EDO relieves the Shift Supervisor and assumes the EC duties. **(COMN 3324) (COMN 3325)**

2.1.2.1 MERT and the Fire Brigade continue to report to the Shift Supervisor. Responsibility for these two Emergency Teams cannot be delegated to the Emergency Coordinator. **(COMN 3413) (COMN 41801)**

2.2 OPERATIONS SUPPORT COORDINATOR (OSC)

2.2.1 Assesses plant information from the control room and technical support staff to establish emergency team priorities and direct operation support activities.**(COMN 3324) (COMN 3325)**

2.2.1.1 The OSC reports to the Emergency Coordinator (EC) in the Technical Support Center (TSC).

2.3 EMERGENCY TEAM COORDINATOR (ETC)

2.3.1 Assists the Operations Support Coordinator (OSC) in formation, briefing, direction, tracking and debriefing of Emergency Teams.

2.3.1.1 The ETC reports to the Operations Support Coordinator (OSC) in the TSC.

2.4 HEALTH PHYSICS COORDINATOR (HPC)

2.4.1 Ensures that emergency teams are briefed and debriefed on radiological conditions.

2.4.2 Ensures Health Physics support is available for emergency teams, as necessitated by radiological conditions.

NOTE:	On-Shift Health Physics personnel may perform these duties prior to the time the TSC is operational.

3 INITIATING CONDITIONS

3.1 The procedure is implemented upon direction of the Emergency Coordinator per **EIP-ZZ-00102,** Emergency Implementing Actions.

4 PROCEDURE

The Emergency Team Coordinator (ETC) or designee, at the direction of the Operational Support Coordinator (OSC) ensures completion of the following actions:

4.1 FORMATION OF EMERGENCY TEAMS

4.1.1 Assemble an Emergency Team consisting of the following personnel:

CAUTION:	Fire Brigade Members perform Emergency Team duties when hazards require use of personal protective equipment (PPE), such as bunker gear, proximity suit, level "A" chemical suit, and/or SCBA, for which they are specifically trained and qualified. **(SOS 00-0160)** The Fire Brigade continues to report to the Shift Supervisor if the activity is a fire or Hazmat response. Response to a fire or Hazmat incident cannot be delegated to the ETC.

4.1.1.1 A Repair Team consists of at least two (2) plant personnel as appropriate for the specific repairs. **(COMN 3325)**

NOTE:	Fire Brigade Members are trained in damage control repairs, such as plugging, patching, containment, etc., and manipulating valves, breakers, and other Plant Equipment.

4.1.1.2 A Search and Rescue Team consists of at least two personnel, one of which SHALL be qualified in first aid procedures. **(COMN 3324)**

4.1.1.2.1 During an event, the Security force, MERT and/or the Fire Brigade may be conducting search and rescue operations. The Fire Brigade and MERT report to the Shift Supervisor. The Security force reports to the Security Coordinator. The ETC should coordinate with the Control room and Security Coordinator to eliminate duplicate searches or other logistical problems. **(SOS 00-2079) (SOS 00-2143)**

4.1.1.2.2 The ETC should remain cognizant of search areas, both those completed and those still needing to be searched.

4.1.1.2.3 Unless directed otherwise by the Shift Supervisor or Fire Brigade Leader, when a Fire Brigade Leader is involved in a search and rescue or medical emergency, the Incident Command System should be implemented. With this, all coordination efforts for Search and Rescue Teams, MERT, nurses, ambulances, etc. are directed by the Fire Brigade Leader.

4.1.1.2.4 The ETC should contact the Security Coordinator to identify last known locations of the missing person(s). The Security Coordinator should also brief the ETC on known plant hazards.

