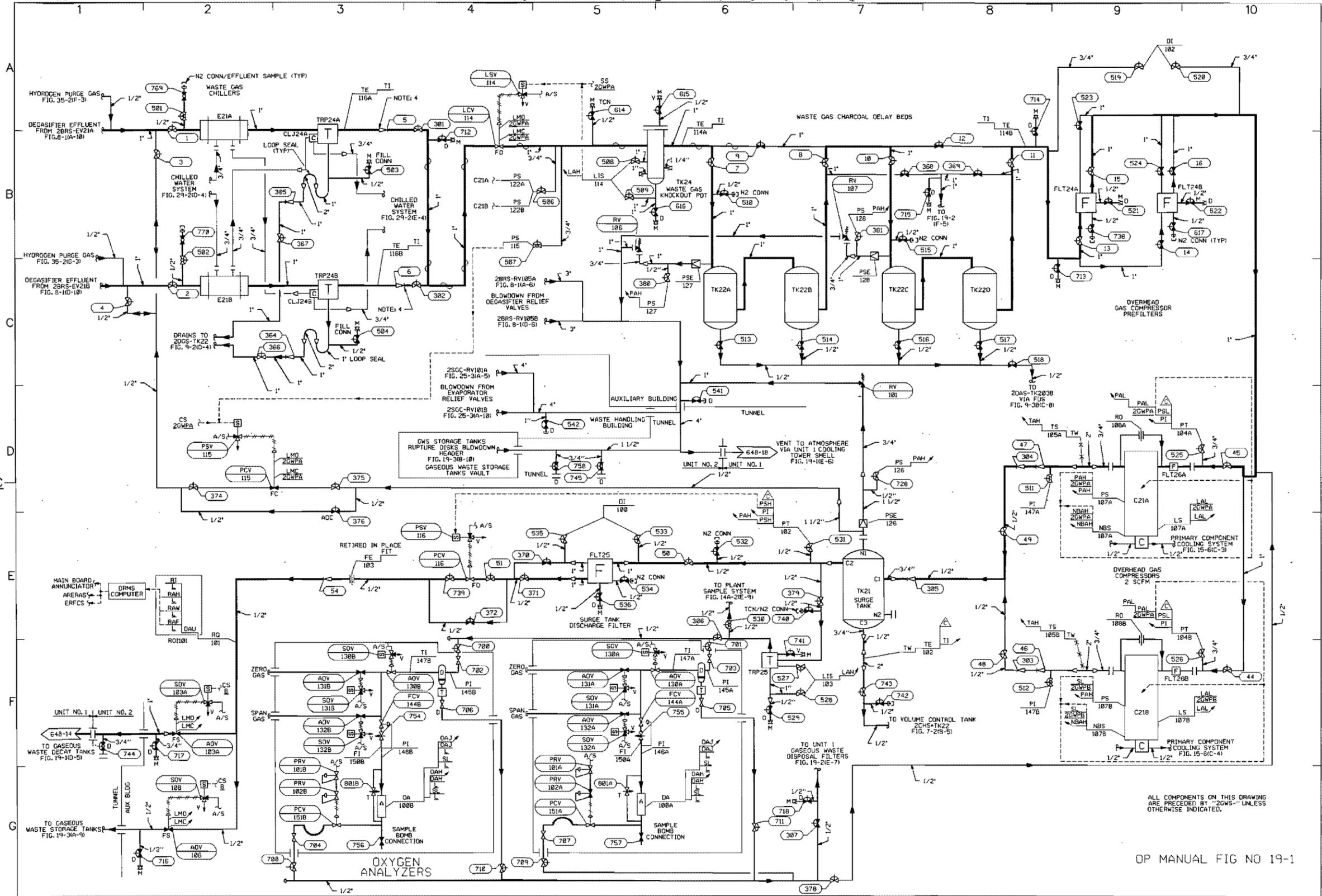


Number A-5.1	Title OF Plus Subcooling Based On Core Exit TCs	Revision 1
-----------------	---	------------

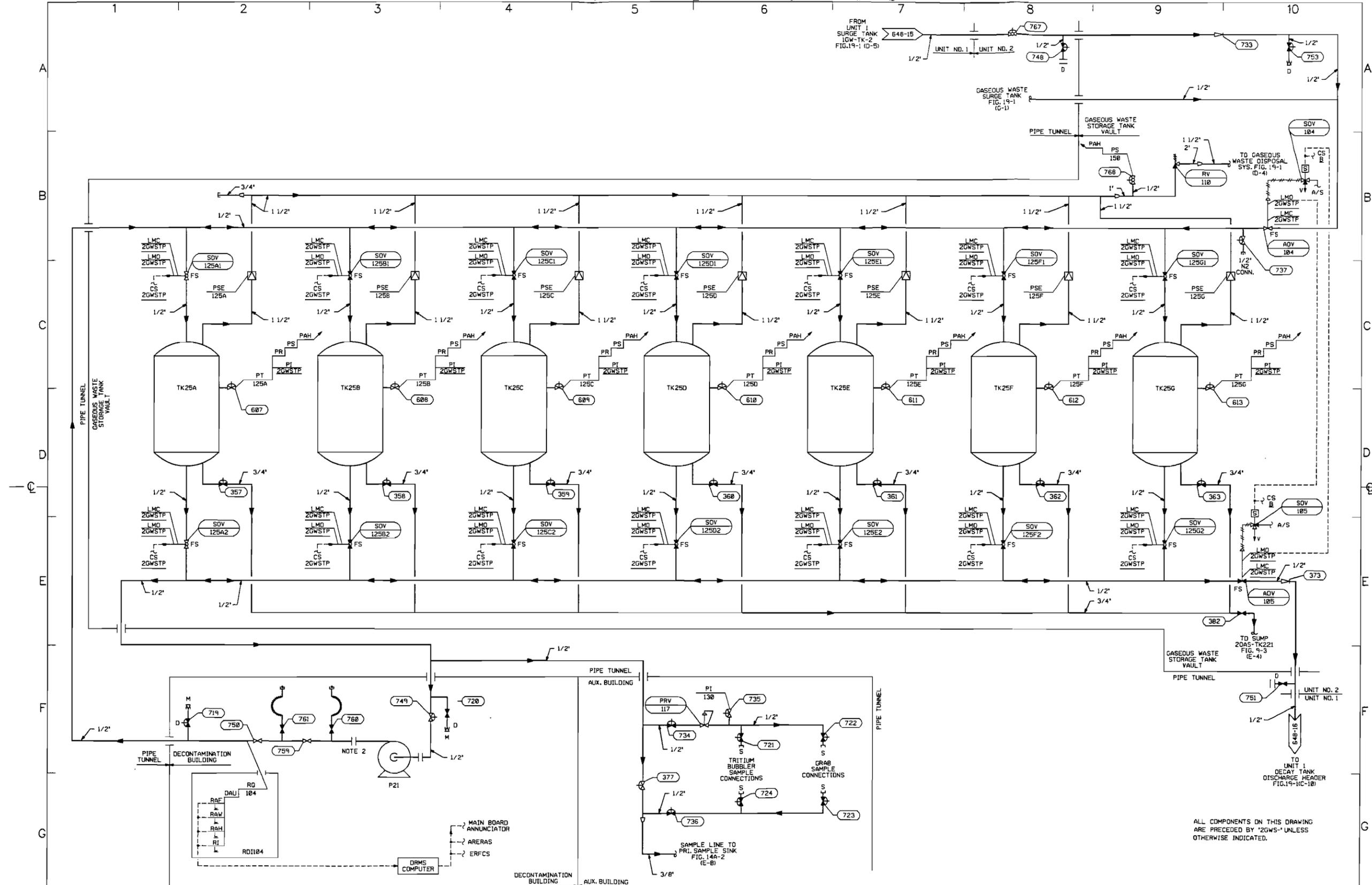
RCS PRESSURE (PSIG)	MINIMUM SUBCOOLING (F)	
	COLUMN 1 NORMAL CNMT	COLUMN 2 ADVERSE CNMT*
2485	19	46
2385	19	46
2285	19	46
2185	19	46
2085	19	46
1985	20	46
1885	20	46
1785	20	46
1685	20	46
1585	20	46
1485	20	46
1385	20	47
1285	20	47
1185	20	47
1085	21	47
985	21	47
885	21	47
785	22	47
685	22	48
585	23	48
485	25	49
385	27	50
285	31	52
185	41	59

- END -



OP MANUAL FIG NO 19-1

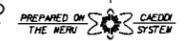
REVISION 8 INCORPORATED ECP-84-8388 IDCN-2-RM-0419-081-E84-8388-01		FENOC FIRSTENERGY NUCLEAR OPERATING COMPANY		BEAVER VALLEY POWER STATION UNIT NO 2 VALVE OPER NO. DIAGRAM GASEOUS WASTE DISPOSAL	
DATE: NONE DRAWN BY: MVF CHECKED BY: [blank] DESIGNED BY: [blank]	SCALE: [blank] SHEET NO: 8 TOTAL SHEETS: 8	AUTHORITY: [blank] APPROVED BY: [blank]	DRAWING NO: AA PROJECT NO: 10080-RM-419-1	REV: [blank] DES: [blank]	SHEET: 8 TOTAL SHEETS: 8

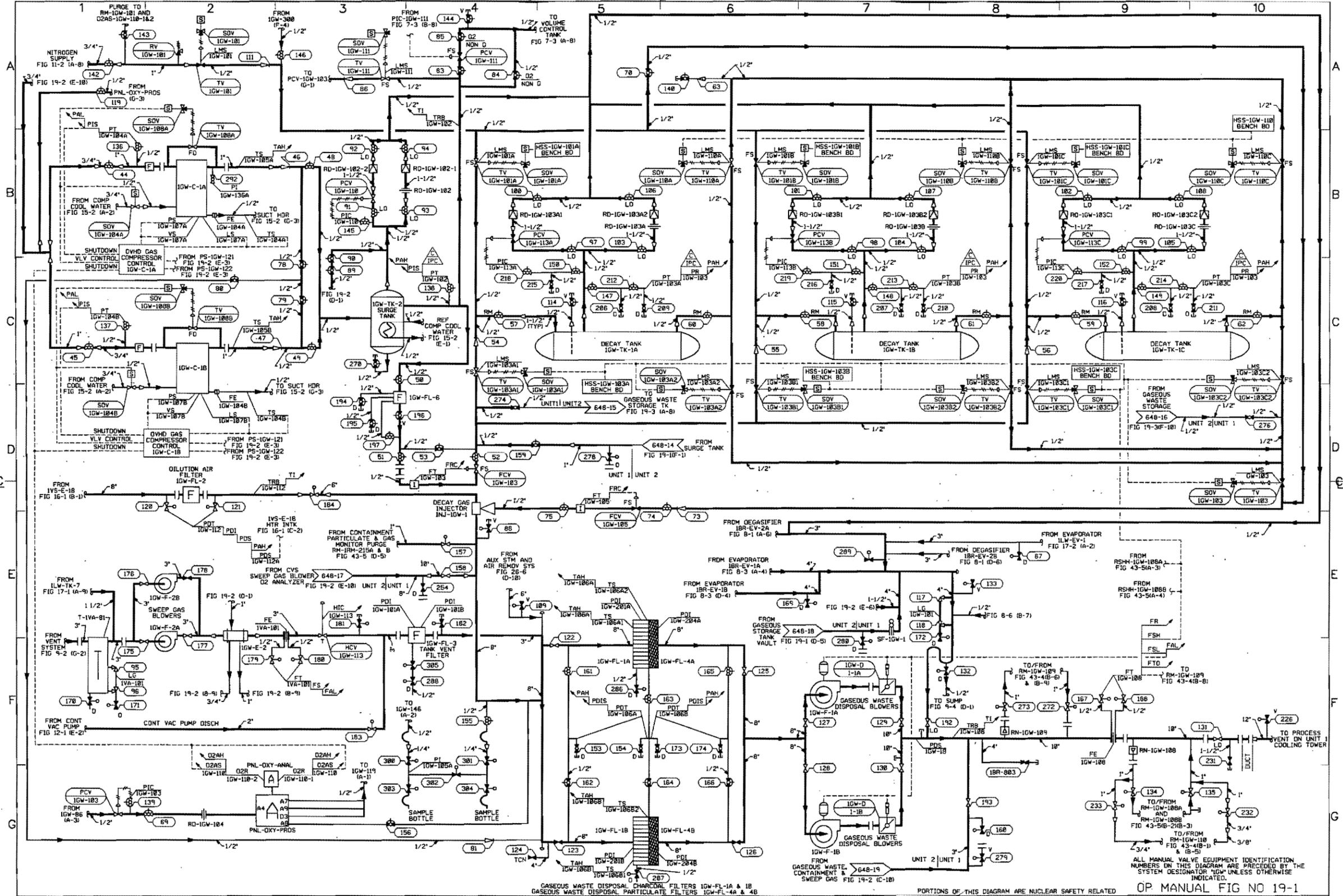


ISSUES	U.N.D.S.	KDE 5-15-89	CMD 07-24-91	MVF 03-21-95
1	U.N.D.S.	D/CHK: DRL	D/CHK: MVF FMC	D/CHK: MVF FMC
2	U.N.D.S.	JFC FOR EDR 5-28-89	JFC 7-2-92	JFC 7-2-92
3	U.N.D.S.	JFC FOR EDR 5-28-89	JFC 7-2-92	JFC 7-2-92
4	U.N.D.S.	JFC FOR EDR 5-28-89	JFC 7-2-92	JFC 7-2-92

OP. MANUAL FIG. NO. 19-3

Duquesne Light Company PITTSBURGH, PA NUCLEAR GROUP		BEAVER VALLEY POWER STATION UNIT NO. 2 VALVE OPER. NO. DIAGRAM GASEOUS WASTE STORAGE TANKS	
SCALE	DATE 09-23-86	DESIGN APP.	ISSUE APP.
DRAWN BY K. CLARKE	REVISION	DATE	BY
AA	10080-RM-419-3		4





GASEOUS WASTE DISPOSAL PARTICULATE FILTERS IGW-FL-1A & 1B
 GASEOUS WASTE DISPOSAL PARTICULATE FILTERS IGW-FL-4A & 4B

PORTIONS OF THIS DIAGRAM ARE NUCLEAR SAFETY RELATED

OP MANUAL FIG NO 19-1

ALL MANUAL VALVE EQUIPMENT IDENTIFICATION NUMBERS ON THIS DIAGRAM ARE PRECEDED BY THE SYSTEM DESIGNATOR 'IGW' UNLESS OTHERWISE INDICATED.

REVISION 16 INCORPORATED DUN 00-0612-001-001		FENOC FIRSTENERGY NUCLEAR OPERATING COMPANY	BEAVER VALLEY POWER STATION UNIT NO 1	
NONE DATE: 10/27/88 DRAWN BY: MVF CHECKED BY: [Signature] APPROVED BY: [Signature]			VALVE OPER NO DIAGRAM GASEOUS WASTE DISPOSAL SYSTEM AA 8700-RM-0419-001 16	

Beaver Valley Power Station

Unit 2

2OM-45D.4.AAA

HEAT TRACING SYSTEM TROUBLE

GENERAL SKILL REFERENCE

Revision 7

Prepared by	Date	Pages Issued	Effective Date
J. G. Sites	03/02/06	1 through 13	05/24/06
Reviewed by	Date	Validated by	Date
T. J. Esper	03/16/06	N/A	
PORC Meeting No.	Date		
PORC Not Required		PAF-06-00732	

BVPS - GSR
Electric Heat Tracing System
Operating Procedures

Unit 2

2OM-45D.4.AAA
Revision 7
Page 2 of 13

HEAT TRACING SYSTEM TROUBLE

A8-6B

ANN. WINDOW NO. A8-6B

Description

CRT No./Computer Address

- | | |
|----------------------------------|-----------|
| 1. HEAT TRACE PAB PNL N1 | 3 /Y6612D |
| 2. HEAT TRACE PAB PNL N2 | 3 /Y6613D |
| 3. HEAT TRACE PAB PNL N3 | 3 /Y6614D |
| 4. HEAT TRACE PAB PNL N4 | 3 /Y7100D |
| 5. HEAT TRACE SFGDS PNL N1 | 3 /Y6615D |
| 6. HEAT TRACE COND POLISH PNL N1 | 3 /Y6616D |
| 7. HEAT TRACE COND POLISH PNL N2 | 3 /Y6617D |
| 8. HEAT TRACE SFGDS PNL A1 | 3 /Y6618D |
| 9. HEAT TRACE SFGDS PNL B1 | 3 /Y6619D |
| 10. HEAT TRACE PNL PAS | 3 /Y7101D |

CAUSES AND CORRECTIVE ACTION

1. HEAT TRACE PAB PNL N1

Setpoint:

Device:

Any Local Panel Alarm

[2HTS-PNLN1AB]

PROBABLE CAUSE

- a. Individual heat trace circuit temperature high/low
- b. Individual circuit controller failure

CAUTION: ANY COMPONENT MANIPULATED DURING THE PERFORMANCE OF THIS PROCEDURE, THAT IS NOT RETURNED TO NSA UPON PROCEDURE COMPLETION, SHALL BE YELLOW CAUTION TAGGED AND LOGGED IN THE DAILY JOURNAL, WITH REFERENCE MADE TO THE SPECIFIC ARP USED.

CORRECTIVE ACTION

- a. Individual Heat Trace Circuit Temperature High/Low.
 - 1) Verify individual circuit temperature alarm at the circuit temperature controller located on the annunciated panel.

BVPS - GSR Electric Heat Tracing System Operating Procedures HEAT TRACING SYSTEM TROUBLE	Unit 2	2OM-45D.4.AAA Revision 7 Page 9 of 13 A8-6B
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- b. Individual circuit controller failure

CAUTION: ANY COMPONENT MANIPULATED DURING THE PERFORMANCE OF THIS PROCEDURE, THAT IS NOT RETURNED TO NSA UPON PROCEDURE COMPLETION, SHALL BE YELLOW CAUTION TAGGED AND LOGGED IN THE DAILY JOURNAL, WITH REFERENCE MADE TO THE SPECIFIC ARP USED.

CORRECTIVE ACTION

- a. Loss of Power.
 - 1) Verify power available to circuit and restore if possible.
 - 2) If above is unsuccessful, notify the SM.
- b. Individual Circuit Temperature Controller Failure.
 - 1) Verify proper operation of the redundant circuit. Use 2OM-45D.5.B.1, "Table 45D-1 - Circuit Classes" as a guide.

8. HEAT TRACE SFGDS PNL A1

Setpoint:	Device:
Any Local Panel Alarm	99-OCB1-V [2HTS*PNLA1SG] Signal Isolator

PROBABLE CAUSE

- a. Individual heat trace circuit temperature high/low
- b. Individual circuit controller failure

CAUTION: ANY COMPONENT MANIPULATED DURING THE PERFORMANCE OF THIS PROCEDURE, THAT IS NOT RETURNED TO NSA UPON PROCEDURE COMPLETION, SHALL BE YELLOW CAUTION TAGGED AND LOGGED IN THE DAILY JOURNAL, WITH REFERENCE MADE TO THE SPECIFIC ARP USED.

CORRECTIVE ACTION

- a. Individual Heat Trace Circuit Temperature High/Low.
 - 1) Verify individual circuit temperature alarm at the circuit temperature controller located on the annunciated panel.
 - 2) Verify individual circuit temperature controller setpoint is adjusted in accordance with 2OM-45D.5.B.2, "Table 45D-2 - Circuit Controller Setpoints And Alarms."

- 3) Determine if alarm is due to system flow transient or power failure:
 - a) If alarm is due to system flow transient, then take no action.
 - b) If alarm is high without apparent system flow transient, then notify shift supervisor.
 - c) If alarm is low without apparent system flow transient:
 - (1) Verify power available to circuit and restore if possible.
 - (2) If above is not successful, notify the SM.
- b. Individual Circuit Temperature Controller Failure.
 - 1) Verify proper operation of the redundant circuit. Use 2OM-45D.5.B.1, "Table 45D-1 - Circuit Classes" as a guide.
 - 2) If the failed circuit controller is located on [2HTS*PNLA1SG], Refer to the applicable Technical Specification Action Requirement [CTS] 3/4.1 [ITS] T.S. 3.5.4).

9. HEAT TRACE SFGDS PNL B1

Setpoint:

Any Local Panel Alarm

Device:

99-PCB1-H [2HTS*PNLB1SG]
Signal Isolator

PROBABLE CAUSE

- a. Individual heat trace circuit temperature high/low
- b. Individual circuit controller failure

CAUTION: ANY COMPONENT MANIPULATED DURING THE PERFORMANCE OF THIS PROCEDURE, THAT IS NOT RETURNED TO NSA UPON PROCEDURE COMPLETION, SHALL BE YELLOW CAUTION TAGGED AND LOGGED IN THE DAILY JOURNAL, WITH REFERENCE MADE TO THE SPECIFIC ARP USED.

CORRECTIVE ACTION

- a. Individual Heat Trace Circuit Temperature High/Low.
 - 1) Verify individual circuit temperature alarm at the circuit temperature controller located on the annunciator panel.
 - 2) Verify individual circuit temperature controller setpoint is adjusted in accordance with 2OM-45D.5.B.2, "Table 45D-2 - Circuit Controller Setpoints and Alarms."

- 3) Determine if alarm is due to system flow transient or power failure:
 - a) If alarm is due to system flow transient, then take no action.
 - b) If alarm is high without apparent system flow transient, then notify shift supervisor.
 - c) If alarm is low without apparent system flow transient:
 - (1) Verify power available to circuit and restore if possible.
 - (2) If above is unsuccessful, notify the SM.
- b. Individual Circuit Temperature Controller Failure.
 - 1) Verify proper operation of the redundant circuit. Use 2OM-45D.5.B.1, "Table 45D-1 - Circuit Classes" as a guide.
 - 2) If the failed circuit controller is located on [2HTS*PNLB1SG], Refer to the applicable Technical Specification Action Requirement ([CTS] 3/4.1 [ITS] T.S. 3.5.4).

10. HEAT TRACE PNL PAS

Setpoint:

Device:

Any Local Panel Alarm

[2HTS-PNL-PAS]

PROBABLE CAUSE

- a. Individual heat trace circuit temperature high/low
- b. Individual circuit controller failure

CAUTION: ANY COMPONENT MANIPULATED DURING THE PERFORMANCE OF THIS PROCEDURE, THAT IS NOT RETURNED TO NSA UPON PROCEDURE COMPLETION, SHALL BE YELLOW CAUTION TAGGED AND LOGGED IN THE DAILY JOURNAL, WITH REFERENCE MADE TO THE SPECIFIC ARP USED.

CORRECTIVE ACTION

- a. Individual Heat Trace Circuit Temperature High/Low.
 - 1) Verify individual circuit temperature alarm at the circuit temperature controller located on the annunciated panel.
 - 2) Verify individual circuit temperature controller setpoint is adjusted in accordance with 2OM-45D.5.B.2, "Table 45D-2 - Circuit Controller Setpoints And Alarms."