4.1.2 Health Physics support for the Emergency Teams is coordinated by the HPC if any of the following conditions warrant: **(COMN 3324) (COMN 3325)**

- Radiological release has occurred.
- Radiological release is likely to occur.
- Entry to a Radiological Controlled Area (RCA)
- Entry to a Radiological Posted Area (RPA)

4.2 BRIEFING AND DISPATCH OF EMERGENCY TEAMS

4.2.1 Prioritization for timely dispatch of Emergency Teams should be made when preparing to dispatch a team. **(SOS 99-1711)**

4.2.1.1 Search and Rescue Teams, Trouble Shooting, Investigative Teams, etc. may not require an extensive brief, and when possible should be expedited through the process and dispatched in a timely manner. **(SOS 99-1711)**

4.2.1.2 Repair Teams with detailed work instructions, assigned a seldom performed task, or multiple tasks may require a more extensive brief and/or copies of drawings, procedures, etc.

4.2.2 Complete Attachment 1, Emergency Team Briefing and Debriefing Checklist, per each team to be dispatched.

4.2.2.1 The ETC or designee conducts a task brief, Section II, Attachment 1.

4.2.2.2 If conditions warrant, the Health Physics Coordinator or designee conducts a briefing on radiological conditions/hazards, Section III, Attachment 1. **(SOS 97-1061)**

4.2.3 Copies of Attachment 1, Emergency Team Briefing and Debriefing Checklist, should be provided to the Emergency Team leader.

4.2.4 Record Emergency Team on the Emergency Team Status Board

4.2.5 Dispatch Emergency Team ensuring they check out with Security prior to leaving the TSC.

4.2.6 Ensure the OSC is informed the Emergency Team has been dispatched.

4.2.7 Maintain communications with the team at intervals specified during the briefing and relay any plant announcements to the team. **(COMN 5402)**

4.2.8 Ensure the OSC is informed of the status of all Emergency Teams at frequent intervals.

4.3 DEBRIEFING OF EMERGENCY TEAMS

4.3.1 As soon as possible, debrief the team in accordance with Section IV of Attachment 1, Emergency Team Briefing and Debriefing Checklist.

4.3.2 Ensure the Emergency Coordinator is notified of accidental or emergency dose in excess of occupational limits.

4.3.3 Assign team members to other duties as required.

5 FINAL CONDITIONS

5.1 The Emergency Team Coordinator ensures the following actions are accomplished:

5.1.1 Emergency Team members are debriefed and assigned other duties.

5.1.2 Attachment 1 is completed.

5.1.3 Emergency Team Status Board is up to date.

6 REFERENCES

6.1 Callaway Plant Radiological Emergency Response Plan **(RERP).**

6.2 **EIP-ZZ-00102,** Emergency Implementing Actions

6.3 **HDP-ZZ-01450,** Authorization to Exceed Federal Occupational Dose Limits

6.4 **HDP-ZZ-01300,** Internal Dosimetry Program.

6.5 **APA-ZZ-00310,** Workman's Protection Assurance and Caution Tagging

6.6 **APA-ZZ-00802,** Confined Space Program

6.7 **SDP-ZZ-00010,** Radio Use

7 RECORDS

7.1 QA RECORDS

7.1.1 Attachment 1, Emergency Team Briefing and Debriefing Checklist (File K171.0010).

7.2 COMMERCIAL RECORDS

None

EMERGENCY TEAM BRIEFING AND DEBRIEFING CHECKLIST

TEAM DESIGNATOR_____

☐ EMERGENCY REPAIR TEAM ☐ SEARCH & RESCUE TEAM ☐INVESTIGATIVE ☐ TROUBLESHOOTING ☐ OTHER

I. TEAM FORMATION.

- Emergency Repair Teams require two (2) individuals. **COMN 3325**
- Search and Rescue Teams require two (2) individuals, one must be qualified First Aid. **COMN 3324**
- Complete top portion of page 5, detach and give to HPC or designee.

NAME	EID	First Aid Yes/ No

NAME	EID	First Aid Yes/ No

II. TASK BRIEFING

☐ **Description of Task:** (Perform assessment, operations, or repairs)

_____

☐ **Task Location:**

- Proceed to the location where emergency repair is to be performed. Report abnormal conditions to the Emergency Team Coordinator (ETC).
- After arriving at the repair location assess equipment operability and habitability conditions; report the following to the ETC:
  - Extent of damage/equipment status.
  - Abnormal and/or unusual conditions.
  - Additional assistance needed (e.g., tools, equipment, personnel, etc.).
  - Dose rate and contamination levels. (if necessary).
- For Search and Rescue Teams, consider the following:
  - Request Fire Brigade Leader Support, if available.
  - Coordinate efforts with the Control Room and Security Coordinator.
  - Search areas and search patterns are clearly defined (e.g. room #, north to south, elevation #, east to west)

_____

☐ **Special tools, vehicles, equipment needed:**

- Perform safety and operability checks on equipment. Replace/substitute equipment, if necessary.

_____

☐ **Keys** (may be obtained from these locations)

Security Coordinator / OSC Packet (tool room keys) / TSC key locker

☐ **Communications:** (Maintain communications with the ETC at predetermined intervals)

(Radio -channel, Gaitronics-channel, Telephone-No.)

- Radio usage is prohibited in "No Transmission Areas" as identified by orange signs in the Plant. Refer to Page 5. **(SOS 99-1711)**

Radio or telephone check performed sat.

☐ **Personal Safety:**

Personal Protective equipment

• Fall Protection	No / Yes	
• Face Protection	No / Yes	
• Chemical Protection	No / Yes	
• Gloves	No / Yes	
• Bunker Gear	No / Yes	Yes, requires Fire Brigade Member
• Level A Suit	No / Yes	Yes, requires Fire Brigade Member
• Proximity Suit	No / Yes	Yes, requires Fire Brigade Member
• SCBA	No / Yes	Yes, requires Fire Brigade Member

☐ **Hazards**

• Electrical Conductors	No / Yes	
• CSEP **(APA-ZZ-00802)**	No / Yes	
• WPA **(APA-ZZ-00310)**	No / Yes	#_____
• Fire **(EIP-ZZ-00226)**	No / Yes	
• HAZMAT **(EIP-ZZ-03010)**	No / Yes	
• OTHER (Specify)_____	No / Yes	#_____

Remarks

- ETC phone 68426 or _____
- Radio Channel 1 or _____

Primary:_____ Secondary:_____

ContactIntervals:15min/30min/ Other _____

Task Brief complete by: _____ Date_____ Time __

(ETC or Designee)

☐ Copy of briefing form to team leader.
☐ Sign out team on Emergency Team Status Board
☐ Check out with Security