Beaver Valley Power Station

Unit 2

20M-45D.5.B.1

TABLE 45D-1 - CIRCUIT CLASSES

Revision 3

Prepared by R. P. Weiss	Date 04/30/03	Pages Issued 1 through 23	Effective Date 05/08/03
Reviewed by R. Plummer	Date 05/01/03	Validated by N/A	Date
PORC Meeting No. PORC Not Required	Date	PAF-03-01727	

Beaver Valley Power Station
Electric Heat Tracing System
Figures and Tables

Unit 2

2OM-45D.5.B.1
Revision 3
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TABLE 45D-1 - CIRCUIT CLASSES

Zone 1

<u>Circuit No.</u>	<u>Line/Equipment</u>	<u>Class</u>	<u>Redundant (R)/ Nonredundant (NR)</u>
2HTS-JB1-1	2QSS-012-2-2	III	NR
2HTS-JB1-2	2QSS-012-2-2	III	NR
2HTS-JB1-3	2QSS-012-1-2	III	NR
2HTS-JB1-4	2QSS-012-1-2	III	NR
2HTS-JB1-5	2QSS-006-16-4	III	NR
2HTS-JB1-6	2QSS-006-16-4	III	NR
2HTS-JB1-7	2QSS-006-243-2	III	NR
2HTS-JB1-8	2QSS-006-243-2	III	NR
2HTS-JB1-9A	2QSS-004-242-2	III	NR
2HTS-JB1-11	2QSS-006-34-4	III	NR
2HTS-JB1-12A	2QSS-006-34-4	III	NR
2HTS-JB1-13A	2QSS-002-7-4	III	NR
2HTS-JB1-14	2QSS-FI104 Instrument Line	III	NR
2HTS-JB1-16A&B	2QSS-004-105-4	III	NR
2HTS-JB1-17	2QSS-012-100-4	III	NR
2HTS-JB1-18A&B	2FNC-006-3-4	III	NR
2HTS-JB1-19AB&C	2QSS-002-29-4 2QSS-150-210-4 2QSS-500-918-4	III	NR
2HTS-JB1-20	2QSS-150-42-4	III	NR

NOTE 1 - (O) Orange Bus
(P) Purple Bus

Beaver Valley Power Station
Electric Heat Tracing System
Figures and Tables

Unit 2

2OM-45D.5.B.1
Revision 3
Page 3 of 23

TABLE 45D-1 - CIRCUIT CLASSES

Zone 1

<u>Circuit No.</u>	<u>Line/Equipment</u>	<u>Class</u>	<u>Redundant (R)/ Nonredundant (NR)</u>
2HTS-JB1-21	2QSS-006-71-2	III	NR
2HTS-JB1-22	2QSS-002-65-2 2QSS-002-28-4 2QSS-003-209-4	III	NR
2HTS-JB1-23	2QSS-002-127-4	III	NR
2HTS-JB1-25A&B	2QSS-P23 Heated Enclosure	III	NR
2HTS-JB1-26	2QSS*TK22	III	NR
2HTS-JB1-27	2QSS*TK22	III	NR
2HTS*JB1-28	2QSS*LT100A Heated Enclosure	III	NR(O) NOTE 1
2HTS*JB1-29	2QSS*LT100A Sensing Line 2QSS-750-914-2	III	NR(O) NOTE 1
2HTS*JB1-30	2QSS*LT100B Heated Enclosure	III	NR(P) NOTE 1
2HTS*JB1-31	2QSS*LT100B Sensing Line 2QSS-750-915-2	III	NR(P) NOTE 1
2HTS-JB1-32	2QSS*LT101A Heated Enclosure	III	NR
2HTS-JB1-33	2QSS*LT101A Sensing Line 2QSS-750-916-2	III	NR

NOTE 1 - (O) Orange Bus
(P) Purple Bus

Beaver Valley Power Station
Electric Heat Tracing System
Figures and Tables

Unit 2

2OM-45D.5.B.1
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TABLE 45D-1 - CIRCUIT CLASSES

Zone 1

<u>Circuit No.</u>	<u>Line/Equipment</u>	<u>Class</u>	<u>Redundant (R)/ Nonredundant (NR)</u>
2HTS-JB1-34	2QSS*LT101B Heated Enclosure	III	NR
2HTS-JB1-35	2QSS*LT101B Sensing Line 2QSS-750-917-2	III	NR
2HTS-JB1-36	2QSS*LT102A Heated Enclosure	III	NR
2HTS-JB1-37	2QSS*LT102A Sensing Line	III	NR
2HTS-JB1-38	2QSS*LT102B Heated Enclosure	III	NR
2HTS-JB1-39	2QSS*LT102B Sensing Line	III	NR
2HTS*JB1-40A&B	2SIS-008-346-2 Train (A)	III	R(O) NOTE 1
2HTS*JB1-41A&B	2SIS-008-346-2 Train (B)	III	R(P) NOTE 1
2HTS*JB1-42	2SIS-014-1-2 Train (A)	III	R(O) NOTE 1
2HTS*JB1-43	2SIS-014-1-2 Train (B)	III	R(P) NOTE 1
2HTS*JB1-44B&C	2QSS*LT104A Sensing Line 2QSS-750-907-2	III	NR(O) NOTE-1
2HTS*JB1-45A	2QSS*LT104C Sensing Line 2QSS-750-911-2	III	NR(O) NOTE-1

NOTE 1 - (O) Orange Bus
(P) Purple Bus

Beaver Valley Power Station
Electric Heat Tracing System
Figures and Tables

Unit 2

2OM-45D.5.B.1
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TABLE 45D-1 - CIRCUIT CLASSES

Zone 1

<u>Circuit No.</u>	<u>Line/Equipment</u>	<u>Class</u>	<u>Redundant (R)/ Nonredundant (NR)</u>
2HTS*JB1-46B&C	2QSS*LT104B Sensing Line 2QSS-750-909-2	III	NR(P) NOTE-1
2HTS*JB1-47A&C	2QSS*LT104D Sensing Line 2QSS-750-913-2	III	NR(P) NOTE-1
2HTS-JB1-48A&B	2WTD-150-104-4	III	NR
2HTS-JB1-49	2WTD-106-48-4	III	NR
2HTS-JB1-50	2WTD-150-41-4	III	NR
2HTS-JB1-51A&B	2WTD-006-4-4	III	NR
2HTS-JB1-52	2WTD-LT107 Sensing Line	III	NR
2HTS-JB1-53	2WTD-LT107 Heated Enclosure	III	NR
2HTS-JB1-54	2WTD-LT106 Sensing Line	III	NR
2HTS-JB1-55	2WTD-LT106 Heated Enclosure	III	NR
2HTS-JB1-56A&B	2WTD-150-105-4	III	NR
2HTS-JB1-57	2WTD-008-101-4	III	NR
2HTS-JB1-58	2WTD-004-111-4	III	NR
2HTS-JB1-59	2QSS-PI103 Instrument Line	III	NR

NOTE 1 - (O) Orange Bus
(P) Purple Bus

Beaver Valley Power Station
Electric Heat Tracing System
Figures and Tables

Unit 2

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Revision 3
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TABLE 45D-1 - CIRCUIT CLASSES

Zone 1

<u>Circuit No.</u>	<u>Line/Equipment</u>	<u>Class</u>	<u>Redundant (R)/ Nonredundant (NR)</u>
2HTS*JB1-62	2QSS*LT104A Heated Enclosure	III	NR(O) NOTE 1
2HTS*JB1-63B	[2QSS*LT104A] Sensing Line 2QSS-750-907-2	III	NR(O) NOTE 1
2HTS*JB1-64	2QSS*LT104B Heated Enclosure	III	NR(P) NOTE 1
2HTS*JB1-65B	2QSS*LT104B Sensing Line 2QSS-750-909-2	III	NR(P) NOTE 1
2HTS*JB1-66	2QSS*LT104C Heated Enclosure	III	NR(O) NOTE 1
2HTS*JB1-67A&C	2QSS*LT104C Sensing Line 2QSS-750-911-2	III	NR(O) NOTE 1
2HTS*JB1-68	2QSS*LT104D Heated Enclosure	III	NR(P) NOTE 1
2HTS*JB1-69A	2QSS*LT104D Sensing Line 2QSS-750-913-2	III	R(P) NOTE 1
2HTS-JB1-70	2QSS*PI105 Sensing Line	III	NR
2HTS-JB1-71A&B	2WTD-150-221-4 2WTD-H23A Pump and Suction Line 2WTD-150-222-4 2WTD-H23A Heater and Discharge Line	III	NR

NOTE 1 - (O) Orange Bus
(P) Purple Bus

Beaver Valley Power Station Electric Heat Tracing System Figures and Tables	Unit 2	2OM-45D.5.B.1 Revision 3 Page 7 of 23
TABLE 45D-1 - CIRCUIT CLASSES		

Zone 1

<u>Circuit No.</u>	<u>Line/Equipment</u>	<u>Class</u>	<u>Redundant (R)/ Nonredundant (NR)</u>
2HTS-JB1-72A&B	2QSS-FI104	III	NR
2HTS-JB1-73	2WTD-TK23 6" Vent	III	NR
2HTS-JB1-74	2CHS-003-678-4	III	NR
2HTS-JB1-75A&B	2WTD-150-223-4 2WTD-H23B Pump and Suction Line 2WTD-150-224-4 2WTD-H23B Heater and Discharge Line	III	NR

NOTE 1 - (O) Orange Bus
(P) Purple Bus

Beaver Valley Power Station

Unit 2

20M-45D.5.B.2

TABLE 45D-2 - CIRCUIT CONTROLLER SETPOINTS AND ALARMS

Revision 12

Prepared by C. R. Kuhn	Date 08/20/09	Pages Issued 1 through 14	Effective Date 10/21/09
Reviewed by R. Mueller	Date 08/20/09	Validated by N/A	Date
PORC Meeting No. PORC Not Required	Date	PAF-09-01867	

ZONE/ CKT	BKR	CAB NAME	MODULE ROW COL	SET-PT		LOW HI ALR ALR	TEST PANEL PNL/ SW/ #	LINE/EQUIPMENT HEAT TRACED	LOCATION	2001 .550 -	
				ON	OFF					555	VOND
1-001	1	N1SG	1	1	Note 2	45	110	2QSS-012-2-2	RWST	001	13-2
1-002	2	N1SG	1	2	Note 2	45	110	2QSS-012-2-2	PIPE TUNNEL	001	13-2
1-003	3	N1SG	1	3	Note 2	45	110	2QSS-012-1-2	RWST	001	13-2
1-004	4	N1SG	1	4	Note 2	45	110	2QSS-012-1-2	PIPE TUNNEL	001	13-2
1-005	5	N1SG	1	5	Note 3	35	110	2QSS-006-16-4	RWST+PIPE TUNNEL	002	13-2
1-006	6	N1SG	1	6	Note 3	35	110	2QSS-006-16-4	PIPE TUNNEL	002	13-2
1-007	7	N1SG	1	7	Note 3	35	110	2QSS-006-243-2	RWST	002	13-2
1-008	8	N1SG	1	8	Note 3	35	110	2QSS-006-243-2	PIPE TUNNEL	002	13-2
1-009	9	N1SG	1	9	Note 3	35	110	2QSS-004-243-2	RWST+PIPE TUNNEL	002	13-2
1-011	10	N1SG	1	10	Note 3	35	110	2QSS-006-34-4	RWST+PIPE TUNNEL	004	13-2
1-012	11	N1SG	1	11	Note 3	35	110	2QSS-006-34-4	RWST	004	13-2
1-013	12	N1SG	1	12	Note 3	35	110	2QSS-002-7-4	RWST	004	13-2
1-014	13	N1SG	1	13	Note 3	35	110	2QSS-FI104(HE)	RWST	005	13-2
1-016	15	N1SG	2	1	Note 3	35	110	2QSS-004-105-4	RWST	006	13-2
1-017	16	N1SG	2	2	Note 3	35	110	2QSS*TK21(VENT)	RWST	006	13-2
1-018	17	N1SG	2	3	Note 3	35	110	2FNC-006-3-4	RWST	007	13-2
1-028	1	A1SG	1	1	Note 3	35	110	2QSS*LT100A(HE)	RWST	010	13-2
1-029	2	A1SG	1	2	Note 1	45	110	2QSS*LT100A(SL)	RWST	010	13-2
1-030	1	B1SG	1	1	Note 3	35	110	2QSS*LT100B(HE)	RWST	010	13-2
1-031	2	B1SG	1	2	Note 1	45	110	2QSS*LT100B(SL)	RWST	010	13-2
1-036	30	N1SG	3	2	Note 3	35	110	2QSS*LT102A(HE)	RWST	012	13-2
1-037	31	N1SG	3	3	Note 1	45	110	2QSS*LT102A(SL)	RWST	012	13-2

NOTE 1: Setpoint is field adjustable with minimum ON Temperature of 60°F and maximum OFF temperature of 95°F.

NOTE 2: Setpoint is field adjustable with minimum ON Temperature of 55°F and maximum OFF temperature of 95°F.

NOTE 3: Setpoint is field adjustable with minimum ON Temperature of 45°F and maximum OFF temperature of 95°F.

Beaver Valley Power Station
Electric Heat Tracing System
Operating Procedures

Unit 2

TABLE 45D-2 - CIRCUIT CONTROLLER SETPOINTS AND ALARMS

ZOM-45D.5.B.2
Revision 12
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ZONE/ CKT	BKR	CAB NAME	MODULE		SET-PT		LOW HI		TEST PANEL PNL/ SW/ #	LINE/EQUIPMENT HEAT TRACED	LOCATION	2001 .550 -	
			ROW	COL	ON	OFF	ALR	ALR				555	VOND
1-038	32	N1SG	3	4	Note 3		35	110		2QSS*LT102B(HE)	RWST	012	13-2
1-039	33	N1SG	3	5	Note 1		45	110		2QSS*LT102B(SL)	RWST	012	13-2
1-040	3	A1SG	1	3	60	70	45	110		2SIS-008-346-2	RWST	013	13-2
1-041	3	B1SG	1	3	60	70	45	110		2SIS-008-346-2	RWST	013	13-2
1-042	4	A1SG	1	4	80	90	45	110		2SIS-014-1-2	RWST	014	13-2
1-043	4	B1SG	1	4	80	90	45	110		2SIS-014-1-2	RWST	014	13-2
1-044	9	A1SG	1	9	Note 1		45	110		2QSS*LT104A(SL)	RWST	005	13-2
1-045	10	A1SG	1	10	Note 1		45	110		2QSS*LT104C(SL)	RWST	003	13-2
1-046	9	B1SG	1	9	Note 1		45	110		2QSS*LT104B(SL)	RWST	005	13-2
1-047	10	B1SG	1	10	Note 1		45	110		2QSS*LT104D(SL)	RWST	003	13-2
1-048	34	N1SG	3	6	45	50	35	110		2WTD-150-104-4	2WTD-TK23	015	32-1
1-049A	35	N1SG	3	7	45	50	35	110		2WTD-006-48-4	2WTD-TK23	015	13-1
1-050A	36	N1SG	3	8	45	50	35	110		2WTD-003-41-4	2WTD-TK23	015	13-1
1-051A	37	N1SG	3	9	45	50	35	110		2WTD-006-4-4	2WTD-TK23	015	13-1
1-052	38	N1SG	3	10	Note 1		45	145		2WTD-LT107(SL)	2WTD-TK23	129	13-1
1-053	39	N1SG	3	11	60	70	45	145		2WTD-LT107(HE)	2WTD-TK23	129	13-1
1-054	40	N1SG	3	12	45	50	35	110		2WTD-LT106(SL)	2WTD-TK23	129	13-1
1-055	41	N1SG	3	13	45	50	35	145		2WTD-LT106(HE)	2WTD-TK23	129	32-1
1-056	42	N1SG	3	14	45	50	35	110		2WTD-150-105-4	2WTD-TK23	129	32-1
1-057	43	N1SG	4	1	45	50	35	110		2WTD-008-101-4	2WTD-TK23	129	32-1
1-058	44	N1SG	4	2	45	50	35	145		2WTD-004-111-4	2WTD-TK23	129	32-2
1-059	45	N1SG	4	3	Note 3		35	110		2QSS-PI103	RWST	004	13-2
1-062	5	A1SG	1	5	Note 3		35	145		2QSS*LT104A(HE)	RWST	005	13-2

NOTE 1: Setpoint is field adjustable with minimum ON Temperature of 60°F and maximum OFF temperature of 95°F.
 NOTE 2: Setpoint is field adjustable with minimum ON Temperature of 55°F and maximum OFF temperature of 95°F.
 NOTE 3: Setpoint is field adjustable with minimum ON Temperature of 45°F and maximum OFF temperature of 95°F.

Beaver Valley Power Station
 Electric Heat Tracing System
 Operating Procedures

Unit 2

TABLE 45D-2 - CIRCUIT CONTROLLER SETPOINTS AND ALARMS

ZOM-45D.5.B.2
 Revision 12
 Page 3 of 14

ZONE/ CKT	BKR	CAB NAME	MODULE ROW COL	SET-PT		LOW ALR	HI ALR	TEST PANEL SW/ #	PNL/	LINE/EQUIPMENT HEAT TRACED	LOCATION	2001.550 -			
				ON	OFF							555	VOND		
1-063	6	A1SG	1	6	Note 2	45	110			2QSS*LT104A(SL)	RWST	005	13-2		
1-064	5	B1SG	1	5	Note 3	35	110			2QSS*LT104B(HE)	RWST	005	13-2		
1-065	6	B1SG	1	6	Note 2	45	110			2QSS*LT104B(SL)	RWST	005	13-2		
1-066	7	A1SG	1	7	Note 3	35	145			2QSS*LT104C(HE)	RWST	003	13-2		
1-067	8	A1SG	1	8	Note 2	45	110			2QSS*LT104C(SL)	RWST	003	13-2		
1-068	7	B1SG	1	7	Note 3	35	110			2QSS*LT104D(HE)	RWST	003	13-2		
1-069	8	B1SG	1	8	Note 2	45	110			2QSS*LT104D(SL)	RWST	003	13-2		
1-071	48	N1SG	4	6	60	70	45	110		2WTD-150-221-4 2WTD-150-222-4	2WTD-TK23	015	32-1		
1-072	50	N1SG	4	8	Note 3		35	110		2QSS-FI104(SL)	RWST	005	32-2		
1-073	51	N1SG	4	9	45	50	35	110		2WTD-TK23(VENT)	2WTD-TK23	015	13-1		
1-074	52	N1SG	4	10	Note 3		35	110		2CHS-003-678-4	RWST	007	13-2		
1-075	49	N1SG	4	7	60	70	45	110		2WTD-150-223-4 2WTD-15-224-4	2WTD-TK23	015	32-1		
3-001	1	N2AB	1	1	80	90	70	110	N2AB	2	2	2CHS-001-160-4	AUX 773	041	7-2
3-002	2	N2AB	1	2	80	90	70	110	N2AB	2	1	2CHS-003-51-4	AUX 773	041	7-2
3-003	1	N3AB	1	1	80	90	70	110	N3AB	2	2	2CHS-002-54-4	AUX 755	042	7-2
3-005A	47	N3AB	4	5	80	90	70	110	N3AB	5	2	2CHS*TK21A	AUX 755	075	7-2
3-006	3	N3AB	1	3	80	90	70	110	N3AB	1	12	2CHS-002-55-3	AUX 755	043	7-2
3-007	4	N3AB	1	4	80	90	70	110	N3AB	1	11	2CHS-002-570-3	AUX 755	043	7-2
3-008	5	N3AB	1	5	80	90	70	110	N2AB	2	1	2CHS-003-51-4	AUX 773	041	7-2
3-009	6	N3AB	1	6	80	90	70	110	N3AB	1	9	2CHS-003-41-3	AUX 755	044	7-2
3-010	7	N3AB	1	7	80	90	70	110	N3AB	1	8	2CHS-003-41-3	AUX 755	044	7-2
3-011	8	N3AB	1	8	80	90	70	110	N3AB	1	7	2CHS-002-43-3	AUX 755	045	7-2
3-012	9	N3AB	1	9	80	90	70	110	N3AB	1	6	2CHS-002-43-3	AUX 755	046	7-2
3-013	10	N3AB	1	10	80	90	70	110	N3AB	1	5	2CHS-002-200-3	AUX 755	047	7-2
3-014	11	N3AB	1	11	80	90	70	110	N3AB	1	4	2CHS-750-194-3	AUX 755	046	7-2

NOTE 1: Setpoint is field adjustable with minimum ON Temperature of 60°F and maximum OFF temperature of 95°F.

NOTE 2: Setpoint is field adjustable with minimum ON Temperature of 55°F and maximum OFF temperature of 95°F.

NOTE 3: Setpoint is field adjustable with minimum ON Temperature of 45°F and maximum OFF temperature of 95°F.

Beaver Valley Power Station
Electric Heat Tracing System
Operating Procedures

Unit 2

20M-45D.5.B.2
Revision 12
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TABLE 45D-2 - CIRCUIT CONTROLLER SETPOINTS AND ALARMS

Beaver Valley Power Station

Unit 2

2OM-45D.3.C

POWER SUPPLY AND CONTROL SWITCH LIST

Revision 12

Prepared by J. P. Keegan	Date 04/12/10	Pages Issued 1 through 33	Effective Date 04/15/10
Reviewed by R. Mueller	Date 04/13/10	Validated by N/A	Date
PORC Meeting No. PORC Not Required	Date N/A	PAF-10-00838	

POWER SUPPLY AND CONTROL SWITCH LIST

Note: All breakers are in the CONN position, all 480 V line starter ACB's are in the ON position, verified by 2OM-37.5 Table 37-7; all 120VAC breakers are in the ON position, verified by 2OM-38.5 Tables 38-2, 38-3, and 38-4; all 125 VDC breakers are in the ON position, verified by 2OM-39.5 Table 39-4; all backup protection breakers are in the ON position, verified by 2OM-37.5 Table 37-8 and 2OM-39.5 Table 39-5; all knife switches are verified by 2OST-45.6; all toggle switches are in the ON position, unless otherwise noted. Electrically operated valve position (control switch position) is verified by the respective valve list. Process instrumentation power supply is verified by 2OM-4.3 Power Supply and Control Switch List. Asterisk (*) items must have input power fuseholders installed and shall be lighted or unlighted as specified. Items requiring signatures in the PS & CSL designate field verifications. These components are not listed in Load List of 2OM-37.5, 38.5, 39.5, 2OST-45.6 or 2OM-4.3 PS&CSL. Components that list alternative normal system arrangements shall have the AS-LEFT position circled when position verifications are performed and initialed. Superscripted references are contained in Section 3, REFERENCES.

POWER SUPPLY AND CONTROL SWITCH LIST

WARNING: THIS POWER SUPPLY AND CONTROL SWITCH LIST **SHALL NOT** BE USED IN DETERMINING CLEARANCE POINTS WITHOUT ALSO REFERENCING THE LOAD LISTS OF O.M. CHAPTERS 37, 38 AND 39. REVIEWING THE LOAD LISTS WILL HELP ENSURE THE CLEARING OPERATION DOES NOT INADVERTENTLY AFFECT THE SAFETY RELATED FUNCTION OF ANOTHER PIECE OF EQUIPMENT.

	CUBICLE	LOAD	NSA	INITIAL/DATE
[MCC*2-E11]	9B	2HTS*TRFA1SG	(1) OFF ON	____/____ ____/____
[MCC*2-E12]	8B	2HTS*TRFB1SG	(1) OFF ON	____/____ ____/____
[MCC-2-07-01]	1C	2HTS-TRFN1CP	(1) OFF	____/____
	7C	2HTS-TRFN2CP	ON	____/____
[MCC-2-08]	1C	2HTS-TRFN1SG	(1) OFF ON	____/____ ____/____
[MCC-2-14]	10D	2HTS-TRFN3AB	(1) OFF ON	____/____ ____/____
[MCC-2-15]	4B	2HTS-TRF-PAS	(1) OFF ON	____/____ ____/____
[MCC-2-16]	2D	2HTS-TRFN1AB	(1) OFF ON	____/____ ____/____
	6D	2HTS-TRFN2AB	(1) OFF ON	____/____ ____/____
	5E	2HTS-TRFN4AB	(1) OFF ON	____/____ ____/____
[PNL-AC2-05]	5-34	2HTS-TEST-N1AB 2HTS-TEST-N2AB 2HTS-TEST-N3AB 2HTS-TEST-N4AB	ON	____/____
[PNL-AC2-08]	8-19	2HTS-TEST-N1CP	ON	____/____
	8-20	2HTS-TEST-N2CP	ON	____/____

Note (1) May be OFF if Heat Trace NOT in service, by procedure.

POWER SUPPLY AND CONTROL SWITCH LIST

WARNING: THIS POWER SUPPLY AND CONTROL SWITCH LIST **SHALL NOT** BE USED IN DETERMINING CLEARANCE POINTS WITHOUT ALSO REFERENCING THE LOAD LISTS OF O.M. CHAPTERS 37, 38 AND 39. REVIEWING THE LOAD LISTS WILL HELP ENSURE THE CLEARING OPERATION DOES NOT INADVERTENTLY AFFECT THE SAFETY RELATED FUNCTION OF ANOTHER PIECE OF EQUIPMENT.

	CUBICLE	LOAD	NSA	INITIAL/DATE
[PNL-AC2-13]	13-1	2HTS-01	(1) OFF ON	____/____
	13-2	2HTS-02	(1) OFF ON	____/____
	13-3	2HTS-03	(1) OFF ON	____/____
	13-4	2HTS-04	(1) OFF ON	____/____
	13-6	2HTS-06	(1) OFF ON	____/____
[PNL-AC2-26]	26-1	CKT-ET-279	(1) OFF ON	____/____
	26-3	CKT-ET-280	(1) OFF ON	____/____
	26-5	CKT-ET-281	(1) OFF ON	____/____
	26-7	CKT-ET-282	(1) OFF ON	____/____
[2PNL-RCPBP-04]	04-15	2HTS-JB3-130	ON	____/____
	04-16	2HTS-JB3-132	ON	____/____
	04-17	2HTS-JB3-133	ON	____/____
	04-18	2HTS-JB3-134	ON	____/____
	04-19	2HTS-JB3-135	ON	____/____
	04-20	2HTS-JB3-136	ON	____/____
[2PNL-RCPBP-05]	05-10B	2HTS-JB3-149	ON	____/____
	05-10C	2HTS-JB3-153	ON	____/____

Note (1) May be OFF if Heat Trace NOT in service, by procedure.

POWER SUPPLY AND CONTROL SWITCH LIST

Train A =Normal Train / Train B =Standby Train

Train aligned (Circle One) A **OR** B

Shift Manager Initial: _____

Note 1	Train A AND Train B Heat Tracing Circuits marked "Note 1", may be energized simultaneously IF desired. Mark N/A in the position <u>NOT</u> used.
Note 2	Train A SHALL be energized as the Normal Train UNLESS designated otherwise by the Shift Manager on Page 4 for circuits marked "Note 2". The Standby Train B may be energized in a backup capacity WHEN Train A is unavailable AND Train A has been de-energized. Train A and Train B SHALL NOT be energized simultaneously for these circuits. Components that list alternative normal system arrangements shall have the AS-LEFT position circled when position verifications are performed and initialed.

Transformer [2HTS*TRFA1SG]

Transformer Breaker - 480 VAC
[MCC*2-E11] Cub 9B

NSA: ON, May be OFF if Heat Trace NOT in service, by procedure.

Control/Distribution Panel [2HTS*PNLA1SG] (Bus AE Loads)

Main Breaker - located in [2HTS*PNLA1SG]

(1) _____ / _____
(2) _____ / _____

DC Power Supply and Internal Fan Supply
Breaker 30 located in [2HTS*PNLA1SG]

(1) _____ / _____
(2) _____ / _____

DC Power Supply/Supply Fuse - Installed
Located in [2HTS*PNLA1SG]

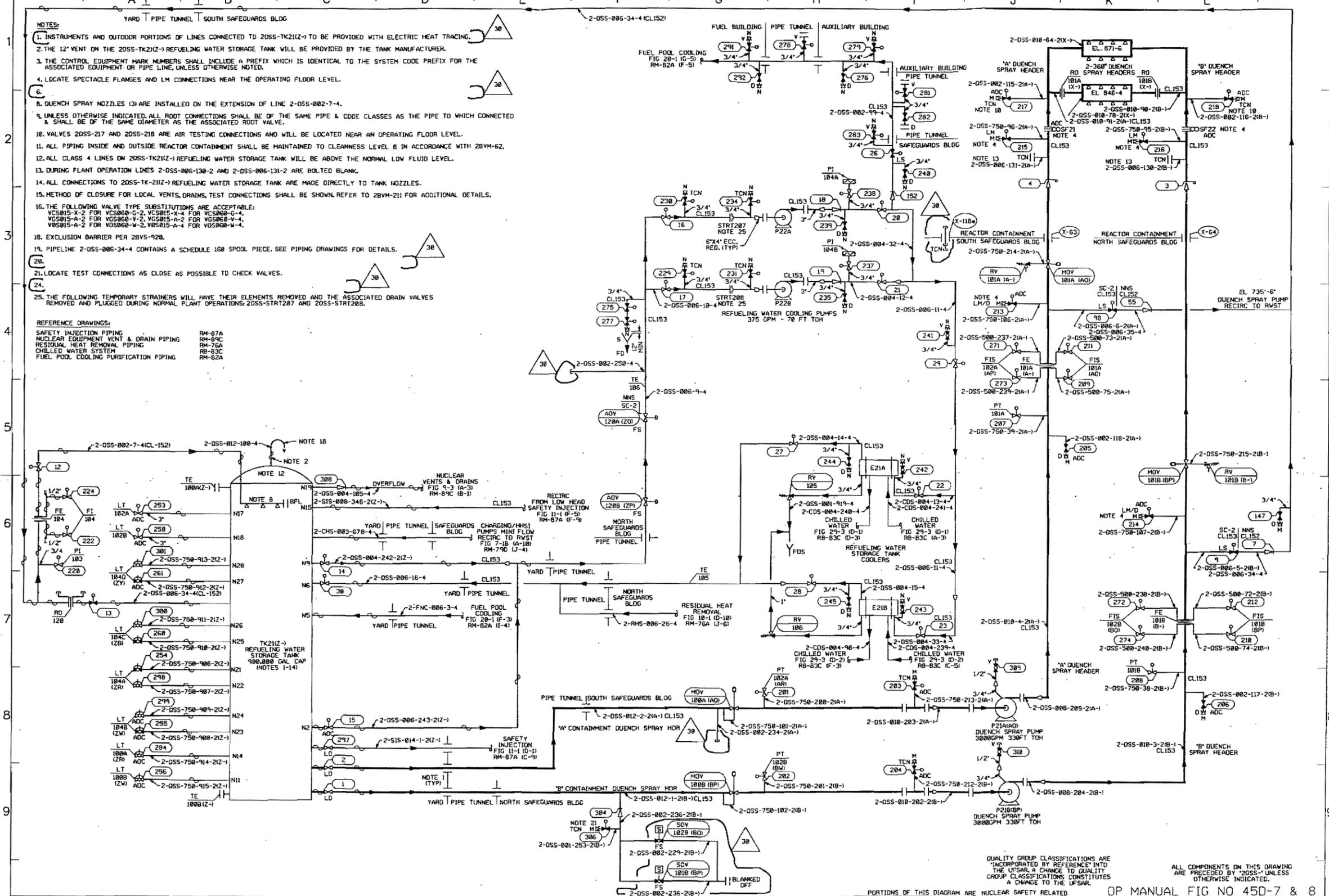
(*) (1) _____ / _____
(2) _____ / _____

Alarm Control Relay Supply Breaker 29
Located in [2HTS*PNLA1SG]

(1) _____ / _____
(2) _____ / _____

Alarm Output Isolator Switch
Located in [2HTS*PNLA1SG]

(1) _____ / _____
(2) _____ / _____



- NOTES:**
- INSTRUMENTS AND OUTDOOR PORTIONS OF LINES CONNECTED TO 20SS-TK21Z-1 TO BE PROVIDED WITH ELECTRIC HEAT TRACING.
 - THE 12" VENT ON THE 20SS-TK21Z-1 REFUELING WATER STORAGE TANK WILL BE PROVIDED BY THE TANK MANUFACTURER.
 - THE CONTROL EQUIPMENT MARK NUMBERS SHALL INCLUDE A PREFIX WHICH IS IDENTICAL TO THE SYSTEM CODE PREFIX FOR THE ASSOCIATED EQUIPMENT OR PIPE LINE, UNLESS OTHERWISE NOTED.
 - LOCATE SPECTACLE FLANGES AND LM CONNECTIONS NEAR THE OPERATING FLOOR LEVEL.
 - QUENCH SPRAY NOZZLES (3) ARE INSTALLED ON THE EXTENSION OF LINE 2-DSS-002-7-4.
 - UNLESS OTHERWISE INDICATED, ALL ROOT CONNECTIONS SHALL BE OF THE SAME PIPE & CODE CLASSES AS THE PIPE TO WHICH CONNECTED & SHALL BE OF THE SAME DIAMETER AS THE ASSOCIATED ROOT VALVE.
 - VALVES 20SS-217 AND 20SS-218 ARE AIR TESTING CONNECTIONS AND WILL BE LOCATED NEAR AN OPERATING FLOOR LEVEL.
 - ALL PIPING INSIDE AND OUTSIDE REACTOR CONTAINMENT SHALL BE MAINTAINED TO CLEANNESS LEVEL 8 IN ACCORDANCE WITH 28VM-62.
 - ALL CLASS 4 LINES ON 20SS-TK21Z-1 REFUELING WATER STORAGE TANK WILL BE ABOVE THE NORMAL LOW FLUID LEVEL.
 - DURING PLANT OPERATION LINES 2-DSS-006-130-2 AND 2-DSS-006-131-2 ARE BOLTED BLANK.
 - ALL CONNECTIONS TO 20SS-TK-21Z-1 REFUELING WATER STORAGE TANK ARE MADE DIRECTLY TO TANK NOZZLES.
 - METHOD OF CLOSURE FOR LOCAL VENTS, DRAINS, TEST CONNECTIONS SHALL BE SHOWN REFER TO 28VM-211 FOR ADDITIONAL DETAILS.
 - THE FOLLOWING VALVE TYPE SUBSTITUTIONS ARE ACCEPTABLE:
 VCS015-X-2 FOR VCS060-G-2, VCS015-X-4 FOR VCS060-G-4,
 VCS015-A-2 FOR VCS060-Y-2, VCS015-A-4 FOR VCS060-Y-4,
 VCS015-A-2 FOR VCS060-W-2, VCS015-A-4 FOR VCS060-W-4.
 - EXCLUSION BARRIER PER 28VS-920.
 - PIPELINE 2-DSS-006-34-4 CONTAINS A SCHEDULE 160 SPOOL PIECE, SEE PIPING DRAWINGS FOR DETAILS.
 - LOCATE TEST CONNECTIONS AS CLOSE AS POSSIBLE TO CHECK VALVES.
 - THE FOLLOWING TEMPORARY STRAINERS WILL HAVE THEIR ELEMENTS REMOVED AND THE ASSOCIATED DRAIN VALVES REMOVED AND PLUGGED DURING NORMAL PLANT OPERATIONS: 20SS-STR207 AND 20SS-STR208.

REFERENCE DRAWINGS:

SAFETY INJECTION PIPING	RM-07A
NUCLEAR EQUIPMENT VENT & DRAIN PIPING	RM-09C
RESIDUAL HEAT REMOVAL PIPING	RM-76A
CHILLED WATER SYSTEM	RB-63C
FUEL POOL COOLING PURIFICATION PIPING	RM-82A

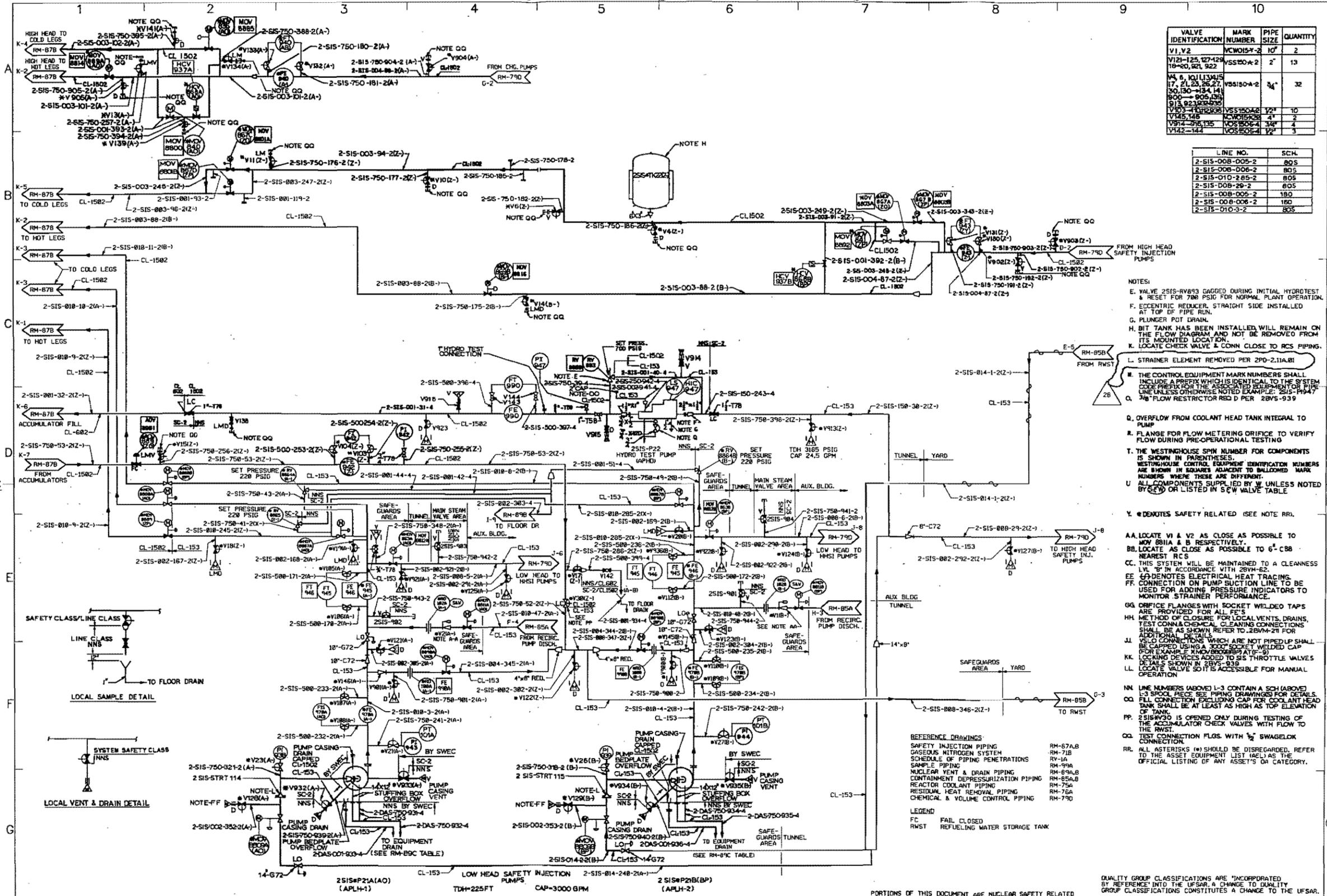
QUALITY GROUP CLASSIFICATIONS ARE INCORPORATED BY REFERENCE INTO THE USAR. A CHANGE TO QUALITY GROUP CLASSIFICATIONS CONSTITUTES A CHANGE TO THE USAR.

ALL COMPONENTS ON THIS DRAWING ARE PRECEDED BY "20SS-" UNLESS OTHERWISE INDICATED.

PORTIONS OF THIS DIAGRAM ARE NUCLEAR SAFETY RELATED

OP MANUAL FIG NO 45D-7 & 8

REVISION 38 INCORPORATED QUN 00-0506-002-002 QUN 00-0506-003-002 SATISFIED ECP 04-0197		FENOC FIRSTENERGY NUCLEAR OPERATING COMPANY DATE: 12/4/09 DRAWN BY: MVF CHECKED BY: [Signature] APPROVED BY: [Signature]	BEAVER VALLEY POWER STATION UNIT 2 FLOW DIAGRAM - CONTAINMENT DEPRESSURIZATION PIPING SH 2 AA 10080-RM-0085B 30
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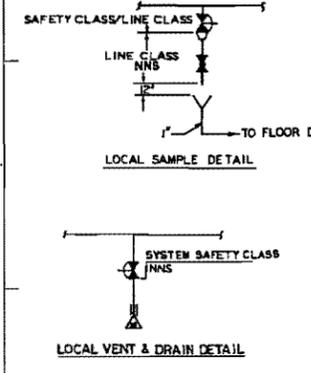


VALVE IDENTIFICATION	MARK NUMBER	PIPE SIZE	QUANTITY
V1, V2	NCWOIS-7-2	10"	2
V121-125, 127-129, 19-20, 921, 922	VSS100A-2	2"	13
V4, 6, 10, 11, 13, 15, 17, 21, 23, 25, 27, 30, 33, 34, 141, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000	10"	2	

LINE NO.	SCH.
2-SIS-008-005-2	80S
2-SIS-008-006-2	80S
2-SIS-010-285-2	80S
2-SIS-009-29-2	80S
2-SIS-008-005-2	180
2-SIS-010-006-2	150
2-SIS-010-3-2	80S

- NOTES:
- E. VALVE 2SIS-RV83 GAGGED DURING INITIAL HYDROTEST & RESET FOR 700 PSIG FOR NORMAL PLANT OPERATION.
 - F. ECCENTRIC REDUCER, STRAIGHT SIDE INSTALLED AT TOP OF PIPE RUN.
 - G. PLUNGER POT DRAIN.
 - H. BIT TANK HAS BEEN INSTALLED, WILL REMAIN ON THE FLOW DIAGRAM AND NOT BE REMOVED FROM ITS MOUNTED LOCATION.
 - K. LOCATE CHECK VALVE & CONN CLOSE TO RCS PIPING.
 - L. STRAINER ELEMENT REMOVED PER 2P0-2.11A.B1
 - M. THE CONTROL EQUIPMENT MARK NUMBERS SHALL INCLUDE A PREFIX WHICH IS IDENTICAL TO THE SYSTEM CODE PREFIX FOR THE ASSOCIATED EQUIPMENT OR PIPE LINE UNLESS OTHERWISE NOTED. EXAMPLE: 2SIS-19547
 - N. 3/8" FLOW RESTRICTOR RSD D PER 2BVS-939
 - O. OVERFLOW FROM COOLANT HEAD TANK INTEGRAL TO PUMP
 - P. FLANGE FOR FLOW METERING ORIFICE TO VERIFY FLOW DURING PRE-OPERATIONAL TESTING
 - Q. THE WESTINGHOUSE SPIN NUMBER FOR COMPONENTS IS SHOWN IN PARENTHESES.
 - R. WESTINGHOUSE CONTROL EQUIPMENT IDENTIFICATION NUMBERS ARE SHOWN IN SQUARES ADJACENT TO BALLOONED MARK NUMBERS WHERE THESE ARE DIFFERENT.
 - U. ALL COMPONENTS SUPPLIED BY W UNLESS NOTED BY (W) OR LISTED IN 5CW VALVE TABLE
 - V. * DENOTES SAFETY RELATED (SEE NOTE RR).
 - AA. LOCATE V1 & V2 AS CLOSE AS POSSIBLE TO MOV 881A & B RESPECTIVELY.
 - BB. LOCATE AS CLOSE AS POSSIBLE TO 6" C88 NEAREST RCS
 - CC. THIS SYSTEM WILL BE MAINTAINED TO A CLEANNESS LV. 8" IN ACCORDANCE WITH 2BVM-62.
 - EE. * DENOTES ELECTRICAL HEAT TRACING.
 - FF. CONNECTION ON PUMP SUCTION LINE TO BE USED FOR ADDING PRESSURE INDICATORS TO MONITOR STRAINER PERFORMANCE.
 - GG. ORIFICE FLANGES WITH SOCKET WELDED TAPS ARE PROVIDED FOR ALL FE'S
 - HH. METHOD OF CLOSURE FOR LOCAL VENTS, DRAINS, TEST CONNECTIONS, CLEANING CONNECTIONS SHALL BE AS SHOWN REFER TO 2BVM-21 FOR ADDITIONAL DETAILS
 - JJ. WELD CONNECTIONS WHICH ARE NOT PIPED UP SHALL BE CAPPED USING A 3000 SOCKET WELDED CAP FOR EXAMPLE: RHW (GROUP 1) (B)
 - KK. LOCKING DEVICES ADDED TO SIS THROTTLE VALVES DETAILS SHOWN IN 2BVS-939
 - LL. LOCATE VALVE SO IT IS ACCESSIBLE FOR MANUAL OPERATION
 - NN. LINE NUMBERS (ABOVE) 1-3 CONTAIN A SCH (ABOVE) 1-3 SPOOL PIECE SEE PIPING DRAWINGS FOR DETAILS
 - OO. FILL CONNECTION EXCLUDING CAP FOR COOLANT HEAD TANK SHALL BE AT LEAST AS HIGH AS TOP ELEVATION OF TANK
 - PP. 2SISRV30 IS OPENED ONLY DURING TESTING OF THE ACCUMULATOR CHECK VALVES WITH FLOW TO THE RWST.
 - QQ. TEST CONNECTION FLGS. WITH 1/2" SWAGelok CONNECTION
 - RR. ALL ASTERISKS (*) SHOULD BE DISREGARDED, REFER TO THE ASSET EQUIPMENT LIST (AEL) AS THE OFFICIAL LISTING OF ANY ASSET'S CATEGORY.

- REFERENCE DRAWINGS
- SAFETY INJECTION PIPING RM-87A,B
 - GASEOUS NITROGEN SYSTEM RM-71B
 - SCHEDULE OF PIPING PENETRATIONS RM-1A
 - SAMPLE PIPING RM-99A
 - NUCLEAR VENT & DRAIN PIPING RM-89A,B
 - CONTAINMENT DEPRESSURIZATION PIPING RM-85A,B
 - REACTOR COOLANT PIPING RM-75A
 - RESIDUAL HEAT REMOVAL PIPING RM-76A
 - CHEMICAL & VOLUME CONTROL PIPING RM-79A
- LEGEND
- FC FAIL CLOSED
 - RWST REFUELING WATER STORAGE TANK



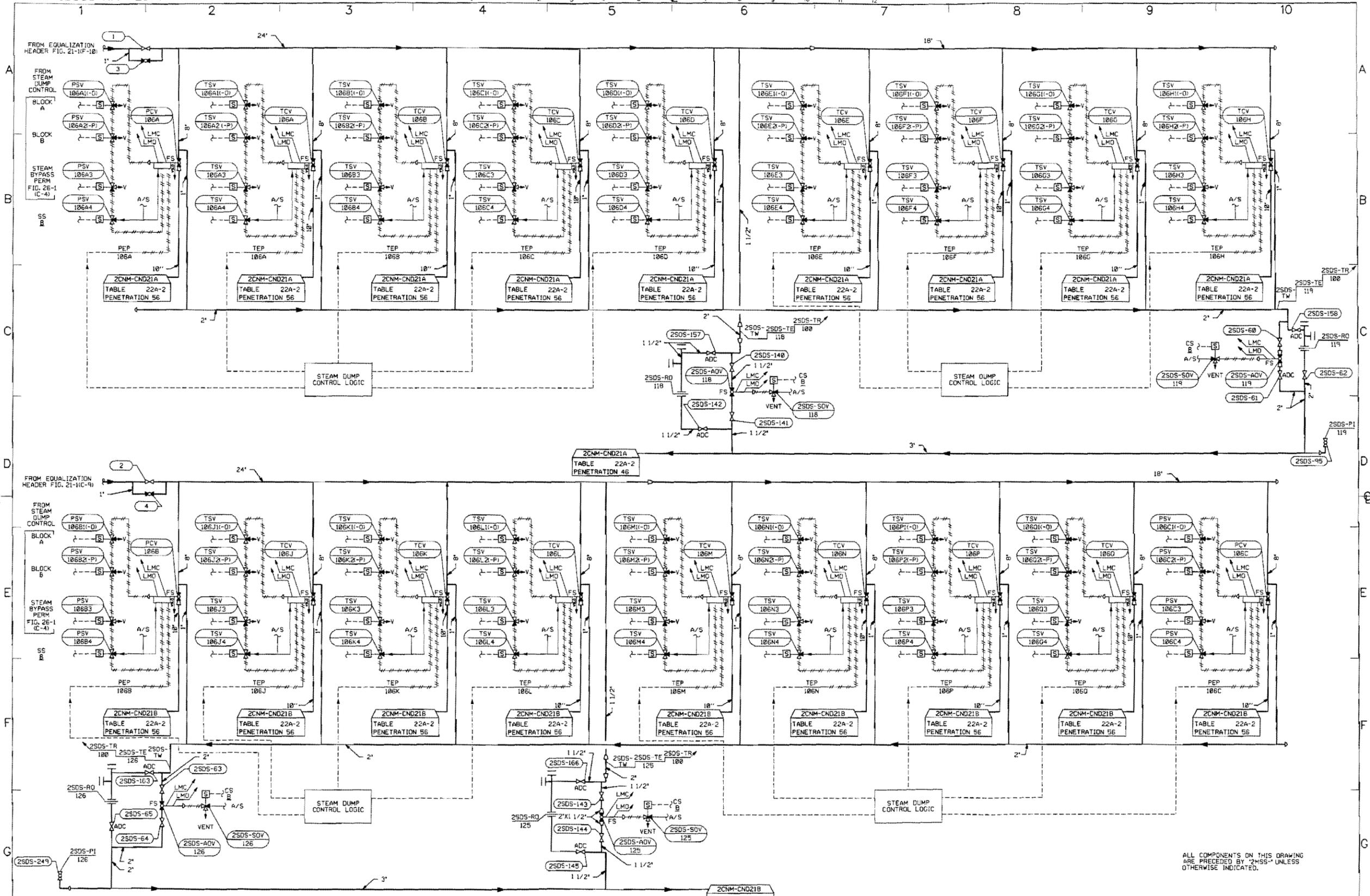
REVISION 28 INCORPORATED ECP-86-8223 IDCN 2-RM-0087A-E06-8223-01 EER 686346877

FENOC FirstEnergy Nuclear Operating Company

BEAVER VALLEY POWER STATION UNIT NO 2

FLOW DIAGRAM SAFETY INJECTION PIPING - SH 1

AA 10080-RM-0087A 28



ALL COMPONENTS ON THIS DRAWING ARE PRECEDED BY 25DS- UNLESS OTHERWISE INDICATED.