EMERGENCY TEAM BRIEFING AND DEBRIEFING CHECKLIST

TEAM DESIGNATOR_____

☐ EMERGENCY REPAIR TEAM ☐ SEARCH & RESCUE TEAM ☐INVESTIGATIVE ☐ TROUBLESHOOTING ☐ OTHER

IV. TEAM DEBRIEFING

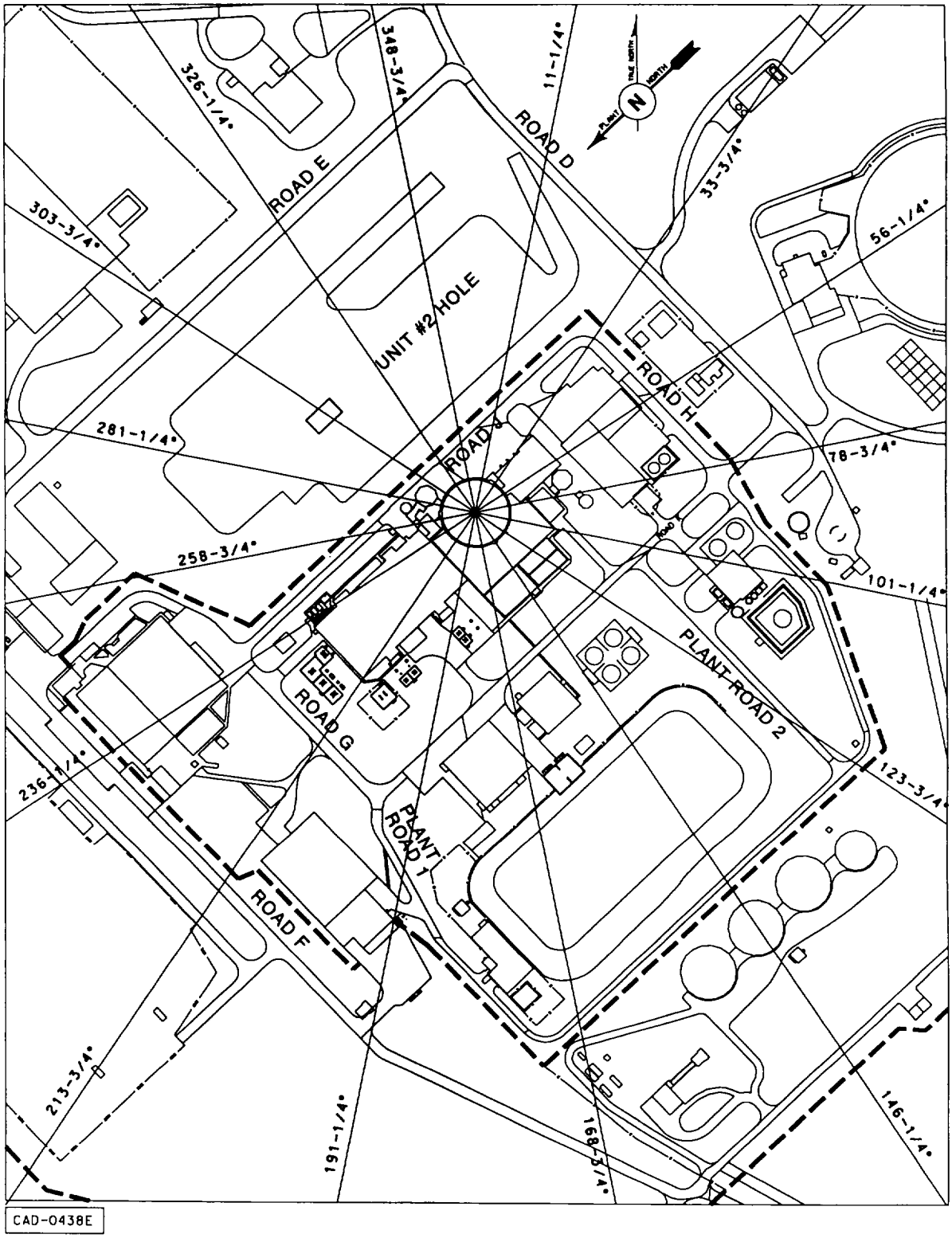
Task Completion	Remarks
☐ Job done YES / NO	
☐ Dosimetry reading recorded as Exit Dose (Section I)	
☐ If an individual's dose is in excess of 10CFR20 limits, follow instructions in **HDP-ZZ-01450.**	
☐ Personnel signed out on RWP. (Section I)	
☐ Collect ED's and any Extremity TLD's, that were issued.	
☐ Survey data obtained. (Attach copies).	
☐ Actions Taken:_____	
☐ **Further Actions Needed:**	
☐ **Unanticipated problems or hazards encountered** (include on future briefs):	
☐ **Complete and collect all records.**	