OP MANUAL FIG. NO. 21-4

NO.	DATE	BY	CHK	APP	DESCRIPTION
1	04-08-87	U.A.S.	U.A.S.		ORIGINAL
2	09-29-91	U.A.S.	U.A.S.		INCORPORATED VOR 2-91-148 D/CHK: MVF/FMC
3	05-04-93	U.A.S.	U.A.S.		INCORPORATED VOR 2-93-45 SATISEED VOR 06-93-52 TER 7732
4	10-26-93	U.A.S.	U.A.S.		INCORPORATED VOR 2-93-79 D/CHK: MVF/JMP
5	07-18-95	U.A.S.	U.A.S.		INCORPORATED VOR 2-95-23 VOR 05-95-43 VOR 2-95-124 VOR 2-94-46 TER MOD 2-94-10 2-95-16
6	05-30-96	U.A.S.	U.A.S.		INCORPORATED VOR 2-96-88 D/CHK: MVF/JMP
7	10-01-96	U.A.S.	U.A.S.		INCORPORATED VOR 2-96-88 D/CHK: MVF/JMP

Duquesne Light Company PITTSBURGH, PA

BEAVER VALLEY POWER STATION UNIT NO. 2

VALVE OPER. NO. DIAGRAM
MAIN STEAM DUMPS

DATE: 10-22-86
DRAWN BY: M. MURPHY
CHECKED BY: M. MURPHY
DESIGNED BY: M. MURPHY
DATE: 10-22-86

AA 10080-RM-421-4 7

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.16 RCS Specific Activity

LCO 3.4.16 The specific activity of the reactor coolant shall be within limits.

APPLICABILITY: MODES 1 and 2,
MODE 3 with RCS average temperature (T_{avg}) \geq 500°F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. DOSE EQUIVALENT I-131 $>$ 0.35 μ Ci/gm.	<p>- NOTE - LCO 3.0.4.c is applicable.</p>	Once per 4 hours
	A.1 Verify DOSE EQUIVALENT I-131 within the acceptable region of Figure 3.4.16-1.	
	<u>AND</u>	
	A.2 Restore DOSE EQUIVALENT I-131 to within limit.	48 hours
B. Gross specific activity of the reactor coolant not within limit.	B.1 Be in MODE 3 with $T_{avg} <$ 500°F.	6 hours
C. Required Action and associated Completion Time of Condition A not met. <u>OR</u> DOSE EQUIVALENT I-131 in the unacceptable region of Figure 3.4.16-1.	C.1 Be in MODE 3 with $T_{avg} <$ 500°F.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.16.1	Verify reactor coolant gross specific activity $\leq 100/\bar{E}$ $\mu\text{Ci/gm}$.	7 days
SR 3.4.16.2	<p style="text-align: center;">- NOTE -</p> <p style="text-align: center;">Only required to be performed in MODE 1.</p> <hr/> <p>Verify reactor coolant DOSE EQUIVALENT I-131 specific activity ≤ 0.35 $\mu\text{Ci/gm}$.</p>	<p>14 days</p> <p>AND</p> <p>Between 2 and 6 hours after a THERMAL POWER change of $\geq 15\%$ RTP within a 1 hour period</p>
SR 3.4.16.3	<p style="text-align: center;">- NOTE -</p> <p>Not required to be performed until 31 days after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.</p> <hr/> <p>Determine \bar{E} from a sample taken in MODE 1 after a minimum of 2 effective full power days and 20 days of MODE 1 operation have elapsed since the reactor was last subcritical for ≥ 48 hours.</p>	184 days

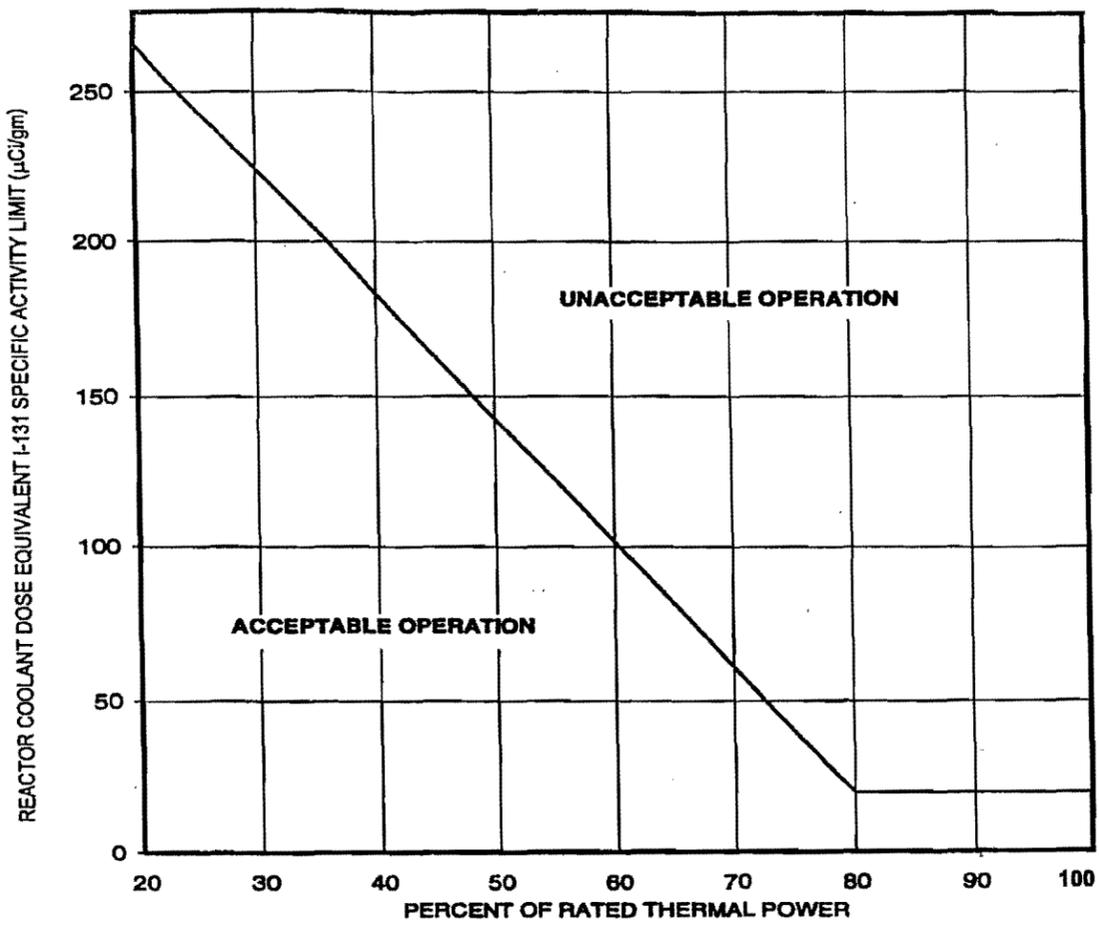


Figure 3.4.16-1 (Page 1 of 1)
Reactor Coolant DOSE EQUIVALENT I-131 Specific Activity
Limit Versus Percent of RATED THERMAL POWER

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
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BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).
------------	--

DESCRIPTION	<p>The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the LCO. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability.</p> <p>If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition starting from the time of discovery of the situation that required entry into the Condition.</p> <p>Once a Condition has been entered, subsequent trains, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will <u>not</u> result in separate entry into the Condition, unless specifically stated. The Required Actions of the Condition continue to apply to each additional failure, with Completion Times based on initial entry into the Condition.</p> <p>However, when a <u>subsequent</u> train, subsystem, component, or variable expressed in the Condition is discovered to be inoperable or not within limits, the Completion Time(s) may be extended. To apply this Completion Time extension, two criteria must first be met. The subsequent inoperability:</p> <ol style="list-style-type: none">a. Must exist concurrent with the <u>first</u> inoperability and
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3.6 CONTAINMENT SYSTEMS

3.6.6 Quench Spray (QS) System

LCO 3.6.6 Two QS trains shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One QS train inoperable.	A.1 Restore QS train to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

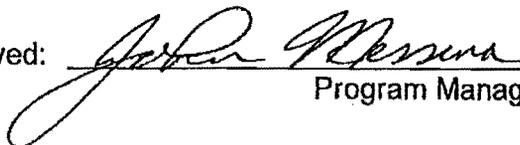
SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.1	Verify each QS manual, power operated, and automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position.	31 days
SR 3.6.6.2	Verify each QS pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.6.6.3	Verify each QS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.6.6.4	Verify each QS pump starts automatically on an actual or simulated actuation signal.	18 months

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RISK MANAGEMENT

Effective Date: 05/14/10

Approved:  13/22/10
Program Manager Date

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1.0 PURPOSE

This procedure establishes the administrative controls, responsibilities, duties for direction, control, conduct, and oversight of risk significant activities and conditions at FENOC Power Plants based on evaluations of nuclear safety, industrial safety, radiological safety, environmental safety, and generation risk associated with Activities or Plant Conditions.

2.0 SCOPE

- 2.1 This procedure applies to all Activities, which may be performed by any work group.
- 2.2 This procedure applies to Plant Conditions that determine differing levels of risks.
- 2.3 Exempt activities are listed in Attachment 1, Exempt Activities. Exempt activities shall be conducted as a Green Risk Activity.
- 2.4 This procedure provides the guidance during both operating and shutdown conditions. During shutdown conditions, asset utilization risk impact and associated actions shall only apply to work with impact to switchyard and grid reliability.
- 2.5 Other FENOC programs are designed with management of risk in mind and serve as an integrated approach to overall Risk Management. Some of these programs are:
- NOP-OP-1003 Grid Reliability Protocol
 - NOP-OP-1005 Shutdown Defense in Depth
 - NOP-OP-1010 Operational Decision Making
 - NOP-OP-1004 Reactivity Management
 - NOBP-OP-1004 Reactivity Planning
 - NOBP-OP-0007 Conduct Of Infrequently Performed Tests Or Evolutions
 - NOBP-OP-0012 Operator Work-Arounds, Burdens and Control Room Deficiencies

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- 2.6 When exercising Abnormal Operating Procedures (Off Normal Instructions - PY), Emergency Operating Procedures, Priority 100 Immediate Maintenance, or the Emergency Plan Implementing Procedures, assessing and managing these activities per this procedure may be waived at the discretion of the Shift Manager.
- 2.7 For emergent Activities or Plant Conditions a Senior Reactor Operator (SRO) shall perform Risk Assessment in accordance with Attachment 2, Plant Risk Matrix and Attachment 3, Risk Assessment Worksheet.
- 3.0 DEFINITIONS
- 3.1 Activity - Any corrective, preventive, modification, troubleshooting, inspection, testing or calibration Activity performed on plant systems, structures or components.
- 3.2 Continuous Job Site Coverage – Providing supervision during the entire performance of the applicable work Activity. During preparation and restoration activities which do not create a challenge to the plant or personnel safety, the assigned individual does not need to be present, however verification of proper preparation should be performed.
- 3.3 Critical Step(s) – IAW NOBP-LP-2604, Effective Job Briefs. A procedure step or action that, if performed incorrectly, will cause immediate, irreversible, intolerable harm to plant equipment, people, or significantly impact plant operation.
- 3.4 Intrusive Activity - An Activity which breaches the boundary of a plant system or component, such as work (use of tools) on valve internals, pump internals, electrical cabinets, or electrical breakers.
- 3.5 Intrusive Involvement – A series of management actions (observations, questioning, challenge meetings) that probe the level of a worker’s preparation and knowledge of an Activity. It ensures that the appropriate level of questioning and challenge is conducted, typically prior to Activity performance. Intrusive involvement should verify a complete and in-depth understanding of the potential risk and error traps, and that mitigating and contingency actions are preplanned and in-place. Intrusive involvement must be carefully managed during the Activity to not introduce additional risk and should be limited to stopping an unsafe act or an unrecoverable error.

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- 3.6 Plant Condition – Those factors that, independent from individual activities, cause a Risk Level to be greater than Green. Examples of a Plant Condition independent of an Activity would be:
- A PRA value based on the aggregate of planned work, degraded equipment, and Operator workarounds
 - RCS level at mid-loop in the early stages of a refuel outage, when core time to boil is short.
- 3.7 Risk Assessment - The function of assessing nuclear safety, industrial safety, radiological safety, environmental safety, or generation risk, to personnel and safe plant operation, while performing Activities and during Plant Conditions.
- 3.8 Risk Evaluator - The individuals who use the Risk Assessment Tools, Attachments 1, 2, and 3, to determine the risk level of an Activity or Plant Condition.
- 3.9 Risk Significant Activity - Activity that poses a potential decrease in margin to nuclear safety, industrial safety, radiological safety, environmental safety, or generation risk and requires additional planning, special precautions, and management oversight to adequately manage the risks. This applies to Activities classified as YELLOW, ORANGE, or RED Risk.
- 3.10 Risk Management Actions (RMA) – Measures established to mitigate the risk impacts of performing Activities or Plant Conditions.
- 3.11 Wadsworth Control Center Conservative Operations - A condition defined by the Wadsworth Control Center that limits work and testing Activities which increase the level of risk associated with the operation of the FirstEnergy Transmission System.
- 3.12 Yellow, Orange and Red Risk Activities or Plant Conditions - Activities or Plant Conditions that pose a potential hazard to nuclear safety, industrial safety, radiological safety, environmental safety, or generation risk, and require additional planning, special precautions and management oversight to adequately manage the risks.

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4.0 PROCEDURE DETAILS

Any work order prepared (within Work Management 12 week process) prior to the implementation of this procedure revision, or a previous revision of this procedure, may be processed without additional restrictions.

4.1 Responsibilities

4.1.1 Shift Manager

The Operations Shift Manager shall have overall responsibility for ensuring that the impact on plant risk is evaluated.

4.1.2 Duty Team

The Duty Team Leader and Duty Team Members will provide Risk Management Actions oversight in accordance with NOBP-OP-0014, FENOC Duty Teams.

4.1.3 Risk Evaluator (Screening Committee, Work Planner, ALARA Supervisor, or Operations SRO)

1. Performs risk review of the Activity or Plant Conditions to determine plant risk.
2. Documents the risk level in the notification/order.

4.1.4 Work Week Manager

For all non-green risk Activities ensure that the Work Implementation Schedule highlights these Activities.

4.1.5 ALARA Supervisor

The ALARA Supervisor is responsible for evaluating and assigning the Radiological Risk associated with RCA Activities. This includes communicating the assigned risk to the Work Week Manager for highlighting in the Work Implementation Schedule.

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4.1.6 Worker

Although this NOP delineates oversight and involvement for supervisors and above, this does not remove the ownership or the responsibility of the individual worker to ensure that all activities are conducted in a safe manner and that all appropriate human performance tools and techniques are utilized to prevent errors. This responsibility commences during the walkdown phase of the Activity through completion.

4.2 Risk Classification

4.2.1 Assessing and Classifying the Risk of an Activity

1. The screening committee IAW NOP-WM-1003, Nuclear Maintenance Notification Initiation, Screening, and Minor Deficiency Monitoring Processes, shall perform an initial Risk Assessment of new notifications.
2. Other orders (PMs, Surveillance tests, etc.) will be screened by the Work Management Process IAW NOP-WM-2003 Work Management Surveillance Process and NOP-WM-3001 Work Management PM Process.
3. The final verification of Risk Assessment shall be performed during the Operations review of the integrated schedule. Following the assessment, the risk color and reason for the color shall be documented on the Notification/Order.
4. The Risk Evaluator(s) should use Attachment 1, Exempt Activities, to determine if the Activity is exempt.
5. The Risk Evaluator shall use Attachment 2 Plant Risk Matrix, and Attachment 3 Risk Assessment Worksheet, for the risk review.
6. IF an Order/Notification is transferred from an outage to an on-line status or on-line to outage status, THEN the risk shall be re-assessed.
7. Repetitive Activities or tests which have not had a significant revision since the last performance do not require a new assessment to be performed.

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4.2.2 Probabilistic Risk Assessment (PRA)

1. IF a valid PRA model is available and an evaluation has been completed, THEN perform the required Risk Management Actions. For some Risk Level Plant Conditions (train/divisional outages, aggregate risk), possibly only the Risk Management Controls on Attachment 5 will apply if there is no specific Activity for which to apply supervisory or oversight actions.

4.2.3 Shutdown Defense in Depth Risk Assessment

1. During Shutdown periods, all Activities and Plant Conditions continue to be assessed utilizing the Risk Assessment Tools, Attachments 1, 2, and 3.
2. Shutdown Defense in Depth risk management is established by first determining the risk color using NOP-OP-1005 and site specific procedures. Once the risk color is determined, then the controls of this procedure, Risk Management, can be applied. For some Risk Level Plant Conditions (time to boil, train/divisional outages), possibly only the Risk Management Controls on Attachment 5 will apply if there is no specific Activity for which to apply supervisory or oversight actions.
3. If an Order/Notification is transferred from on-line to an outage status, the risk shall be re-assessed.

4.2.4 Asset Utilization

1. Asset Utilization classifies conditions based on multiple factors and criteria in Attachment 4, Examples of Asset Utilization Factors. Asset Utilization will provide a color designation in both a predictive outlook and in real time as conditions change. When real time changes occur, Asset Utilization notifies the Control Room at each FENOC Unit of the escalation or lowering of conditions.

When Asset Utilization reports an elevation in condition (Risk Level color from Attachment 4), Work Management and Operations shall assess all work for risk to generation or grid reliability. Activities that meet the following criteria and would otherwise be a lower Risk Level than the Asset Utilization Risk Level should be treated at the same Risk Level as the Asset Utilization Risk Level:

- For Activities in progress that pose a risk to generation or grid reliability, the Activity should be terminated or completed as

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determined by the Shift Manager based on whichever is better to reduce the risk.

- For Activities scheduled but not in progress that pose a risk to generation or grid reliability, the Activity should be rescheduled to a time when the Asset Utilization Risk Level has returned to Green.
- For Activities in progress that impact safety equipment operability or availability, the Activity should typically be completed. This is assuming that completing this work will improve the Risk margin by making the equipment available.
- For Activities scheduled but not in progress that impact safety equipment operability or availability, rescheduling the Activities must be weighed against creating additional risk. If possible, risk Activities of an intrusive nature should be delayed until after the peak load or until the control room has been notified that Asset Utilization Risk Level has returned to Green.

4.2.5 System (GRID) Operations and Risk

1. Information and direction for operating grid risk and grid operating conditions may come from the following sources, listed in expected order of communication:

Beaver Valley	Duquesne (DLCO) Pennsylvania-New Jersey-Maryland Interconnection Operator (PJM) Wadsworth Control Center
Davis Besse	Wadsworth Control Center Midwest Independent System Operator (MISO)
Perry	Wadsworth Control Center Midwest Independent System Operator (MISO)

2. Duquesne Light Company (DLCO) System Operations or Pennsylvania-New Jersey-Maryland Interconnection Operator (PJM) control the grid at Beaver Valley. The Duquesne Light Company grid is operated in a normal mode only. No intermediate warnings for operations are specified by DLCO. Duquesne Light Company or PJM shall notify Beaver Valley of Emergency Conditions specific to the Duquesne Light Company System.

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3. WCC Modes:
The Wadsworth Control Center normally operates in two modes: Normal Operations and Conservative Operations. The system grid is not intentionally operated in an Emergency condition.
 - a. Normal Operations
 - Normal Operations requires no additional restrictions or actions. The Wadsworth Control Center shall notify FENOC of the operating grid conditions in both a predictive outlook and in real time as grid conditions change. When real time grid changes occur, the Wadsworth Control Center shall notify the Control Room at each affected FENOC Unit of the escalation or lowering of grid condition.
 - b. Conservative Operations
 - In Conservative Operations, the Wadsworth Control Center limits grid maintenance, testing and operations that increase risk to reliable grid operation. These actions do not indicate a degraded grid as defined by voltage or frequency degradation, but are a proactive step at reducing risk when conditions warrant minimizing potential impact.
 - When the Wadsworth Control Center reports Conservative Operations, Work Management and Operations shall assess all work for risk to generation or grid reliability. Activities that meet the following criteria and would otherwise be a lower Risk Level than Orange should be treated as Orange Risk Level:
 - For Activities in progress that pose a risk to generation or grid reliability, the Activity should be terminated or completed as determined by the Shift Manager based on whichever is better to reduce the risk.
 - For Activities scheduled but not in progress that pose a risk to generation or grid reliability, the Activity should be rescheduled to a time when the Asset Utilization Risk Level has returned to Green.

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- For Activities in progress that impact safety equipment operability or availability, the Activity should typically be completed. This is assuming that completing this work will improve the Risk margin by making the equipment available.
- For Activities scheduled but not in progress that impact safety equipment operability or availability, rescheduling the Activities must be weighed against creating additional risk. If possible, risk Activities of an intrusive nature should be delayed until after the peak load or until Asset Utilization notifies the control room of Green Risk.

c. Emergency Grid Operations

- The system grid is not intentionally operated in an Emergency condition. If the system operator declares an emergency or degraded grid, the actions for RED risk shall be implemented concurrent with site specific procedures for degraded grid.
- When the Wadsworth Control Center reports Emergency Operations, Work Management and Operations shall assess all work for risk to generation or grid reliability. Activities that meet the following criteria and would otherwise be a lower Risk Level than Red should be treated as Red Risk Level:
 - For Activities in progress that pose a risk to generation or grid reliability, the Activity should be terminated or completed as determined by the Shift Manager based on whichever is better to reduce the risk.
 - For Activities scheduled but not in progress that pose a risk to generation or grid reliability, the Activity should be rescheduled to a time when the Asset Utilization Risk Level has returned to Green.
 - For Activities in progress that impact safety equipment operability or availability, the Activity should typically be completed. This is assuming that completing this work will improve the Risk margin by making the equipment available.

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- For Activities scheduled but not in progress that impact safety equipment operability or availability, rescheduling the Activities must be weighed against creating additional risk. If possible, risk Activities of an intrusive nature should be delayed until after the peak load or until Asset Utilization notifies the control room of Green Risk.
- Additionally, work on safety systems critical to response in a loss of power must be evaluated for action. If the Activity has not started, it should be postponed. If maintenance is in progress, prompt restoration should be considered, including adding resources or additional shifts.

4.2.6 Risk Assessment Worksheet

1. Risk classification can be derived from certain activities or plant conditions as described in Attachment 3, Risk Assessment Worksheet.
2. The Risk Assessment Worksheet is arranged according to nuclear safety, industrial safety, radiological safety, environmental safety, and generation risk.

4.2.7 Time Remaining in a Shutdown Limiting Condition of Operation (LCO)

1. A unique impact on generation risk in nuclear power plants is the Shutdown LCO as related to Technical Specifications and associated design criteria (LRM, ORM, TRM).
2. A short duration Shutdown LCO requires added attention and resources to manage the impact. These unique criteria are detailed in the generation risk section of the Risk Assessment Worksheet.

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4.2.8 Severe Weather

1. Concurrent with site specific procedures for severe weather, when severe weather is observed locally or when the control room is notified of a pending severe weather warning, plant Activities with potential impact to the grid or unit reliability should be reviewed for suspension or expedited completion.
 - For Activities in progress that pose a risk to generation or grid reliability, the Activity should be terminated or completed as determined by the Shift Manager based on whichever is better to reduce the risk.
 - For Activities scheduled but not in progress that pose a risk to generation or grid reliability, the Activity should be rescheduled to a time when the Asset Utilization Risk Level has returned to Green.
 - For Activities in progress that impact safety equipment operability or availability, the Activity should typically be completed. This is assuming that completing this work will improve the Risk margin by making the equipment available.
 - For Activities scheduled but not in progress that impact safety equipment operability or availability, rescheduling the Activities must be weighed against creating additional risk. If possible, risk Activities of an intrusive nature should be delayed until after the peak load or until Asset Utilization notifies the control room of Green Risk.
2. Risk decisions based on Severe Weather conditions should consider the safe environmental conditions of those who perform the activities.

4.3 Implementing Risk Level Management Actions and Controls

- 4.3.1 This section provides the details to implement the Risk Level Management Actions. Attachment 2 is a reflection of this section and is to be used as a reference.
- 4.3.2 For Risk Levels that are based only on Plant Conditions, such as during Shutdown (time to boil, train/divisional outages, etc.) or PRA (train/divisional outages, aggregate risk, etc.), only the Risk Management Controls on Attachment 5 will apply since there is no specific Activity for which to apply supervisory or oversight actions.

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4.3.3 Perform the following for a given Risk Level:

1. Green Risk

- a. Level of Supervision – The first line supervisor shall ensure:
 - Self-Check and/or Peer Check in accordance with normal management expectations.
- b. Level of Preparation Oversight – Oversight shall be provided in accordance with normal management expectations.
- c. Level of Task Oversight - Oversight shall be provided in accordance with normal management expectations.

2. Yellow Risk

- a. Each of the Risk Management Controls of Attachment 5 should be implemented, as feasible, to increase risk awareness and control, reduce the duration of Activities and Plant Conditions associated with elevated risk, and minimize the magnitude of risk increase.
- b. Protected Equipment Postings should be used for Yellow Risk Level Activities and Plant Conditions.
- c. Approval:
 - Yellow Risk Activities or Plant Conditions shall be approved by the Operations Manager or designee, and shall be documented by approving the Work Implementation Schedule or approving the Outage Schedule per Milestone "Outage Schedule Frozen" of NOBP-OM-2001. Approval of emergent Yellow Risk Activities shall be documented in the unit log.
- d. Level of Supervision – The first line supervisor shall:
 - attend the pre-job brief,
 - ensure that the proper human performance tools are utilized during the performance of the Activity,
 - provide direct observation of all critical steps,
 - attend the post-job brief.

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- e. Level of Preparation Oversight – Intrusive involvement of the Line Superintendent or Manager shall ensure that the following occur:
- proper planning/preparation,
 - use of appropriate human performance tools,
 - appropriate supervision is provided,
 - required task oversight.
- f. Level of Task Oversight – Duty Team in accordance with normal management expectations.

NOTE

When Asset Utilization makes a declaration of Orange or Red Risk, or the Transmission System Operator declares they are operating in the Conservative or Emergency Operations mode, any plant Activity with potential to impact unit or grid reliability should be immediately evaluated in accordance with Steps 4.2.4 and 4.2.5.3.

3. Orange Risk

- a. Each of the Risk Management Controls of Attachment 5 should be implemented, as feasible, to increase risk awareness and control, reduce the duration of Activities and Plant Conditions associated with elevated risk, and minimize the magnitude of risk increase.
- b. Protected Equipment Postings should be used for Orange Risk Level Activities and Plant Conditions.
- c. Approval:
- Orange Risk Activities or Plant Conditions shall be approved by the Director of Site Operations or designee, and shall be documented by approving the Work Implementation Schedule or approving the Outage Schedule per Milestone "Outage Schedule Frozen" of NOBP-OM-2001. Approval of emergent Orange Risk Activities shall be documented in the unit log.
- d. Level of Supervision – The first line supervisor shall:
- attend pre-job brief (line superintendent or manager should attend the pre-job brief),

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- ensure that the proper human performance tools are utilized during the performance of the Activity,
 - provide continuous job site coverage,
 - attend post-job brief.
- e. Level of Preparation Oversight – Intrusive involvement of the Line Superintendent or Manager and the Duty Team Leader shall ensure that the following occur:
- proper planning/preparation,
 - use of appropriate human performance tools,
 - appropriate supervision is provided,
 - required task oversight.
- f. Level of Task Oversight – Duty Team Member or as directed by the Duty Team Leader, the subject matter expert, provide oversight of all critical steps.
- g. Switchyard work should not be allowed on dedicated off-site sources during periods of Orange Risk, unless the switchyard work is approved at the same level of approval as the Orange Risk work.
- h. A challenge call should be conducted as directed by the Director of Site Operations.

NOTE

When Asset Utilization makes a declaration of Red Risk, or the Transmission System Operator declares they are operating in the Conservative or Emergency Operations mode, any plant Activity with potential to impact unit or grid reliability should be immediately evaluated in accordance with Steps 4.2.4 and 4.2.5.3.

4. Red Risk

- a. It is unacceptable to voluntarily enter a Red Risk Activity or condition. If an emergent Activity or condition causes, or degradation may cause an unplanned entry into a Red Risk Activity or Plant Condition, immediate action shall be taken to restore and/or protect equipment necessary to mitigate events.
- b. Protected Equipment Postings should be used for Red Risk Level Activities and Plant Conditions.

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- c. Each of the Risk Management Controls of Attachment 5 should be implemented, as feasible, to increase risk awareness and control, reduce the duration of Activities and Plant Conditions associated with elevated risk, and minimize the magnitude of risk increase.
- d. Approval:
- The Site Vice President shall approve all Red Risk Activities or Plant Conditions. The approval shall be documented in the unit log.
- e. Level of Supervision – The first line supervisor shall:
- attend pre-job brief (Duty Team Leader shall attend the pre-job brief),
 - ensure that the proper human performance tools are utilized during the performance of the Activity,
 - provide continuous job site coverage,
 - attend post-job brief.
- f. Level of Preparation Oversight – Intrusive involvement of the line manager and Duty Team Leader (Director or above) shall ensure that the following occur:
- proper planning/preparation,
 - use of appropriate human performance tools,
 - appropriate supervision is provided,
 - required task oversight.
- g. Level of Task Oversight – Duty Team Member (Manager level or above) shall provide continuous job site Oversight.
- h. Switchyard work should not be allowed on dedicated off-site sources during periods of red risk, unless the switchyard work is approved at the same level of approval as the Red Risk work.
- i. A challenge call should be conducted as directed by the Director of Site Operations.

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4.4 Communication of Risk Level

- 4.4.1 The Plant Risk Level, protected equipment, work Activities or Plant Conditions of elevated risk, and possible contingencies, should be covered during shift turnovers and shop briefs.
- 4.4.2 The risk traffic light and electronic bulletin boards (as applicable) should indicate the PRA risk color for incoming plant personnel. Job or task risk shall not apply to the traffic light.
- 4.4.3 When PRA risk level changes, the Shift Manager shall ensure the following communications occur:
- Make a Unit Log entry
 - Make a plant announcement of the change
 - Change the site risk traffic light color.
- 4.4.4 When the risk level change is unexpected, or outside of the schedule by more than one hour, the Shift Manger shall ensure the site Duty Team is notified via alpha-page.

4.5 Protected Equipment and Protected Equipment Postings

4.5.1 Why Equipment is Posted

1. Protecting equipment is necessary to limit operation or maintenance on plant equipment when its redundant equipment is out of service, when the equipment is needed to ensure minimum safety and operational margin, or when it is needed for Key Shutdown Defense in Depth Functions. The on-line goal is to maintain plant emergency response capability and prevent inadvertent plant trips, transients, or Technical Specification Limiting Condition for Operation entries. The Shutdown goal is to maintain Key Shutdown Defense in Depth Functions.

Protected equipment postings are designed to limit plant risk, transients, and to prevent inadvertent Tech Spec entry due to maintenance, testing, or inadvertent equipment manipulations through increased personnel awareness.

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2. Site-specific documents containing additional Protected Equipment Posting information are:
 - BVBP-OPS-0012, Guidance For Protected Train Work During Normal Operations
 - BVBP-OPS-0027, Outage Defense In Depth
 - 1/2-ADM-0712, Shutdown Defense In Depth Assessment
 - DBBP-OPS-0011, Protected Train Room Sign Posting
 - PYBP-POS-2-2, Protected Equipment Postings

3. Although Exempt Activities of Attachment 1 are considered Green Risk, the controls of this section, Protected Equipment Postings, still apply and all personnel and activities shall adhere to the controls established for protected equipment.

4.5.2 When Postings are Determined

1. For Online activities, establishment of the need for protected equipment will normally occur during Work Week planning. Work Control and Operations will determine the required scope of protected equipment and postings per NOP-WM-1001, Order Planning Process.

2. For Outage activities, establishment of the need for protected equipment will normally occur during Outage planning. Outage Management and Operations will determine the required scope of protected equipment and postings in conjunction with NOP-OM-2031, Outage Management Scheduling Process and NOP-OP-1005, Shutdown Defense in Depth.

3. For Emergent work affecting system availability, Ops Shift Management will promptly determine the equipment to be protected. Ops Shift Management will evaluate scheduled work and evaluate work that could impact the protected equipment. Posting will be established as required as soon as possible after the unavailability is identified.

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4.5.3 Where Postings Will Be Placed

1. The Shift Manager, during outages with input from the Shutdown Defense in Depth Coordinator/Advisor, determines the appropriate locations for Protected Equipment Postings.
2. Protected Equipment Postings are placed to call attention to a system, component or device that is important to safety, poses a risk to generation, or is important to key shutdown Defense in Depth functions.
3. Consideration should be given to protecting equipment that, if it becomes unavailable concurrent with the planned plant configuration for maintenance, will result in an unplanned increase in overall risk to an Orange or Red Risk condition.
4. Protected Equipment Postings are normally placed on the doors or entranceways to a system, component or device that are important to safety, pose a risk to generation, or are important to Key Shutdown Defense in Depth Functions. When necessary to place the postings within a room or close to the system, component, or device, then a "stand-off" distance (recommend 2 feet minimum) should be maintained between the posting and the component where possible. For applications where a 2 feet minimum cannot be achieved, other barriers or actions should be put in place with Operations Shift Management approval.
5. At a minimum, the following is posted to provide component level protection:
 - Main power supply feed breaker or driving force supply isolation valve
 - The component or general area
 - Local controls
6. The Protected Equipment Postings process should consider ALARA.

4.5.4 Specific Situations to Protect Equipment

1. When risk significant equipment is made unavailable and overall risk is Yellow or greater, actions shall be taken to protect redundant/diverse equipment or equipment to ensure Key Shutdown Defense in Depth Functions. Consideration should be given to protecting equipment that, if it becomes unavailable concurrent with the planned plant configuration for maintenance, will result in an unplanned increase in overall risk to an Orange or Red Risk condition.

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2. When a Prompt Operability Determination (POD) is pending, then the Shift Manager should evaluate protecting redundant equipment to that which is in question under the POD.

3. Protected Equipment Postings should be used to protect redundant equipment, equipment needed to ensure minimum safety and operational margin, or equipment needed for Key Shutdown Defense in Depth Functions. The following is a list of situations where protected equipment is required.
 - When a Yellow, Orange, or Red risk category will be entered.
 - When a component is out-of-service and failure of the remaining component would cause a unit trip or entry into Technical Specification 3.0.3.
 - When the equipment is necessary to ensure Key Shutdown Defense in Depth Functions are not challenged, such as running decay heat removal.
 - When failure of the component would cause a degradation in Key Shutdown Defense in Depth Functions per NOP-OP-1005.
 - When a component is out-of-service for ≥ 3 days and failure of the remaining component would cause a significant plant transient ($>20\%$).

4.5.5 Control of Protected Equipment Postings

1. Protected Equipment Postings will be tracked to ensure that site personnel recognition of the protected equipment is sustained and for collection of posting devices when the equipment is restored to normal. The Protected Equipment Tracking Log (Attachment 6 or similar Form) completed by Operations will be maintained in the control room until all postings have been removed for a given list, and shall contain, as a minimum:
 - Reason for posting
 - Equipment Number/Noun Name or Room/Door identifier
 - Location of posting(s)
 - Number of postings
 - Installation information
 - Removal information

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2. IF rooms or areas containing protected and non-protected equipment are posted, THEN postings may need to be relocated to allow work on the non-protected equipment without enacting all the controls for working inside a protected equipment posting. Consideration should be given to the nature of the work near, or with the potential to effect, protected equipment even if that work is not in the protected equipment posting.
3. The Protected Equipment Posting shown on Attachment 7 is the only acceptable format. All postings shall include this sign. Methods of establishing the Protected Equipment Posting boundary shall include the sign and may include the following:
 - a. Protective Covers may be placed over devices that should not be manipulated, as long as operability is not affected.
 - b. Barrier Rope, plastic chains, or tape can be used to establish a boundary with applicable postings to warn personnel of protected equipment status.
 - c. Areas with multiple entrance points should have a sign at each entry point.
 - d. Placement of highly visible reminders such as orange cones, or easels that can also bear signage to delineate the protected equipment. Reusable laminated signs are also an alternative.
 - e. Magnetic placards that are placed on breaker doors, room doors, or panels to mark the protected equipment.

4.5.6 Crossing a Protected Equipment Posting Boundary

1. Work on protected equipment – Generally work on protected equipment will not be allowed. This includes Training Activities in the area. Any work on protected equipment shall include the following:
 - a. The workers must be authorized by the Shift Manager or designee to enter these areas to perform work or recommence work after a one-hour stoppage.
 - b. Work crews shall notify the Shift Manager or designee when work in the posted area has been completed.

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- c. The work group will receive a pre-job briefing from Operations prior to entry. This should include the risk significant equipment and risk management actions that shall be observed.
 - d. Supplemental Human Performance barriers, in accordance with NOBP-LP-2603, Event-Free Tools and Verification Practices should be used.
 - e. For Intrusive Activities, continuous oversight of the work group by Supervisory personnel is required.
 - f. For Intrusive Activities, an Operations SRO will perform a walkdown with the work group prior to commencing work to ensure all aspects of the work are assessed, including such challenges as proximity risk.
 - g. Walkdowns and oversight may need to be adjusted based on ALARA considerations.
2. Individuals requiring routine access to these areas (operator rounds, fire watch, security inspections, etc.) shall also contact the Shift Manager or designee prior to entering these areas. The Shift Manager or designee may allow further entries over the shift without further communications.

5.0 RECORDS

5.1 Records Handling

Records completed/generated by this procedure shall be handled in accordance with direction per this procedure.

5.2 Records Capture

The following records are completed/generated by this document:

Quality Records

None

Non-Quality Records

None

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ATTACHMENT 1: EXEMPT ACTIVITIES

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1. Routine station Activities including Chemistry and Radiation Protection samples performed on a weekly or more frequent basis, pump oil additions, and operator rounds.
2. Work Activities that are entirely bounded and contained within a Clearance Boundary (this does not include Test Tags clearances). Unless the clearance results in reduced trip logic, actuation of a safety function, or the Activity affects the clearance boundary.
3. Work on: spare parts, bench work, shop fabrication, and staging of materials, equipment, components, supplies and fittings.
4. Facility Maintenance Activities meeting ALL of the following criteria:
 - Work scope is not Power Block Equipment. (Reference NOP-WM-0001)
 - The work does not affect Safety, Regulatory, Tech Spec, Code, or Environmental Qualifications.
5. Toolpouch Maintenance Activities IAW Repair Identification and Toolpouch Maintenance, NOP-WM-9001.
6. Fire Protection Activities:
 - Fire hose, extinguisher, fire fighting equipment and plant door inspections.
 - Fire Detector Surveillances that are detection only and are not interlocked with any other system.
7. Non-Tech Spec required crane and manlift Surveillances.
8. Work Activities on Security equipment.
9. Non Intrusive Activities performed without physical impact (e.g., engineering calculations, run time data gathering, setpoint verifications, visual inspections, etc.).
10. Lubrication Activities not requiring additional equipment operation.
11. Removing dried boron off piping and equipment.
12. Maintenance Activities under the following conditions:
 - local instrumentation when isolated from the process stream,
 - in an isolation/thermal well or that is isolated from the process stream,
 - there is no interface with control or remote indicators or other equipment and,
 - no common process taps with other instruments unless they are also not included in this process.
 - Activities on instrumentation loops, which only provide local, remote panel or Control Room alarms, computer point or indication changes with no actuation or equipment control.
 - cleaning or replacing external screens and filters (for example, Main Feedwater Pump motors, Inverters, etc.)
 - shop work.
13. Non-safety related thermal insulation (non-asbestos) removal/modification and installation activities.
14. Operations surveillances which have no impact to grid or unit reliability.

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ATTACHMENT 2: PLANT RISK MATRIX

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		Green	Yellow	Orange	Red
Activity	PRA	Green	Yellow	Orange	Red
	Shutdown Defense in Depth	Green	Yellow	Orange	Red
	Asset Utilization	Green	Yellow	Orange	Red
	Wadsworth Control Center	Normal Operations	Normal Operations	Conservative Operations	Emergency Operations
	Risk Assessment Worksheet	Green	Yellow	Orange	Red
	Time remaining on S/D LCO	≥ 24 hours	< 24 hours but > 8 hours	≤ 8 hours or activity duration >50% of TS S/D action time	
Approval	Work Implementation Schedule or Outage Schedule	Operations Manager (Work Implementation Schedule or Outage Schedule)	Director of Site Operations (Work Implementation Schedule or Outage Schedule)	Site Vice President (Control Room Log)	
Brief Level	Standard Brief	Brief w/Line Supervisor	Brief w/Line Superintendent or Manager	Brief w/Duty Team Leader	
For Risk Levels that are based only on Plant Conditions, such as during Shutdown (time to boil, train/divisional outages, etc.) or PRA (train/divisional outages, aggregate risk, etc.), only the Risk Management Controls on Attachment 5 will apply since there is no specific Activity for which to apply supervisory or oversight actions.					
Actions	Additional Risk Management Actions Attachment 5	None	Each of the Risk Management Controls of Attachment 5 should be implemented, as feasible, to increase risk awareness and control, reduce the duration of Activities and Plant Conditions associated with elevated risk, and minimize the magnitude of risk increase.		
	Level of Supervision	IAW Normal Management Expectations	Supervisor ensure proper tools are utilized and observe critical steps.	Supervisor continuous job site coverage	Supervisor continuous job site coverage
	Level of Preparation Oversight	IAW Normal Management Expectations	Intrusive involvement of the Line Superintendent or Manager in job preparation	Intrusive involvement of Line Superintendent or Manager and Duty Team Leader in job preparation.	Intrusive involvement of Line Manager and Duty Team Leader (Director or above) in job preparation
	Level of Task Oversight	IAW Normal Management Expectations	Duty Team IAW Normal Management Expectations	Duty Team Member or as directed by the Duty Team Leader, the subject matter expert, provide oversight of all critical steps	Duty Team Member (Manager level or above) continuous job site coverage
	Challenge Call	Not Required			Challenge Call should be conducted as directed by the Director of Site Operations
	Protected Equipment Postings	Not Required	Protected Equipment Postings should be used for Yellow, Orange, and Red Risk Level Activities and Plant Conditions.		

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ATTACHMENT 3: RISK ASSESSMENT WORKSHEET

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ALL "NO" answers to the questions indicate the Activity poses Green Risk to Nuclear Safety, Industrial Safety, Radiological Safety, Environmental Safety and Generation/Production.		
A. NUCLEAR SAFETY RISK ASSESSMENT		
1.	Activity, if performed incorrectly (i.e., any single unrecoverable error), that would cause a reactor trip and the channel is not bypassed, unplanned power change, unplanned start/ stop or actuation of trip sensitive Engineered Safety Features, or Turbine Trip circuitry equipment. If answer is yes, this Activity will be Yellow.	YES/NO
2.	Activity, if performed incorrectly (i.e., any single unrecoverable error), that would cause a loss of, or defeat of a safety system. If answer is yes, this Activity shall be Yellow.	YES/NO
3.	Activity, if performed incorrectly (i.e., any single unrecoverable error), that would cause a loss or unavailability of an Offsite Power Source or Emergency Diesel Generation. If answer is yes, this Activity will be Yellow.	YES/NO
4.	Any physical activity performed on or near protected train equipment or trip sensitive equipment that would cause a plant transient or loss of an engineered safety feature. (e.g., building a scaffold over a protected diesel or an operating feed pump at-power.) If answer is yes, this Activity will be Yellow.	YES/NO
5.	Maintenance CM or EM Activity that will affect reactivity sensitive or reactivity monitoring systems. Refer to NOP-OP-1004 for Reactivity Sensitive systems. If answer is yes, this Activity will be Yellow.	YES/NO
6.	Activity, if performed incorrectly (i.e., any single unrecoverable error), would cause a loss of a safety electrical bus or would result in the loss of a load center and cause a plant trip or rapid power reduction. If answer is yes, this Activity will be Yellow. Based on Activity frequency and complexity the Activity may be upgraded to Orange.	YES/NO
7.	Complex or Intrusive Activity that involves performance of critical steps in multiple areas, are performed less often than quarterly, and if performed incorrectly (i.e., any single unrecoverable error), would significantly increase the possibility of a plant transient. (e.g., RPS trip and channel is not bypassed, unplanned power change, unplanned start/stop or actuation of trip sensitive Engineered Safety Function, or Turbine Trip circuitry equipment). a) If answer is yes, this Activity will be Orange. b) If the Activity is performed more often than quarterly with a successful working history, the Activity may be classified as yellow. NOTE: If the specific Activity is performed less often than quarterly, but are typical of similar tests performed more often than quarterly, the manager may request a change in risk level Activity to be approved by the Director of Site Operations.	Yellow YES/NO Orange YES/NO

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ATTACHMENT 3: RISK ASSESSMENT WORKSHEET

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A. NUCLEAR SAFETY RISK ASSESSMENT (Cont.)		
8.	Activity that is performed on Containment/Drywell Penetrations when required to be Operable. If compensatory actions satisfy technical specifications compliance, i.e., isolate the penetration, the Activity may be screened as green. If answer is yes and actions can restore the penetration, this Activity will be Yellow. If answer is yes and actions can not restore the penetration, this Activity will be Red.	YES/NO
9.	Maintenance CM or EM Activity that will affect the ability to manage reactivity in the core, spent fuel pool or new fuel storage. (e.g., anticipating, controlling, and responding to reactivity changes). If answer is yes, this Activity will be Orange.	YES/NO
10.	Activity, if performed incorrectly would degrade the ability of Operations to control the plant, e.g., places the plant in an unusual configuration or involves complex sequencing of Activities. If answer is yes, this Activity will be Orange.	YES/NO
11.	Activity removes equipment from service that upon a plant trip, with no additional failures, would cause a loss of the ability to remove decay heat. If answer is yes, this Activity will be Red.	YES/NO
12.	Switchyard Activities conducted on dedicated off-site sources during periods of Shutdown Defense in Depth Orange or Red Risk, (NOP-OP-1005). If answer is yes, this Activity will also be Orange or Red, respectively.	YES/NO
13.	Activity involving a NUREG -0612 Heavy Load (1/2-ADM-0819 (BV), DB-MN-00006 (DB), PAP-1313 (PY)). . If answer is yes, this Activity will be Yellow.	YES/NO
B. INDUSTRIAL SAFETY RISK ASSESSMENT		
1.	Activity will be performed on a system operating at ≥ 500 psig or $\geq 200^\circ\text{F}$ and an unisolable system breach is required, (e.g., on-line leak repair or repacking a valve on its backseat). If answer is yes, this Activity will be Yellow.	YES/NO
2.	Activity will be performed in an environment that requires a heat stress stay time calculation ≤ 15 minutes. If answer is yes, this Activity shall be Yellow.	YES/NO
3.	Activity will be performed on a system that requires a breach that will directly expose personnel to hazardous chemicals or gases and purging/flushing or ventilating alone will not remove the hazard. If answer is yes, this Activity will be Yellow.	YES/NO
4.	Asbestos work requiring a qualified asbestos worker. If answer is yes, this Activity will be Yellow.	YES/NO
5.	Activity is required to be performed within 3 feet of the edge of water, pools, or open holes, and no handrail separating worker from the edge. If answer is yes, this Activity will be Yellow.	YES/NO
6.	Activity at a height > 6 ft above ground, water, or other surfaces when the use of fall protection, scaffolding, or a ladder is not practical. If answer is yes, this Activity will be Yellow.	YES/NO

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ATTACHMENT 3: RISK ASSESSMENT WORKSHEET

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B. INDUSTRIAL SAFETY RISK ASSESSMENT (Con't)		
7.	All dive Activities. If answer is yes, this Activity will be Yellow. If the Activity is in close proximity to operating equipment where entrapment could occur, the Activity will be Orange.	YES/NO
8.	Activity involving Increased Risk Lifts (NOP-WM-5003). If answer is yes, this Activity will be at least a Yellow.	YES/NO
9.	Digging, trenching, or excavating using power equipment that will be greater than 1 foot in depth. If answer is yes, this Activity will be Yellow.	YES/NO
10.	Mobile crane Activities in the area of overhead energized power lines. If answer is yes, this Activity will be Yellow.	YES/NO
11.	Activity will require entry into a "permit" required confined space: that contains a known hazardous atmosphere OR an Activity will require entry into a "permit" required confined space and includes the use of a hazardous material. If answer is yes, this Activity will be Orange.	YES/NO
12.	Activity will be performed on live, unguarded, uninsulated lines and equipment operating at > 50 Volts. If voltage > 50 volts and < 600 volts, this Activity will be Yellow. If voltage > 600 volts, this Activity will be Red. Equipment, including testing equipment, where amplitude is minimal such that no industrial safety hazard exists (e.g., scintillation detector) should be reviewed and possibly excluded.	YES/NO
13.	Activity involving application of freeze seals. If answer is yes, this Activity will be Yellow.	YES/NO
14.	Activity involving work within 3 feet of any unguarded rotating equipment or equipment with the potential for rotation. If answer is yes, this Activity will be Yellow.	YES/NO
C. RADIOLOGICAL SAFETY RISK ASSESSMENT		
1.	Activity involving an ALARA High Risk as determined by the ALARA Supervisor in accordance with NOP-OP-4107, Radiation Work Permit (RWP). If answer is yes, this activity will be Yellow.	YES/NO

NUCLEAR OPERATING PROCEDURE		Procedure Number: NOP-OP-1007	
Title: Risk Management	Use Category: General Skill Reference		
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ATTACHMENT 3: RISK ASSESSMENT WORKSHEET

Page 4 of 4

D. ENVIRONMENTAL SAFETY RISK ASSESSMENT		
1.	Activity, if performed incorrectly, could cause an unmonitored release or discharge of hazardous or radioactive material to the environment. If answer is yes, this Activity will be Orange. However, for frequently performed Activities where a successful Activity history exists, provided appropriate specific evolution procedures are in place, this Activity will be Yellow. This excludes approved discharges bounded by the site license and/or environmental permits.	YES/NO
2.	Activity, if performed incorrectly, could result in the entry of the site abnormal (off normal) instruction for spill or chemical release. If answer is yes, this Activity will be Orange. However, for frequently performed Activities where a successful Activity history exists, provided appropriate specific evolution procedures are in place, this Activity will be Yellow.	YES/NO
E. GENERATION RISK ASSESSMENT		
1.	Activity involves work that may require a loss of plant thermal performance. If answer is yes, this Activity will be Yellow.	YES/NO
2.	Activity involves work that may result in a reduction in power. If answer is yes, this Activity will be Yellow.	YES/NO
3.	Activity time remaining is a Tech Spec LCO with \leq 24-hour but $>$ 8-hour action, which requires a unit shutdown if not exited. If answer is yes, this Activity will be Yellow.	YES/NO
4.	Activity time remaining is a Tech Spec LCO with \leq 8-hour action, which requires a unit shutdown if not exited. If answer is yes, this Activity will be Orange.	YES/NO
5.	Activity duration is scheduled to be \geq 50% of the allowable Tech Spec Action Statement for any TS which requires a unit shutdown if not exited. If answer is yes, this Activity will be Orange.	YES/NO

3.3 INSTRUMENTATION

3.3.12 Explosive Gas Monitoring Instrumentation

LR 3.3.12 Two channels of the Gaseous Waste System Surge Tank Discharge Oxygen Monitor (2GWS-OA100A&B) shall be OPERABLE with Alarm/Trip Setpoints set to ensure the limits of LR 3.7.6 are not exceeded.