Debriefing Performed by_____ Date_____ Time _____

EMERGENCY TEAM BRIEFING AND DEBRIEFING CHECKLIST

TEAM DESIGNATOR_____

☐ EMERGENCY REPAIR TEAM ☐ SEARCH & RESCUE TEAM ☐ INVESTIGATIVE ☐ TROUBLESHOOTING ☐ OTHER



EMERGENCY TEAM BRIEFING AND DEBRIEFING CHECKLIST

TEAM DESIGNATOR_____

☐ EMERGENCY REPAIR TEAM ☐ SEARCH & RESCUE TEAM ☐ INVESTIGATIVE ☐ TROUBLESHOOTING ☐ OTHER

NO RADIO TRANSMISSION AREAS
By Door Number and Description

Room No.	Room Description
1127	Area 5
1207	Area 5
1329	Area 5
1409	South Electrical Penetration Room
1409	South Electrical Penetration Room
1410	North Electrical Penetration Room
1410	North Electrical Penetration Room
1413	Auxiliary Shutdown Panel Room
1507	Containment
3301	NB01 Switchgear Room
3302	NB02 Switchgear Room
3302	D/G 'A' Room
3302	D/G 'B' Room
3403	DC Switchboard Room
3404	DC Switchboard Room
3404	DC Switchboard Room
3405	DC Switchboard Room
3405	DC Switchboard Room
3407	DC Switchboard Room
3407	DC Switchboard Room
3408	DC Switchboard Room
3408	DC Switchboard Room
3409	DC Switchboard Room
3409	DC Switchboard Room
3502	Lower Cable Spreader Room
3604	Control Room
3604	Control Room
3604	Control Room
3605	Control Room
3605	Control Room
3609	SAS Room
3609	SAS Room
3801	Upper Cable Spreader Room
4101	BOP Battery Charger/Inverter
4504	EHC Control Cabinet Room
4504	EHC Control Cabinet Room

EMERGENCY TEAM BRIEFING AND DEBRIEFING CHECKLIST

TEAM DESIGNATOR_____

☐ EMERGENCY REPAIR TEAM ☐ SEARCH & RESCUE TEAM ☐ INVESTIGATIVE ☐ TROUBLESHOOTING ☐ OTHER

III. HEALTH PHYSICS BRIEF (required if, or the potential for, a radiological hazard exists.)

Name	EID	Exposure Margin (mRem)	Debriefed Yes/No	RWP Sign-Out	EXIT Dose (mRem)
(ETC Complete)		(HP Complete)			
				☐	
				☐	
				☐	
				☐	

Radiological Work Permit:(SOS 98-3482)

☐ Emergency RWP (enter year) __ __—9 1 1 2 0

☐ SRWP Number: __ __—__ __ __ __ __

Radiological Protection:

- *Do not enter areas where radiation levels are not measurable.*
- *If anticipated dose is in excess of 10CFR20 limits, follow instructions in **HDP-ZZ-01450***
- *ED Fast Entry mode should only be used for initial entries. Current Occupational Dose DOES NOT have to be considered when assigning Emergency Dose Limits. If dose rate alarm is received during the dispatch of the Team, contact the HPC to determine if the Team should proceed.*

☐ Dosimetry (monitor approx. 15-30 minutes) **(SOS 98-3482) (COMN 3960)**

☐ Alarms – Fast Entry Dose(mRem) 1000 Dose Rate(mRem/hr) 10000

☐ Other Dose(mRem)_____Dose Rate(mRem/hr)_____

☐ Extremity Dosimetry None / Location:_____

☐ PC's (circle one): None / Partial / Full / Double

☐ Respirator (circle one):
None / Full Face Air Purifying / GMRI / SCBA (Fire Brigade Member)

Turnaround Dose/Dose Rate :(SOS 98-3482)

- *If dose rate alarm is received by Team, contact the HPC for further instructions. Team can continue and seek low dose area with approval of HP Coverage Technician. Withdrawal of the Team should be based on integrated dose.*

☐ En route to job site 10 R/hr / Other_____

☐ At job site 10 R/hr / Other_____

Radiological Conditions: (if known) **(SOS 98-3482)**

- *Conditions in route to the job site.* ☐ **Not Known**

☐ Routes (circle one) No release Release in progress - see map.

☐ Radiation Levels (mrem/hr) _____

☐ Contamination Levels (dpm/100cm2) _____

☐ Airborne (DAC): Particulate_____ Iodine _____Noble Gas_____

☐ High Beta Radiation(mrad/hr)_____

- *Conditions at the job site* ☐ **Not Known**

☐ Radiation Levels (mrem/hr) _____

☐ Contamination Levels (dpm/100cm2)_____

☐ Airborne (DAC): Particulate_____ Iodine _____Noble Gas_____

☐ High Beta Radiation(mrad/hr)_____

Decon Facilities (SOS 98-2961)

☐ HPAC

☐ TSC

☐ Other_____

Recommend Potassium Iodide:

☐ No

☐ Yes

- *You should not take KI if you are allergic to iodine.*
- *If the use of KI is recommended follow instructions in **HDP-ZZ-01300**, Attachment 1*

Remarks

HPC Review _____

Health Physics Brief Performed by_____ Date_____ Time _____