- NOTE -

The requirements of LR 3.3.12 are part of the Technical Specification 5.5.8, "Explosive Gas and Storage Tank Radioactivity Monitoring Program."

APPLICABILITY: During waste gas decay tank filling operation.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels with Alarm/Trip setpoint less conservative than required.	A.1 Declare the affected channel(s) Inoperable.	Immediately
B. One required channel inoperable.	B.1 Take and analyze grab samples.	Once per 24 hours
	<u>AND</u> B.2 Restore inoperable channel to OPERABLE status.	30 days

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two required channels inoperable.	C.1 Take and analyze grab samples.	Once per 4 hours during degassing operations <u>AND</u> Once per 24 hours during other operations
	<u>AND</u> C.2 Restore inoperable channels to OPERABLE status.	30 days
D. Required Action and associated Completion Time not met.	D.1 Prepare and submit a Special Report in accordance with 10 CFR 50.4 to explain why the inoperability was not corrected in a timely manner.	30 days

LICENSING REQUIREMENT SURVEILLANCES

SURVEILLANCE		FREQUENCY
LRS 3.3.12.1	Perform CHANNEL CHECK.	24 hours
LRS 3.3.12.2	Perform CHANNEL OPERATIONAL TEST.	31 days
LRS 3.3.12.3	<p style="text-align: center;">- NOTE -</p> <p>The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:</p> <ol style="list-style-type: none"> 1. One volume percent oxygen, balance nitrogen, and 2. Four volume percent oxygen, balance nitrogen. <hr/> Perform CHANNEL CALIBRATION.	92 days

5.5 Programs and Manuals

5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the Waste Gas Holdup System, the quantity of radioactivity contained in waste gas decay tanks (Unit 1) and gaseous waste storage tanks (Unit 2), and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks. The gaseous radioactivity quantities shall be determined following the methodology in Branch Technical Position (BTP) ETSB 11-5, "Postulated Radioactive Release due to Waste Gas System Leak or Failure." The liquid radwaste quantities shall be determined in accordance with Standard Review Plan, Section 15.7.3, "Postulated Radioactive Release due to Tank Failures."

The program shall include:

- a. The limits for concentrations of hydrogen and oxygen in the Waste Gas Holdup System and a surveillance program to ensure the limits are maintained. Such limits shall ensure that the concentration of hydrogen and oxygen is maintained below flammability limits,
- b. A surveillance program to ensure that the quantity of radioactivity contained in each waste gas decay tank (Unit 1) and each connected group of waste gas storage tanks (Unit 2) is less than the amount that would result in a whole body exposure of > 0.5 rem to any individual in an unrestricted area, in the event of an uncontrolled release of the tanks' contents, and
- c. A surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System is less than the amount that would result in concentrations greater than the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

Beaver Valley Power Station		Procedure Number: 1/2-ODC-3.03	
Title: ODCM: Controls for RETS and REMP Programs	Unit: 1/2	Level Of Use: General Skill Reference	
	Revision: 8	Page Number: 70 of 86	
ATTACHMENT O Page 1 of 1 ODCM CONTROLS: GAS STORAGE TANKS			
 CONTROLS: GAS STORAGE TANKS <hr/>			
3.11.2.5	In accordance with T.S. 5.5.8, the quantity of radioactivity contained in the following gas storage tanks(s) shall be limited to the noble gas values listed below (considered as Xe-133).		
	a. ≤52,000 Curies: Each BV-1 Waste Gas Decay Tank (1GW-TK-1A, or 1GW-TK-1B, or 1GW-TK-1C)		
	b. ≤19,000 Curies: Any connected group of BV-2 Gaseous Waste Storage Tanks (2GWS-TK25A thru 2GWS-TK25G)		
<u>APPLICABILITY:</u> At all times.			
<u>ACTION:</u>			
	a. With the quantity of radioactive material in any gas storage tank exceeding the above limit, immediately suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit, and		
	b. Submit a Special Report in accordance with 10 CFR 50.4 (b)(1) within 30 days and include a schedule and a description of activities planned and/or taken to reduce the contents to within the specified limits.		
	c. The provisions of ODCM Control 3.0.3 are not applicable.		
 <u>SURVEILLANCE REQUIREMENTS</u> <hr/>			
4.11.2.5.1	<u>For BV-1 Waste Gas Decay Tanks:</u> The quantity of radioactive material contained in each BV-1 Waste Gas Decay Tank shall be determined to be within the above limit at least once per 24 hours when radioactive materials are being added to the tank. Performance of this surveillance is required when the gross concentration of the primary coolant is greater than 100 uCi/ml.		
	<u>For BV-2 Gaseous Waste Storage Tanks:</u> The quantity of radioactive material contained in any connected group of BV-2 Gaseous Waste Storage Tanks shall be determined to be within the above limit at least once per 24 hours when radioactive materials are being added to the tanks.		

FISSION PRODUCT BARRIER MATRIX (Modes 1-4)

- 1.1 Fuel Clad (RCS activity, corecooling, heat sink)
- 1.2 RCS (*Integrity, SGTR, heat sink*)
- 1.3 Containment (*CNMT Red Path, CNMT bypass*)

1

SYSTEM DEGRADATION

- 2.1 Loss of Instrumentation
- 2.2 Loss of Function/Comm's
- 2.3 Failure of Rx Prot.-ATWS
- 2.4 Fuel Clad Degradation
- 2.5 RCS Unident Leakage
- 2.6 RCS Ident. Leakage
- 2.7 Technical Specification S/D
- 2.8 Safety Limit Exceeded
- 2.9 Turbine Failure
- 2.10 Stm/Feed Line.Break

2

LOSS OF POWER

- 3.1 Loss of AC (Power Ops) (*Modes 1-4*)
- 3.2 Loss of AC (Shutdown) (*Modes 5 & 6*)
- 3.3 Loss of DC

3

HAZARDS and ED JUDGEMENT

- 4.1 Fire
- 4.2 Explosion
- Table 4-1
- Figure 4-A
- 4.3 Flammable Gas
- 4.4 Toxic Gas
- Table 4-2
- Figure 4-B/Figure 4-C
- 4.5 Control Room Evacuation
- 4.6 Security
- 4.7 ED Judgement
- Table 4-3/Table 4-4

4

DESTRUCTIVE PHENOMENA

- 5.1 Earthquake
- 5.2 Tornado/High Winds
- Table 5-1
- Figure 5-A
- 5.3 Aircraft Crash/Projectile
- 5.4 River Level High
- 5.5 River Level Low
- 5.6 Watercraft Crash (RW/SWS Loss)

5

SHUTDOWN SYSTEM DEGRADATION

- 6.1 Loss of Shutdown Systems
- 6.2 RCS Inventory-Shutdown
- 6.3 Loss of AC (Shutdown) (*Modes 5 & 6*)
- 6.4 Loss of DC (Shutdown) (*Modes 5 & 6*)
- 6.5 Fuel Handling (*All Modes*)
- 6.6 Inadvertent Criticality

6

RADIOLOGICAL

- 7.1 Gaseous Effluent
- 7.2 Liquid Effluent
- Table 7-1
- Figure 7-A
- 7.3 Radiation Levels
- 7.4 Fuel Handling (All Modes)
- Table 7-2

7

Modes: 1,2,3,4
INSTRUCTIONS

NOTE: An INDICATOR is considered to be MET if the stated threshold has been, or is, reached or exceeded, on the basis of confirmed observation or VALID instrument readings. The Emergency Director must use judgement when classifying parameters that may be transitory (e.g., containment pressure).

NOTE: The INDICATOR should be considered MET if the parameter is indeterminate due to instruments that are not available or out of range and the existence of the condition can not be reasonably discounted.

NOTE: An INDICATOR is considered to be MET if, in the judgement of the Emergency Director, the INDICATOR will be MET imminently (i.e., within 1 to 2 hours in the absence of a viable success path). The classification shall be made as soon as this determination is made.

1. In the matrix to the left, review the LOSS INDICATORS in each barrier column. If one or more INDICATORS are met, check the LOSS block at the bottom of the column.
2. If no LOSS is identified for a particular barrier, review the potential LOSS INDICATORS for that barrier. If one or more INDICATORS are met, check the potential LOSS block at the bottom of the barrier column.
3. Compare the blocks checked to the CRITERIA below and make the appropriate declaration.

CRITERIA

GENERAL EMERGENCY

LOSS of any Two (2) barriers and Potential loss of third barrier.
OR
LOSS of all three (3) barriers.

SITE AREA EMERGENCY

LOSS or Potential LOSS of any two (2) barriers.
OR
LOSS of one (1) barrier and a Potential LOSS of a second barrier.

ALERT

Any LOSS or Potential LOSS of Fuel Clad barrier.
OR
Any LOSS or Potential LOSS of RCS barrier.

UNUSUAL EVENT

LOSS or Potential Loss of CNMT barrier.

SEE ALSO EAL'S:

2.4 Fuel Clad Degradation (RCS Specific Activity >LCO)
2.5 RCS Unidentified or Pressure Boundary Leakage > 10 gpm.
2.6 RCS Identified Leakage > 25 gpm.

FISSION PRODUCT BARRIER MATRIX - U2

1.1, 1.2, 1.3

1.1 Fuel Clad Barrier

Critical Safety Function Status

LOSS	Potential LOSS
Core Cooling CSF RED PATH	Core Cooling CSF ORANGE PATH OR Heat Sink CSF RED PATH

OR

LOSS	Potential LOSS
Greater than 1200F	Greater than 729F

OR

LOSS	Potential LOSS
Not Applicable	RVLIS Full Range <40% (no RCPs running)

OR

LOSS	Potential LOSS
RCS activity >300µCi/gm dose equivalent Iodine-131	Not Applicable

OR

LOSS	Potential LOSS
2CHS-RQ101 A/B [3051] VALID reading greater than 300µCi/ml with letdown unisolated	Not Applicable

OR

LOSS	Potential LOSS																							
VALID reading exceeds:	Not Applicable																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Time After S/D, hrs</th> <th>2RMR-RQ206 R/hr</th> <th>2RMR-RQ207 R/hr</th> <th>2RMR-RQ202* mR/hr</th> </tr> <tr> <td>0-0.5</td> <td>5.9E+02</td> <td>1.2E+03</td> <td>1.2E+03</td> </tr> <tr> <td>0.5-4</td> <td>4.5E+02</td> <td>6.8E+02</td> <td>2RMR-RQ206 = chn 1029</td> </tr> <tr> <td>4-12</td> <td>3.1E+02</td> <td>3.1E+02</td> <td>2RMR-RQ207 = chn 1030</td> </tr> <tr> <td>12-24</td> <td>2.6E+02</td> <td>1.7E+02</td> <td></td> </tr> </table>	Time After S/D, hrs	2RMR-RQ206 R/hr	2RMR-RQ207 R/hr	2RMR-RQ202* mR/hr	0-0.5	5.9E+02	1.2E+03	1.2E+03	0.5-4	4.5E+02	6.8E+02	2RMR-RQ206 = chn 1029	4-12	3.1E+02	3.1E+02	2RMR-RQ207 = chn 1030	12-24	2.6E+02	1.7E+02		<p style="text-align: center;">* Due to streaming thru airlock</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>2RMR-RQ202 = chn 3020</td> </tr> <tr> <td>2RMR-RQ206 = chn 1029</td> </tr> <tr> <td>2RMR-RQ207 = chn 1030</td> </tr> </table>	2RMR-RQ202 = chn 3020	2RMR-RQ206 = chn 1029	2RMR-RQ207 = chn 1030
Time After S/D, hrs	2RMR-RQ206 R/hr	2RMR-RQ207 R/hr	2RMR-RQ202* mR/hr																					
0-0.5	5.9E+02	1.2E+03	1.2E+03																					
0.5-4	4.5E+02	6.8E+02	2RMR-RQ206 = chn 1029																					
4-12	3.1E+02	3.1E+02	2RMR-RQ207 = chn 1030																					
12-24	2.6E+02	1.7E+02																						
2RMR-RQ202 = chn 3020																								
2RMR-RQ206 = chn 1029																								
2RMR-RQ207 = chn 1030																								

OR

1.1.7 Emergency Director Judgement
Any condition that, in the judgement of the SM/ED, indicates loss or potential loss of the Fuel Clad barrier comparable to the indicators listed above.

LOSS Potential LOSS

1.2 RCS Barrier

Critical Safety Function Status

LOSS	Potential LOSS
Not Applicable	RCS Integrity CSF RED PATH OR Heat Sink CSF RED PATH

OR

LOSS	Potential LOSS
RVLIS Full Range <40% (no RCPs running)	Not Applicable

OR

LOSS	Potential LOSS
RCS leak results in loss of RCS subcooling	Unisolable RCS leak that requires an additional charging pump be started with letdown isolated. <u>OR</u> Unisolable RCS leak causes safety injection actuation indicated by direct entry into EOP E-1 required by EOP E-0

OR

LOSS	Potential LOSS
SGTR that results in a safety injection actuation <u>OR</u> Entry into E-3 required by EOPs	Not Applicable

OR

LOSS	Potential LOSS																	
+VALID reading above background exceeds:	Not Applicable																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Time After S/D, hrs</th> <th>2RMR-RQ201 mR/hr</th> <th>2RMR-RQ202* mR/hr</th> </tr> <tr> <td>0-0.5</td> <td>2.7E+02</td> <td>1.4E+00</td> </tr> <tr> <td>0.5-4</td> <td>2.0E+02</td> <td>8.0E-01</td> </tr> <tr> <td>4-12</td> <td>1.5E+02</td> <td>3.7E-01</td> </tr> <tr> <td>12-24</td> <td>1.2E+02</td> <td>2.0E-01</td> </tr> </table>	Time After S/D, hrs	2RMR-RQ201 mR/hr	2RMR-RQ202* mR/hr	0-0.5	2.7E+02	1.4E+00	0.5-4	2.0E+02	8.0E-01	4-12	1.5E+02	3.7E-01	12-24	1.2E+02	2.0E-01	<p style="text-align: center;">* Due to streaming thru airlock</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>2RMR-RQ201 = chn 1026</td> </tr> <tr> <td>2RMR-RQ202 = chn 3020</td> </tr> </table>	2RMR-RQ201 = chn 1026	2RMR-RQ202 = chn 3020
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0-0.5	2.7E+02	1.4E+00																
0.5-4	2.0E+02	8.0E-01																
4-12	1.5E+02	3.7E-01																
12-24	1.2E+02	2.0E-01																
2RMR-RQ201 = chn 1026																		
2RMR-RQ202 = chn 3020																		

OR

1.2.6 Emergency Director Judgement
Any condition that, in the judgement of the SM/ED, indicates loss or potential loss of the RCS barrier comparable to the indicators listed above.

LOSS Potential LOSS

1.3 CNMT Barrier

Critical Safety Function Status

LOSS	Potential LOSS
Not Applicable	CNMT CSF RED PATH OR Actions of FR-C.1 (RED PATH) are INEFFECTIVE

OR

LOSS	Potential LOSS
Rapid unexplained drop in CNMT pressure following initial rise <u>OR</u> CNMT pressure or sump level response NOT consistent with LOCA conditions	CNMT pressure >45 PSIG OR CNMT H2 rises >4% OR CNMT pressure >11 PSIG with less than one full train of CNMT spray

OR

LOSS	Potential LOSS
CNMT isolation is incomplete creating a direct release path to the environment when required	Not Applicable

OR

LOSS	Potential LOSS
RUPTURED S/G is also FAULTED Outside of CNMT <u>OR</u> P-to-S leakrate >T/S with approx. 4-8 hr. steam release from affected S/G via nonisolable MSSV, SGADV, or from MSLB outside of CNMT	Unexplained VALID rise in reading on area or ventilation monitors in contiguous areas with known LOCA <u>OR</u> HIGH Alarm on 2SWS-RQ100A,B,C, or D AND affected HX is NOT isolated

OR

LOSS	Potential LOSS																		
Not Applicable	VALID reading exceeds:																		
<p style="text-align: center;">* Due to streaming thru airlock</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>2RMR-RQ202 = chn 3020</td> </tr> <tr> <td>2RMR-RQ206 = chn 1029</td> </tr> <tr> <td>2RMR-RQ207 = chn 1030</td> </tr> </table>	2RMR-RQ202 = chn 3020	2RMR-RQ206 = chn 1029	2RMR-RQ207 = chn 1030	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Time After S/D, hrs</th> <th>2RMR-RQ206 R/hr</th> <th>2RMR-RQ202* mR/hr</th> </tr> <tr> <td>0-0.5</td> <td>1.8E+04</td> <td>6.1E+04</td> </tr> <tr> <td>0.5-4</td> <td>6.2E+03</td> <td>2.0E+04</td> </tr> <tr> <td>4-12</td> <td>3.0E+03</td> <td>9.0E+03</td> </tr> <tr> <td>12-24</td> <td>1.8E+03</td> <td>5.2E+03</td> </tr> </table>	Time After S/D, hrs	2RMR-RQ206 R/hr	2RMR-RQ202* mR/hr	0-0.5	1.8E+04	6.1E+04	0.5-4	6.2E+03	2.0E+04	4-12	3.0E+03	9.0E+03	12-24	1.8E+03	5.2E+03
2RMR-RQ202 = chn 3020																			
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0-0.5	1.8E+04	6.1E+04																	
0.5-4	6.2E+03	2.0E+04																	
4-12	3.0E+03	9.0E+03																	
12-24	1.8E+03	5.2E+03																	

OR

1.3.6 Emergency Director Judgement
Any condition that, in the judgement of the SM/ED, indicates loss or potential loss of the Containment barrier comparable to the indicators listed above.

LOSS Potential LOSS

DEFINITIONS/ACRONYMS

ALERT, UNUSUAL EVENT, GENERAL EMERGENCY, SITE AREA EMERGENCY: See EAL 4.7

BOMB: A fused explosive device.

CIVIL DISTURBANCE: A group of ten (10) or more persons violently protesting station operations or activities at the site.

Each **CRITERION** identifies the emergency condition and any numeric values which define that condition (*i.e., the basis of the declaration*). All classifications are based on an assessment (*i.e., determination that the condition is VALID*) by the Emergency Director that the **CRITERION** has been met or exceeded. Implicit in this protocol is the necessity for these assessments to be completed within 15 minutes (unless otherwise noted) of indications being available to Control Room operators that an Emergency Action Level (EAL) has been exceeded.

CRITICAL SAFETY FUNCTION (CSFs): A plant safety function required to prevent significant release of core radioactivity to the environment. There are six CSFs: Subcriticality, Core Cooling, Heat Sink, Vessel Integrity (*Pressurized Thermal Shock*), Integrity (*Containment*) and Inventory (*RCS*).

EXCLUSION AREA BOUNDARY (EAB): A boundary surrounding the BVPS units beyond which the postulated UFSAR accidents will not result in population doses exceeding the criteria of 10 CFR Part 100. Refer to Figure 7-A.

EXPLOSION: A rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment that imparts energy of sufficient force to potentially damage permanent structures, systems or components

EXTORTION: An attempt to cause an action at the station by threat of force.

FAULTED: (Steam Generator) Existence of secondary side leakage (*i.e., steam or feed line rupture*) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute fires. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

HOSTAGE: A person or object held as leverage against the station to ensure that demands will be met by the station

INDICATOR(s): Are available via instrumentation, calculations, procedure Entry (AOPs, EOPs, etc.), operator knowledge of plant conditions (pressure, temperatures, etc.) in the Control Room, or reports received from plant personnel, whichever is most limiting, or other evidence that the associated criterion may be exceeded. Inherent in this protocol is the necessity for these assessments to be completed with 15 minutes (unless otherwise noted) of sufficient indications being available to Control Room Operators that an Emergency Action Level (EAL) has been exceeded.

INEFFECTIVE: The specified restoration action(s) does not result in a reduction in the level of severity of the RED PATH condition within 15 minutes from identification of the Core Cooling CSF Status Tree RED PATH TERMINUS. A reduction in the level of severity is an improvement in the applicable parameters (*e.g., increasing trend in reactor vessel water level (RVLIS full range) and/or decreasing trend on core thermocouple temperatures*).

INTRUSION/INTRUDER: Suspected hostile individual present in a protected area without authorization.

LOWER EXPLOSIVE LIMIT (LEL): Concentration level below which combustible gases will not explode due to ignition.

LCO, LIMITING CONDITION FOR OPERATION: as specified in the BVPS Technical Specifications, the minimum functional performance level for equipment required for safe shutdown.

ORANGE PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under severe challenge.

PROJECTILE: An object ejected, thrown, or launched towards a plant structure. The source of the projectile may be onsite or offsite. Potential for damage is sufficient to cause concern regarding the integrity of the affected structure or the operability or reliability of safety equipment contained therein.

The **PROTECTED AREA** encompasses all owner controlled areas within the security perimeter fence as shown on Figure 4-A.

RED PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under extreme challenge.

RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude sufficient to require or cause a reactor trip and

safety injection.

SABOTAGE: Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment unavailable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) Automatic turbine runback >25% thermal reactor power, (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation

The **SITE PERIMETER** encompasses all owner controlled areas in the immediate site environs as shown on Figure 4-A.

STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on the BVPS or one of its vendors. The STRIKE ACTION must threaten to interrupt normal plant operations to be considered.

TOXIC GAS: A gas that is dangerous to life or health by reason of inhalation or skin contact (*e.g., chlorine*).

UNPLANNED: An event or action is UNPLANNED if it is not the expected result of normal operations, testing, or maintenance. Events that result in corrective or mitigative actions being taken in accordance with abnormal or emergency procedures are UNPLANNED.

With specific regard to radioactivity releases, a release of radioactivity is UNPLANNED if it has not been authorized by a Radioactive Waste Discharge Authorization (RWDA). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the RWDA (*e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank*).

VALID: An indication or report or condition is considered to be VALID when it is conclusively verified by (1) an instrument channel check, or (2) indications on related or redundant indicators, or (3) by direct observation by plant personnel, such that doubt related to the indicator's operability, the condition's existence, or the report's accuracy is removed. Implicit in this definition is the need for timely assessment (*i.e., within 15 minutes*).

VISIBLE DAMAGE: Damage to equipment or structure that is readily observable without measurements, testing, or analyses. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage includes: deformation due to heat or impact, denting, penetration, rupture, cracking, paint blistering. Surface blemishes (*e.g., paint chipping, scratches*) should not be included.

VITAL AREA is any area within the PROTECTED AREA which contains equipment, systems, components, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation

2.1 Loss of Instrumentation							
Mode	Criterion / Indicator						
	Refer to Tab 1 "Fission Product Barrier Matrix" and Tab 7 "Radiological Effluents"						
1 2 3 4	<p>Inability to monitor a SIGNIFICANT TRANSIENT in progress [1 and 2 and 3]</p> <ol style="list-style-type: none"> Loss of most (>75%) annunciators or indications SIGNIFICANT TRANSIENT in progress Inability to directly monitor any of the following CSFs: <table border="0"> <tr> <td>Subcriticality</td> <td>Vessel Integrity</td> </tr> <tr> <td>Core Cooling</td> <td>Containment</td> </tr> <tr> <td>Heat Sink</td> <td></td> </tr> </table> 	Subcriticality	Vessel Integrity	Core Cooling	Containment	Heat Sink	
Subcriticality	Vessel Integrity						
Core Cooling	Containment						
Heat Sink							
1 2 3 4	<p>UNPLANNED loss of most annunciators or indications for >15 minutes with either a SIGNIFICANT TRANSIENT in progress or a loss of non-alarming compensatory indications [1 and 2 and 3]</p> <ol style="list-style-type: none"> UNPLANNED loss of most (>75%) annunciators or indications for >15 minutes SM judgement that additional personnel (beyond normal shift complement) are required to monitor the safe operation of the unit [a or b] <ol style="list-style-type: none"> SIGNIFICANT TRANSIENT in progress Loss of SPDS 						
1 2 3 4	<p>UNPLANNED loss of most annunciators or indications for >15 minutes [1 and 2]</p> <ol style="list-style-type: none"> UNPLANNED loss of most (>75%) annunciators or indications for >15 minutes SM judgement that additional personnel (beyond normal shift complement) are required to monitor the safe operation of the unit 						

2.2 Loss of Function	
Mode	Criterion / Indicator
1 2 3 4	<p>Inability to cool the core [1 or 2]</p> <ol style="list-style-type: none"> Actions of FR-C.1 (RED PATH) are INEFFECTIVE [a and b] <ol style="list-style-type: none"> Three max core exit thermocouples >1200 F; or three max core exit thermocouples >729 F with NO RCPs running and RVLIS full range level <40% Actions taken have NOT resulted in a rising trend in RVLIS full range level or a dropping trend in core exit thermocouple temperatures within 15 minutes of initiation of restoration actions
1 2 3 4	<p>Loss of function needed to achieve or maintain hot shutdown [1 or 2]</p> <ol style="list-style-type: none"> Ops personnel report a CSF status tree RED PATH terminus for core cooling or heat sink exists Three max core exit thermocouples >1200 F; or three max core exit thermocouples >729 F with NO RCPs running and RVLIS full range level <40% <p>Also Refer to Tab 2.3 "Failure of Reactor Protection" and Tab 1 "Fission Product Barrier Matrix"</p>
1 2 3 4	<p>Complete loss of function needed to achieve Cold Shutdown when Shutdown required by Tech Specs [1 and 2 and 3]</p> <ol style="list-style-type: none"> Loss of decay heat removal capability (RHS, CCP, SWS) Inability to remove heat via the condenser Shutdown to MODE 5 required by T/S
ALL	<p>UNPLANNED Loss of communications [1 or 2]</p> <ol style="list-style-type: none"> In-plant [a and b and c] <ol style="list-style-type: none"> UNPLANNED Loss of All Pax Phones UNPLANNED Loss of All Gaitronics (Page/Party) UNPLANNED Loss of All Radios (Handie-Talkies) Offsite [a and b and c] <ol style="list-style-type: none"> UNPLANNED Loss of ENS UNPLANNED Loss of Bell Lines UNPLANNED Loss of Radios to Offsite

2.3 Failure of Rx Protection	
Mode	Criterion / Indicator
1 2	<p>Reactor power >5% after VALID trip signal(s) and loss of core cooling capability [1 and 2]</p> <ol style="list-style-type: none"> Ops personnel report FR-S.1 has been entered and subsequent actions do NOT result in reduction of power to <5% and decreasing [a or b] <ol style="list-style-type: none"> Ops personnel report CSF status tree RED PATH terminus exists for core cooling or heat sink Three max core exit thermocouples >1200 F; or three max core exit thermocouples >729 F with NO RCPs running and RVLIS full range level <40%
1 2	<p>Reactor trip failure after VALID Trip signal(s) with reactor power >5% and attempts to cause a manual trip from the control room are unsuccessful.</p> <ol style="list-style-type: none"> Ops personnel report FR-S.1 has been entered and manual reactor trip from control room did NOT result in reduction of power to <5% and decreasing
1 2	<p>Automatic reactor trip did not occur after VALID trip signal and manual trip from control room was successful [1 and 2]</p> <ol style="list-style-type: none"> VALID reactor trip signal received or required. Manual reactor trip from control room was successful and power is <5% and decreasing
	Not Applicable

2.4 Fuel Clad Degradation	
Mode	Criterion / Indicator
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
1 2 3 4 5	<p>Reactor coolant system specific activity exceeds LCO (refer to BVPS T.S. 3.4.16) [1 or 2]</p> <ol style="list-style-type: none"> VALID high alarm on 2CHS-RQ101A/B [3051] reactor coolant letdown monitor Radiochemistry analysis exceeds T.S. 3.4.16

DEFINITIONS/ACRONYMS

ALERT, UNUSUAL EVENT, GENERAL EMERGENCY, SITE AREA EMERGENCY: See EAL 4.7

BOMB: A fused explosive device.

CIVIL DISTURBANCE: A group of ten (10) or more persons violently protesting station operations or activities at the site.

Each **CRITERION** identifies the emergency condition and any numeric values which define that condition (*i.e., the basis of the declaration*). All classifications are based on an assessment (*i.e., determination that the condition is VALID*) by the Emergency Director that the **CRITERION** has been met or exceeded. Implicit in this protocol is the necessity for these assessments to be completed within 15 minutes (unless otherwise noted) of indications being available to Control Room operators that an Emergency Action Level (EAL) has been exceeded.

CRITICAL SAFETY FUNCTION (CSFs): A plant safety function required to prevent significant release of core radioactivity to the environment. There are six CSFs: Subcriticality, Core Cooling, Heat Sink, Vessel Integrity (*Pressurized Thermal Shock*), Integrity (*Containment*) and Inventory (*RCS*).

EXCLUSION AREA BOUNDARY (EAB): A boundary surrounding the BVPS units beyond which the postulated UFSAR accidents will not result in population doses exceeding the criteria of 10 CFR Part 100. Refer to Figure 7-A.

EXPLOSION: A rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment that imparts energy of sufficient force to potentially damage permanent structures, systems or components

EXTORTION: An attempt to cause an action at the station by threat of force.

FAULTED: (Steam Generator) Existence of secondary side leakage (*i.e., steam or feed line rupture*) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute fires. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

HOSTAGE: A person or object held as leverage against the station to ensure that demands will be met by the station

INDICATOR(s): Are available via instrumentation, calculations, procedure Entry (AOPs, EOPs, etc.), operator knowledge of plant conditions (pressure, temperatures, etc.) in the Control Room, or reports received from plant personnel, whichever is most limiting, or other evidence that the associated criterion may be exceeded. Inherent in this protocol is the necessity for these assessments to be completed within 15 minutes (unless otherwise noted) of sufficient indications being available to Control Room Operators that an Emergency Action Level (EAL) has been exceeded.

INEFFECTIVE: The specified restoration action(s) does not result in a reduction in the level of severity of the RED PATH condition within 15 minutes from identification of the Core Cooling CSF Status Tree RED PATH TERMINUS. A reduction in the level of severity is an improvement in the applicable parameters (*e.g., increasing trend in reactor vessel water level (RVLIS full range) and/or decreasing trend on core thermocouple temperatures*).

INTRUSION/INTRUDER: Suspected hostile individual present in a protected area without authorization.

LOWER EXPLOSIVE LIMIT (LEL): Concentration level below which combustible gases will not explode due to ignition.

LCO, LIMITING CONDITION FOR OPERATION: as specified in the BVPS Technical Specifications, the minimum functional performance level for equipment required for safe shutdown.

ORANGE PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under severe challenge.

PROJECTILE: An object ejected, thrown, or launched towards a plant structure. The source of the projectile may be onsite or offsite. Potential for damage is sufficient to cause concern regarding the integrity of the affected structure or the operability or reliability of safety equipment contained therein.

The **PROTECTED AREA** encompasses all owner controlled areas within the security perimeter fence as shown on Figure 4-A.

RED PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under extreme challenge.

RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude sufficient to require or cause a reactor trip and

safety injection.

SABOTAGE: Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment unavailable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) Automatic turbine runback >25% thermal reactor power, (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation

The **SITE PERIMETER** encompasses all owner controlled areas in the immediate site environs as shown on Figure 4-A.

STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on the BVPS or one of its vendors. The STRIKE ACTION must threaten to interrupt normal plant operations to be considered.

TOXIC GAS: A gas that is dangerous to life or health by reason of inhalation or skin contact (*e.g., chlorine*).

UNPLANNED: An event or action is UNPLANNED if it is not the expected result of normal operations, testing, or maintenance. Events that result in corrective or mitigative actions being taken in accordance with abnormal or emergency procedures are UNPLANNED.

With specific regard to radioactivity releases, a release of radioactivity is UNPLANNED if it has not been authorized by a Radioactive Waste Discharge Authorization (RWDA). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the RWDA (*e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank*).

VALID: An indication or report or condition is considered to be VALID when it is conclusively verified by (1) an instrument channel check, or (2) indications on related or redundant indicators, or (3) by direct observation by plant personnel, such that doubt related to the indicator's operability, the condition's existence, or the report's accuracy is removed. Implicit in this definition is the need for timely assessment (*i.e., within 15 minutes*).

VISIBLE DAMAGE: Damage to equipment or structure that is readily observable without measurements, testing, or analyses. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage includes: deformation due to heat or impact, denting, penetration, rupture, cracking, paint blistering. Surface blemishes (*e.g., paint chipping, scratches*) should not be included.

VITAL AREA is any area within the PROTECTED AREA which contains equipment, systems, components, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation

2.5 RCS Unidentified Leakage	
Mode	Criterion / Indicator
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
1 2 3 4 5*	<p>Unidentified or pressure boundary RCS leakage >10 GPM</p> <p>1. Unidentified or pressure boundary leakage (as defined by Technical Specifications) >10 GPM as indicated below [a or b]</p> <p>a. 2OST-6.2 or 2OST-6.2A results</p> <p>b. With RCS temp. and PZR level stable, VCT level dropping at a rate >10 GPM (>1%/min indicated on 2CHS-LI-115 with no VCT makeup in progress)</p> <p><i>*Applies to Mode 5 if RCS Pressurized</i></p>

2.6 RCS Identified Leakage	
Mode	Criterion / Indicator
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
1 2 3 4 5*	<p>Identified RCS leakage >25 GPM</p> <p>1. Identified RCS leakage (as defined by Technical Specifications) >25 GPM as indicated below [a or b or c]</p> <p>a. 2OST-6.2 or 2OST-6.2A Results</p> <p>b. UNPLANNED level rise in excess of 25 GPM total into PRT, 2DGS-TK-21, and 2DGS-TK-22</p> <p>c. Indication of Steam Generator Tube leakage >25 GPM</p> <p><i>*Applies to Mode 5 if RCS Pressurized</i></p>

2.7 Technical Specification	
Mode	Criterion / Indicator
	Not Applicable
	Not Applicable
	Refer to Tab 2.2, "Loss of Function"
1 2 3 4	<p>Inability to Reach Required Shutdown Mode Within Technical Specification Time Limits [1 and 2]</p> <p>1. A Technical Specification Required Action or Specified Condition, requiring a mode reduction, has been entered</p> <p>2. The unit has NOT been placed in the required mode or Specified Condition within the time prescribed by the Required Action</p>

2.8 Safety Limit	
Mode	Criterion / Indicator
	Not Applicable
	Not Applicable
	Not Applicable
1 2 3 4 5	<p>Safety Limit Has Been Exceeded [1 or 2]</p> <p>1. T.S. 2.1.1 specifies the safety limits for the reactor core which are applicable in Modes 1 and 2.</p> <p>2. T.S. 2.1.2 specifies the safety limit for the Reactor Coolant System pressure which is applicable in MODES 1, 2, 3, 4 and 5.</p>

DEFINITIONS/ACRONYMS

ALERT, UNUSUAL EVENT, GENERAL EMERGENCY, SITE AREA EMERGENCY: See EAL 4.7

BOMB: A fused explosive device.

CIVIL DISTURBANCE: A group of ten (10) or more persons violently protesting station operations or activities at the site.

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EXCLUSION AREA BOUNDARY (EAB): A boundary surrounding the BVPS units beyond which the postulated UFSAR accidents will not result in population doses exceeding the criteria of 10 CFR Part 100. Refer to Figure 7-A.

EXPLOSION: A rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment that imparts energy of sufficient force to potentially damage permanent structures, systems or components

EXTORTION: An attempt to cause an action at the station by threat of force.

FAULTED: (Steam Generator) Existence of secondary side leakage (*i.e., steam or feed line rupture*) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute fires. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

HOSTAGE: A person or object held as leverage against the station to ensure that demands will be met by the station

INDICATOR(s): Are available via instrumentation, calculations, procedure Entry (AOPs, EOPs, etc.), operator knowledge of plant conditions (pressure, temperatures, etc.) in the Control Room, or reports received from plant personnel, whichever is most limiting, or other evidence that the associated criterion may be exceeded. Inherent in this protocol is the necessity for these assessments to be completed with 15 minutes (unless otherwise noted) of sufficient indications being available to Control Room Operators that an Emergency Action Level (EAL) has been exceeded.

INEFFECTIVE: The specified restoration action(s) does not result in a reduction in the level of severity of the RED PATH condition within 15 minutes from identification of the Core Cooling CSF Status Tree RED PATH TERMINUS. A reduction in the level of severity is an improvement in the applicable parameters (*e.g., increasing trend in reactor vessel water level (RVLS full range) and/or decreasing trend on core thermocouple temperatures*).

INTRUSION/INTRUDER: Suspected hostile individual present in a protected area without authorization.

LOWER EXPLOSIVE LIMIT (LEL): Concentration level below which combustible gases will not explode due to ignition.

LCO, LIMITING CONDITION FOR OPERATION: as specified in the BVPS Technical Specifications, the minimum functional performance level for equipment required for safe shutdown.

ORANGE PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under severe challenge.

PROJECTILE: An object ejected, thrown, or launched towards a plant structure. The source of the projectile may be onsite or offsite. Potential for damage is sufficient to cause concern regarding the integrity of the affected structure or the operability or reliability of safety equipment contained therein.

The **PROTECTED AREA** encompasses all owner controlled areas within the security perimeter fence as shown on Figure 4-A.

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safety injection.

SABOTAGE: Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment unavailable.

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The **SITE PERIMETER** encompasses all owner controlled areas in the immediate site environs as shown on Figure 4-A.

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With specific regard to radioactivity releases, a release of radioactivity is UNPLANNED if it has not been authorized by a Radioactive Waste Discharge Authorization (RWDA). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the RWDA (*e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank*).

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2.9 Turbine Failure	
Mode	Criterion / Indicator
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
1 2 3	<p>Turbine failure generated missiles cause penetration of a missile shield wall of any area containing safety related equipment</p> <p>1. Plant personnel report missiles generated by turbine failure with casing penetration also results in a through-wall penetration of a missile shield wall listed in Table 2-1</p>
1 2 3	<p>Turbine failure results in casing penetration</p> <p>1. Plant personnel report a turbine failure which results in penetration of the turbine casing or damage to main generator seals with evidence of significant hydrogen or seal oil leakage</p>

2.10 Steam/Feed Line Break	
Mode	Criterion / Indicator
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
1 2 3 4	<p>UNPLANNED rapid depressurization of the Main Steam System resulting in a rapid RCS cooldown and Safety Injection actuation [1 and 2]</p> <p>1. Ops personnel report rapid depressurization of Main Steam System that causes SLI (<500 psig)</p> <p>2. Ops personnel report Safety Injection has actuated</p>

**Table 2-1
Plant Areas Associated With Shield Wall
Penetration EAL**

Diesel Generator Bldg.	Service Bldg 745' and 760'
Electrical Switchgear 730'	Containment
Main Steam Valve Room	Primary Aux. Building
2FWE-TK210	

DEFINITIONS/ACRONYMS

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INTRUSION/INTRUDER: Suspected hostile individual present in a protected area without authorization.

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RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude sufficient to require or cause a reactor trip and

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SABOTAGE: Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment unavailable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) Automatic turbine runback >25% thermal reactor power, (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation

The **SITE PERIMETER** encompasses all owner controlled areas in the immediate site environs as shown on Figure 4-A.

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VALID: An indication or report or condition is considered to be VALID when it is conclusively verified by (1) an instrument channel check, or (2) indications on related or redundant indicators, or (3) by direct observation by plant personnel, such that doubt related to the indicator's operability, the condition's existence, or the report's accuracy is removed. Implicit in this definition is the need for timely assessment (*i.e., within 15 minutes*).

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GENERAL

SITE AREA

ALERT

UNUSUAL EVENT

3.1 Loss of AC (Power Ops)	
Mode	Criterion / Indicator
1 2 3 4	<p>Prolonged loss of offsite <u>and</u> onsite AC power [1 and 2]</p> <ol style="list-style-type: none"> AE and DF 4KV emergency buses <u>NOT</u> energized from Unit 2 sources for >15 minutes [a or b or c] <ol style="list-style-type: none"> Ops personnel report CSF status tree RED PATH or ORANGE PATH terminus exists for core cooling Restoration of either AE or DF 4KV emergency bus is NOT likely from any source within 4 hours of loss Three max core exit thermocouples >1200 F or three max core exit thermocouples >729 F with no RCPs running and RVLIS full range <40%
1 2 3 4	<p>Loss of offsite <u>and</u> onsite AC power for >15 minutes</p> <ol style="list-style-type: none"> AE and DF 4KV emergency buses <u>NOT</u> energized from Unit 2 sources for >15 minutes
1 2 3 4	<p>AC power to emergency buses reduced to a single source of power such that any additional failure will result in the de-energization of both buses [1 and 2]</p> <ol style="list-style-type: none"> Either AE or DF 4KV emergency bus is de-energized for >15 minutes The energized AE or DF 4KV emergency bus has only one source of power [a or b] <ol style="list-style-type: none"> Emergency diesel generator 2A or 2D 4KV normal bus
1 2 3 4	<p>Loss of offsite power supply for >15 minutes [1 and 2]</p> <ol style="list-style-type: none"> Offsite power supply to AE and DF 4KV buses unavailable for >15 minutes. Each diesel generator is supplying power to its respective emergency bus

3.2 Loss of AC (Shutdown)	
Mode	Criterion / Indicator
	<p>Refer to Tab 6 "Shutdown System Degradation"</p>
	<p>Refer to Tab 6 "Shutdown System Degradation"</p>
5 6 De-fuel	<p>UNPLANNED loss of offsite <u>and</u> onsite AC power for >15 minutes</p> <ol style="list-style-type: none"> AE and DF 4KV emergency buses <u>NOT</u> energized from Unit 2 sources for >15 minutes <p>Also Refer to Tab 6 "Shutdown System Degradation"</p>
5 6 De-fuel	<p>UNPLANNED loss of offsite power supply for >15 minutes [1 and 2]</p> <ol style="list-style-type: none"> Offsite power supply to AE and DF 4KV buses unavailable for >15 minutes. Either diesel generator is supplying power to its respective emergency bus

3.3 Loss of DC Power	
Mode	Criterion / Indicator
	<p>Refer to Tab 1 "Fission Product Barrier Matrix" and Tab 2.2 "Loss of Function", and Tab 6.1 "Loss of Shutdown Systems"</p>
1 2 3 4	<p>Loss of all vital DC power for >15 minutes</p> <ol style="list-style-type: none"> Voltage <110.4 VDC on DC buses 2-1 and 2-2 and 2-3 and 2-4 for >15 minutes <p>Also Refer to Tab 1 "Fission Product Barrier Matrix", Tab 2.2 "Loss of Function", and Tab 2.1 "Loss of Instrumentation" and Tab 6.1 "Loss of Shutdown Systems"</p>
	<p>Refer to Tab 1 "Fission Product Barrier Matrix", Tab 2.2 "Loss of Function", and Tab 2.1 "Loss of Instrumentation" and Tab 6.1 "Loss of Shutdown Systems"</p>
1 2 3 4	<p>UNPLANNED loss of one train of DC power for >15 minutes [1 or 2]</p> <ol style="list-style-type: none"> Voltage <110.4 VDC on DC Buses 2-1 and 2-3 for >15 minutes Voltage <110.4 VDC on DC buses 2-2 and 2-4 for >15 minutes <p>Refer to Tab 6.4 "Loss of DC (Shutdown)" for modes 5, 6, and defueled</p>

GENERAL

SITE AREA

ALERT

UNUSUAL EVENT

DEFINITIONS/ACRONYMS

ALERT, UNUSUAL EVENT, GENERAL EMERGENCY, SITE AREA EMERGENCY: See EAL 4.7

BOMB: A fused explosive device.

CIVIL DISTURBANCE: A group of ten (10) or more persons violently protesting station operations or activities at the site.

Each **CRITERION** identifies the emergency condition and any numeric values which define that condition (*i.e., the basis of the declaration*). All classifications are based on an assessment (*i.e., determination that the condition is VALID*) by the Emergency Director that the **CRITERION** has been met or exceeded. Implicit in this protocol is the necessity for these assessments to be completed within 15 minutes (unless otherwise noted) of indications being available to Control Room operators that an Emergency Action Level (EAL) has been exceeded.

CRITICAL SAFETY FUNCTION (CSFs): A plant safety function required to prevent significant release of core radioactivity to the environment. There are six CSFs: Subcriticality, Core Cooling, Heat Sink, Vessel Integrity (*Pressurized Thermal Shock*), Integrity (*Containment*) and Inventory (*RCS*).

EXCLUSION AREA BOUNDARY (EAB): A boundary surrounding the BVPS units beyond which the postulated UFSAR accidents will not result in population doses exceeding the criteria of 10 CFR Part 100. Refer to Figure 7-A.

EXPLOSION: A rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment that imparts energy of sufficient force to potentially damage permanent structures, systems or components.

EXTORTION: An attempt to cause an action at the station by threat of force.

FAULTED: (Steam Generator) Existence of secondary side leakage (*i.e., steam or feed line rupture*) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute fires. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

HOSTAGE: A person or object held as leverage against the station to ensure that demands will be met by the station.

INDICATOR(s): Are available via instrumentation, calculations, procedure Entry (AOPs, EOPs, etc.), operator knowledge of plant conditions (pressure, temperatures, etc.) in the Control Room, or reports received from plant personnel, whichever is most limiting, or other evidence that the associated criterion may be exceeded. Inherent in this protocol is the necessity for these assessments to be completed within 15 minutes (unless otherwise noted) of sufficient indications being available to Control Room Operators that an Emergency Action Level (EAL) has been exceeded.

INEFFECTIVE: The specified restoration action(s) does not result in a reduction in the level of severity of the RED PATH condition within 15 minutes from identification of the Core Cooling CSF Status Tree RED PATH TERMINUS. A reduction in the level of severity is an improvement in the applicable parameters (*e.g., increasing trend in reactor vessel water level (RVLIS full range) and/or decreasing trend on core thermocouple temperatures*).

INTRUSION/INTRUDER: Suspected hostile individual present in a protected area without authorization.

LOWER EXPLOSIVE LIMIT (LEL): Concentration level below which combustible gases will not explode due to ignition.

LCO, LIMITING CONDITION FOR OPERATION: as specified in the BVPS Technical Specifications, the minimum functional performance level for equipment required for safe shutdown.

ORANGE PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under severe challenge.

PROJECTILE: An object ejected, thrown, or launched towards a plant structure. The source of the projectile may be onsite or offsite. Potential for damage is sufficient to cause concern regarding the integrity of the affected structure or the operability or reliability of safety equipment contained therein.

The **PROTECTED AREA** encompasses all owner controlled areas within the security perimeter fence as shown on Figure 4-A.

RED PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under extreme challenge.

RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude sufficient to require or cause a reactor trip and

safety injection.

SABOTAGE: Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment unavailable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) Automatic turbine runback >25% thermal reactor power, (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation

The **SITE PERIMETER** encompasses all owner controlled areas in the immediate site environs as shown on Figure 4-A.

STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on the BVPS or one of its vendors. The STRIKE ACTION must threaten to interrupt normal plant operations to be considered.

TOXIC GAS: A gas that is dangerous to life or health by reason of inhalation or skin contact (*e.g., chlorine*).

UNPLANNED: An event or action is UNPLANNED if it is not the expected result of normal operations, testing, or maintenance. Events that result in corrective or mitigative actions being taken in accordance with abnormal or emergency procedures are UNPLANNED.

With specific regard to radioactivity releases, a release of radioactivity is UNPLANNED if it has not been authorized by a Radioactive Waste Discharge Authorization (RWDA). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the RWDA (*e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank*).

VALID: An indication or report or condition is considered to be VALID when it is conclusively verified by (1) an instrument channel check, or (2) indications on related or redundant indicators, or (3) by direct observation by plant personnel, such that doubt related to the indicator's operability, the condition's existence, or the report's accuracy is removed. Implicit in this definition is the need for timely assessment (*i.e., within 15 minutes*).

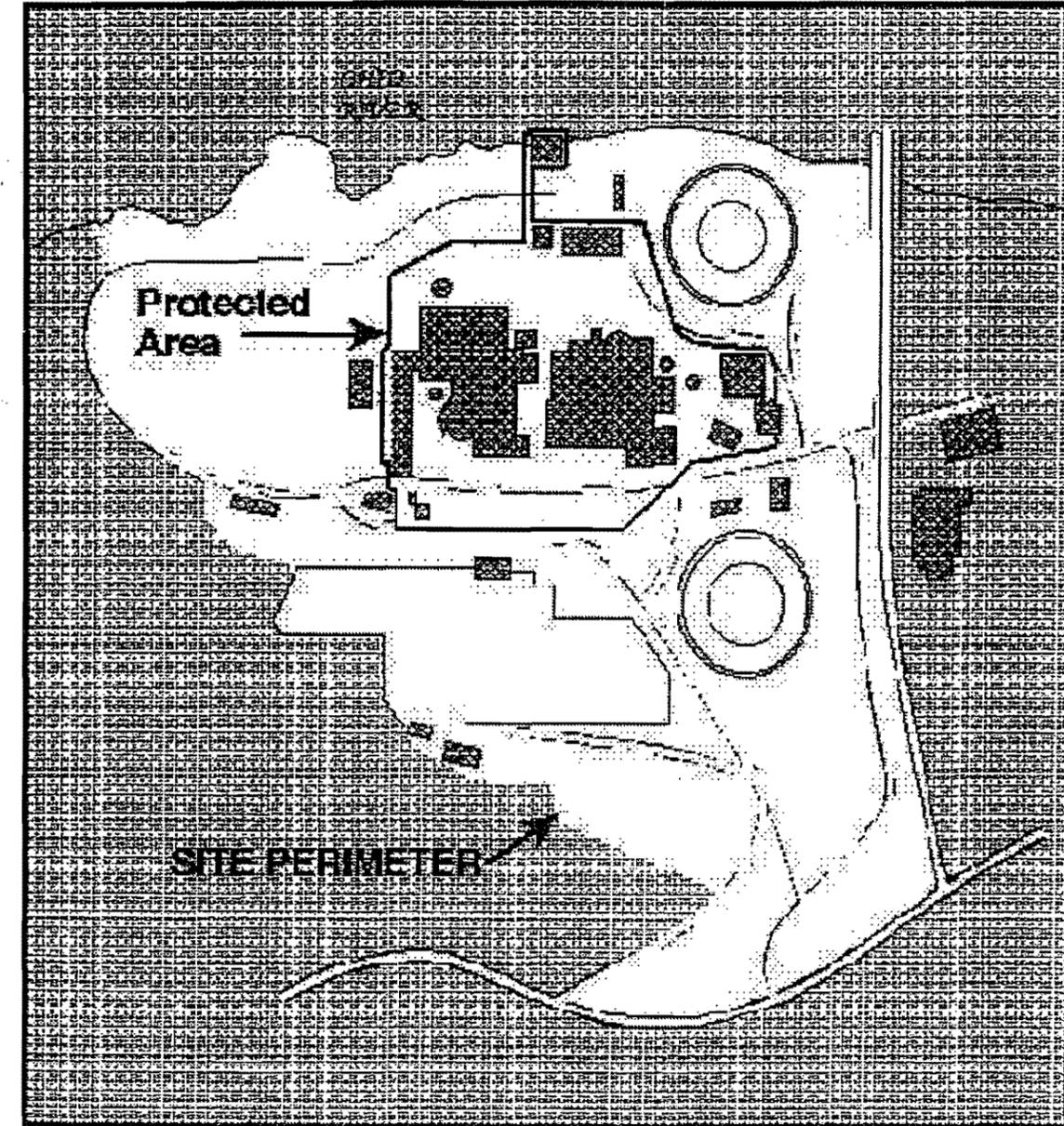
VISIBLE DAMAGE: Damage to equipment or structure that is readily observable without measurements, testing, or analyses. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage includes: deformation due to heat or impact, denting, penetration, rupture, cracking, paint blistering. Surface blemishes (*e.g., paint chipping, scratches*) should not be included.

VITAL AREA is any area within the PROTECTED AREA which contains equipment, systems, components, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation.

TABLE 4-1
PLANT AREAS ASSOCIATED WITH FIRE AND EXPLOSION EALS

Control Room	Diesel Gen. Bldgs	Containment Building
Inst & Relay Rm 707	Intake Str Cubicles	Prim. Auxiliary Building
Emerg. Switchgear	U1/U2 Cable Tunnel (CV-3)	Rod Control Cable Vault Bldg.
Relay Room	Safeguards Building	Cable Spreading Room 725
Main Steam Vlv Rm	Fuel Building	West Communications Room 707
Penetrations Area	Service Building	ERF Substa & ERF DG Bldg
Cable Tunnel 712	Cable Tunnel 735	RWST 2QSS-TK21

Figure 4-A
PROTECTED AREA/SITE PERIMETER



GENERAL SITE AREA ALERT UNUSUAL EVENT
4.1, 4.2 Table 4-1, Figure 4-A HAZARDS / ED JUDGEMENT - U2

4.1	Fire
Mode	Criterion / Indicator
1 2 3 4	<p>FIRE in the Instrument and Relay Room (CB-1), Cable Spreading Room (CB-2), Control Room (CB-3), West Communications Room (CB-6), or Cable Tunnel (CT-1) resulting in an evacuation of the control room per 2OM-56C.4 "Alternate Safe Shutdown" and loss of any required equipment results in an uncontrolled RCS Heatup [1 and 2 and 3]</p> <p>1. 2OM-56C.4 "Alternate Safe Shutdown" entered</p> <p>2. Ops personnel report inability to operate any of the following equipment required by 2OM-56C.4 "Alternate Safe Shutdown"</p> <p>2CHS-P21A 2SWS-P21A 2FWE-P23A & 2FWE-P22 EGS-EG2-1 Black DG Alternate S/D Panel 2SAS-C21A 2CCP-P21A 2RHS-P21A</p> <p>3. Uncontrolled RCS heatup lasting longer than 15 minutes</p>
1 2 3 4	<p>FIRE in the Instrument and Relay Room (CB-1), Cable Spreading Room (CB-2), Control Room (CB-3), West Communications Room (CB-6), or Cable Tunnel (CT-1) resulting in an evacuation of the control room per 2OM-56C.4 "Alternate Safe Shutdown"</p> <p>1. 2OM-56C.4 "Alternate Safe Shutdown" entered</p>
All	<p>FIRE in any of the areas listed in Table 4-1 that is affecting safety related equipment [1 and 2]</p> <p>1. FIRE in any of the listed areas in Table 4-1</p> <p>2. [a or b]</p> <p>a. Ops personnel report VISIBLE DAMAGE to permanent structure or equipment in listed area due to FIRE</p> <p>b. Control room indication of degraded system or component (within listed areas) response due to FIRE</p>
All	<p>FIRE in or adjacent to those areas listed in Table 4-1 not extinguished within 15 minutes from the time of control room notification or verification of control room alarm</p>

4.2	Explosions
Mode	Criterion / Indicator
	<p>Refer to Tab 4.1 "Fire" or Tab 1 "Fission Product Barrier Matrix"</p>
	<p>Refer to Tab 4.1 "Fire" or Tab 1 "Fission Product Barrier Matrix"</p>
All	<p>EXPLOSION in any of the areas listed in Table 4-1 that is affecting safety related equipment [1 and 2]</p> <p>1. EXPLOSION in any of the listed areas in Table 4-1</p> <p>2. [a or b]</p> <p>a. Ops personnel report VISIBLE DAMAGE to permanent structure or equipment in listed area</p> <p>b. Control room indication of degraded system or component (within listed areas) response due to EXPLOSION</p> <p>Refer to Tab 4.6 "Security"</p>
All	<p>UNPLANNED EXPLOSION in or adjacent to those areas listed in Table 4-1</p> <p>1. UNPLANNED EXPLOSION in or adjacent to any of the listed areas in Table 4-1</p> <p>Refer to Tab 4.1, "Fire" or Tab 1 "Fission Product Barrier Matrix"</p> <p>Refer to Tab 4.6 "Security"</p>

DEFINITIONS/ACRONYMS

ALERT, UNUSUAL EVENT, GENERAL EMERGENCY, SITE AREA EMERGENCY: See EAL 4.7

BOMB: A fused explosive device.

CIVIL DISTURBANCE: A group of ten (10) or more persons violently protesting station operations or activities at the site.

Each **CRITERION** identifies the emergency condition and any numeric values which define that condition (*i.e., the basis of the declaration*). All classifications are based on an assessment (*i.e., determination that the condition is VALID*) by the Emergency Director that the **CRITERION** has been met or exceeded. Implicit in this protocol is the necessity for these assessments to be completed within 15 minutes (unless otherwise noted) of indications being available to Control Room operators that an Emergency Action Level (EAL) has been exceeded.

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EXCLUSION AREA BOUNDARY (EAB): A boundary surrounding the BVPS units beyond which the postulated UFSAR accidents will not result in population doses exceeding the criteria of 10 CFR Part 100. Refer to Figure 7-A.

EXPLOSION: A rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment that imparts energy of sufficient force to potentially damage permanent structures, systems or components

EXTORTION: An attempt to cause an action at the station by threat of force.

FAULTED: (Steam Generator) Existence of secondary side leakage (*i.e., steam or feed line rupture*) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute fires. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

HOSTAGE: A person or object held as leverage against the station to ensure that demands will be met by the station

INDICATOR(s): Are available via instrumentation, calculations, procedure Entry (AOPs, EOPs, etc.), operator knowledge of plant conditions (pressure, temperatures, etc.) in the Control Room, or reports received from plant personnel, whichever is most limiting, or other evidence that the associated criterion may be exceeded. Inherent in this protocol is the necessity for these assessments to be completed with 15 minutes (unless otherwise noted) of sufficient indications being available to Control Room Operators that an Emergency Action Level (EAL) has been exceeded.

INEFFECTIVE: The specified restoration action(s) does not result in a reduction in the level of severity of the RED PATH condition within 15 minutes from identification of the Core Cooling CSF Status Tree RED PATH TERMINUS. A reduction in the level of severity is an improvement in the applicable parameters (*e.g., increasing trend in reactor vessel water level (RVLS full range) and/or decreasing trend on core thermocouple temperatures*).

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LOWER EXPLOSIVE LIMIT (LEL): Concentration level below which combustible gases will not explode due to ignition.

LCO, LIMITING CONDITION FOR OPERATION: as specified in the BVPS Technical Specifications, the minimum functional performance level for equipment required for safe shutdown.

ORANGE PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under severe challenge.

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The **PROTECTED AREA** encompasses all owner controlled areas within the security perimeter fence as shown on Figure 4-A.

RED PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under extreme challenge.

RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude sufficient to require or cause a reactor trip and

safety injection.

SABOTAGE: Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment unavailable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) Automatic turbine runback >25% thermal reactor power, (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation

The **SITE PERIMETER** encompasses all owner controlled areas in the immediate site environs as shown on Figure 4-A.

STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on the BVPS or one of its vendors. The STRIKE ACTION must threaten to interrupt normal plant operations to be considered.

TOXIC GAS: A gas that is dangerous to life or health by reason of inhalation or skin contact (*e.g., chlorine*).

UNPLANNED: An event or action is UNPLANNED if it is not the expected result of normal operations, testing, or maintenance. Events that result in corrective or mitigative actions being taken in accordance with abnormal or emergency procedures are UNPLANNED.

With specific regard to radioactivity releases, a release of radioactivity is UNPLANNED if it has not been authorized by a Radioactive Waste Discharge Authorization (RWDA). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the RWDA (*e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank*).

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VITAL AREA is any area within the PROTECTED AREA which contains equipment, systems, components, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation

UNUSUAL EVENT ALER SITE AREA GENERAL

4.3 Flammable Gas	
Mode	Criterion / Indicator
	Refer to Tab 4.1 "Fire", Tab 4.2 "Explosion, or Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 4.1 "Fire", Tab 4.2 "Explosion", or Tab 1 "Fission Product Barrier Matrix"
All	<p>Release of flammable gas within a facility structure containing safety related equipment or associated with power production</p> <p>1. Plant personnel report the average of three readings taken in a ~10ft triangular area is >25% LEL within any building listed in Table 4-2</p>
All	<p>(A or B)</p> <p>A. UNPLANNED release of flammable gas within the SITE PERIMETER.</p> <p>1. Plant personnel report the average of three readings taken in a ~10ft triangular area is >25% LEL within the SITE PERIMETER (refer to Figure 4-A)</p> <p>B. Confirmed report by local, county, or state officials that an offsite flammable gas release has occurred within one mile of the site with potential to enter the SITE PERIMETER in concentrations >25% LEL (refer to Figure 4-A & 4-B)</p>

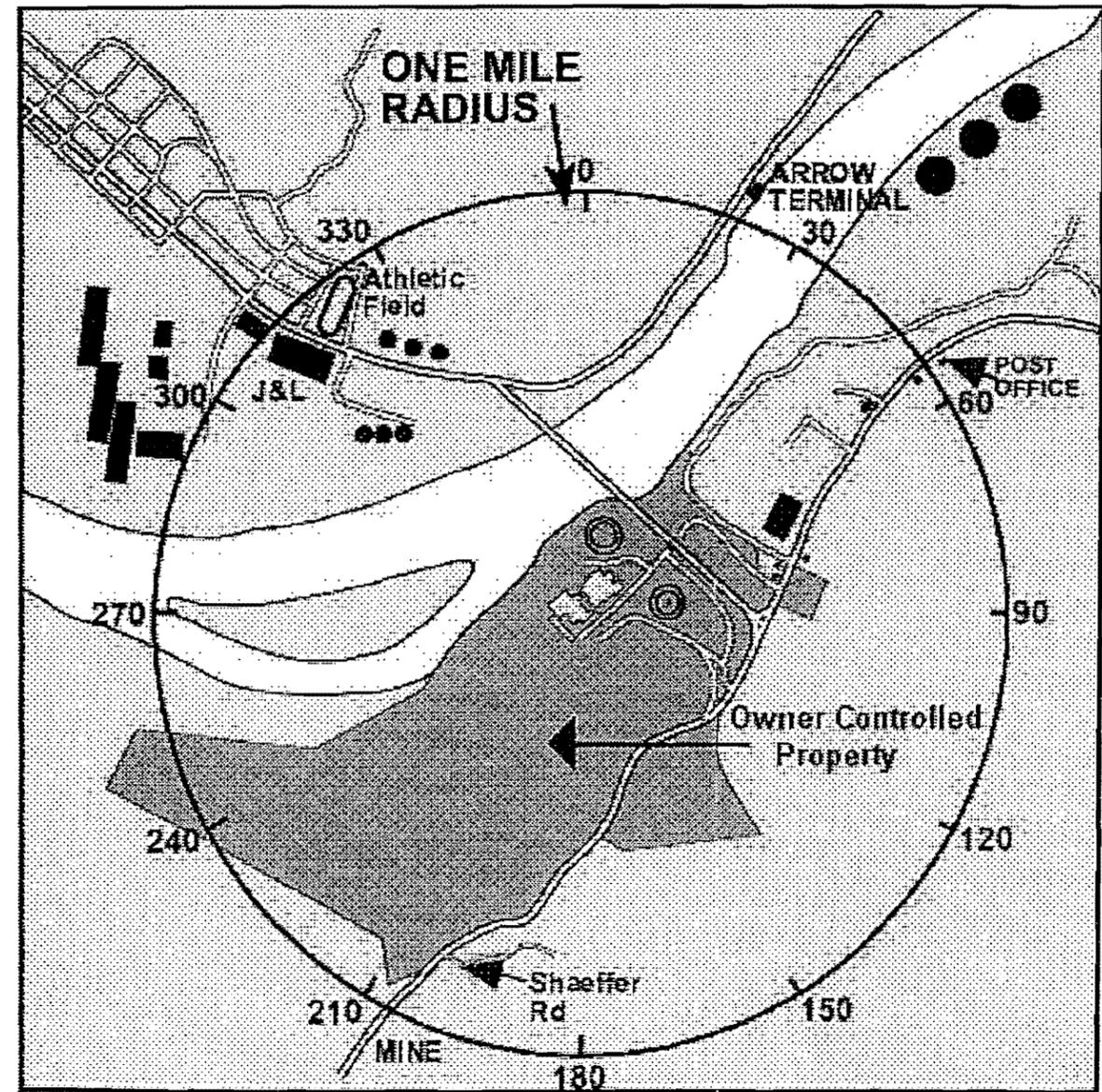
4.4 Toxic Gas	
Mode	Criterion / Indicator
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
All	<p>Release of TOXIC GAS within a facility structure which prohibits safe operation of systems required to establish or maintain cold S/D</p> <p>(1 and 2)</p> <p>1. Plant personnel report TOXIC GAS within any building listed in Table 4-2</p> <p>2. Plant personnel would be unable to perform actions necessary to establish and maintain cold shutdown while utilizing appropriate personnel protection equipment.</p>
All	<p>(A or B)</p> <p>A. Normal operation of the plant impeded due to access restrictions caused by UNPLANNED TOXIC GAS concentrations within a facility structure listed in Table 4-2</p> <p>B. Confirmed report by local, county, or state officials that an offsite TOXIC GAS release has occurred within one mile of the site with the potential to enter the SITE PERIMETER in concentrations >lower toxicity level (LTL) (Refer to Figure 4-A & 4-B)</p> <p>Refer to AOP 1/2 44A.1 "Toxic Gas Release", Attachment 3 for a list of chemicals stored, produced, or transported near BVPS and their toxicity limits.</p>

TABLE 4-2
Plant Structures Associated With TOXIC or Flammable Gas EALs

- | | |
|---------------------------|--|
| Containment Building | Service Building (incl. FW Reg Vlv Rm) |
| Safeguards Building | Turbine Building |
| Primary Aux. Building | Primary Intake Structure |
| Fuel Handling Building | Diesel Generator Building |
| Emergency Switchgear | Demin. Water Sto. (2FWB-TK210) |
| Penetrations Area | RWST (2QSS-TK21) |
| Control Building | Rod Control Cable Vault (inc MSVR) |
| U1/U2 Cable Tunnel (CV-3) | |

Figure 4-B
ONE MILE RADIUS

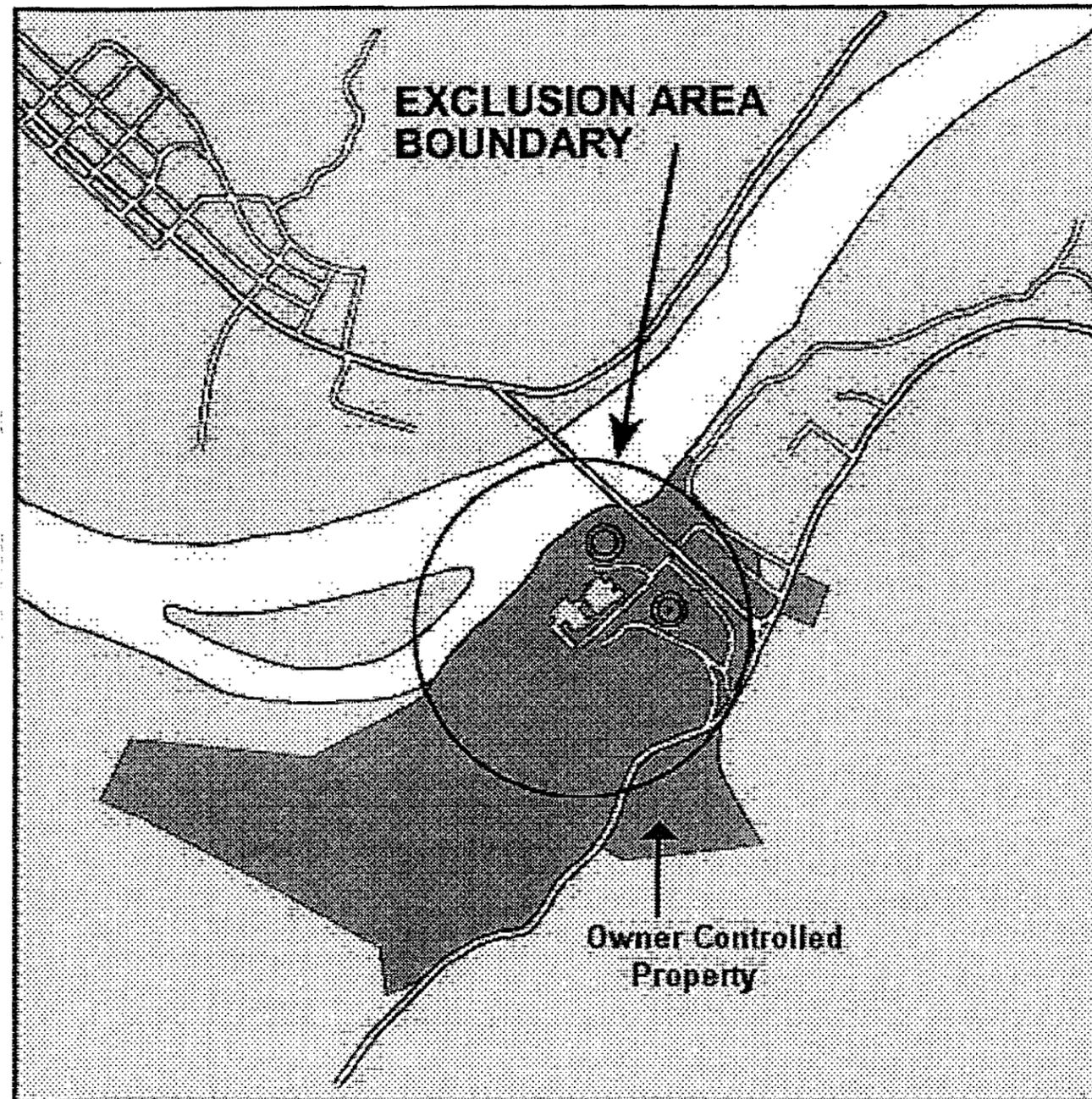
NOTE: Wind directions as reported by ARERAS and by the NWS are directions which the wind is coming FROM.



4.3, 4.4, Table 4-2, Figure 4-B HAZARDS / ED JUDGEMENT - U2

Figure 4-C

EXCLUSION AREA BOUNDARY



UNUSUAL EVENT ALERT SITE AREA GENERAL

4.5 Control Room Evacuation	
Mode	Criterion / Indicator
	Refer to Tab 4.1 "FIRE"
All	<p>Evacuation of the control room has been initiated <u>and</u> control of all necessary equipment has not been established within 15 minutes of manning the Shutdown Panel [1 and 2]</p> <ol style="list-style-type: none"> AOP 2.33.1A "Control Room Inaccessibility" has been entered Inability to transfer and operate any single component listed in Table 4-3 within 15 minutes of manning the shutdown panel <p>Also refer to Tab 4.1 "Fire"</p>
All	<p>Evacuation of the control room is required</p> <ol style="list-style-type: none"> AOP 2.33.1A "Control Room Inaccessibility" has been entered
	Not Applicable

4.6 Security	
Mode	Criterion / Indicator
All	<p>Security event resulting in loss of physical control of the facility.</p> <ol style="list-style-type: none"> HOSTILE FORCE has taken control of plant equipment such that plant personnel are unable to operate equipment required to maintain safety functions.
All	<p>Security event has <u>or is occurring</u> which results in actual or likely failures of plant functions needed to protect the public</p> <ol style="list-style-type: none"> A notification from the site security force that an armed attack, explosive attack, airliner impact, or other HOSTILE ACTION is occurring or has occurred within the PROTECTED AREA.
All	<p>Credible Security event which indicates an actual or potential substantial degradation in the level of safety of the plant [1 or 2 or 3 or 4]</p> <ol style="list-style-type: none"> A notification from the site security force that an armed attack, explosive attack, airliner impact, or other HOSTILE ACTION is occurring or has occurred within the Owner Controlled Area (OCA). A validated notification from the NRC, or other credible Agency, of an airliner attack threat less than 30 minutes away. BOMB discovered within a VITAL AREA. CIVIL DISTURBANCE ongoing within the PROTECTED AREA <p>Refer to Figure 4-A for a drawing of the PROTECTED AREA</p>
All	<p>Credible Security event which indicates a potential degradation in the level of safety of the plant [1 or 2]</p> <ol style="list-style-type: none"> Security Shift Supervisor reports one or more of the events listed in Table 4-4 A valid notification from NRC, or other credible Agency, providing information of an aircraft threat <p>Refer to Figure 4-A for a drawing of the PROTECTED AREA</p>

4.7 Emergency Director Judgement	
Mode	Criterion / Indicator
All	<p>Events are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or <i>security events that result in an actual loss of physical control of the facility</i>. Releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels outside the EXCLUSION AREA BOUNDRY.</p> <p>(Refer to Figure 4-C on preceding page)</p>
All	<p>Events are in process or have occurred, which involve actual or likely major failures of plant functions needed for protection of the public or <i>security events that result in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) prevents effective access to equipment needed for the protection of the public</i>. Any releases are not expected to result in exposure levels, which exceed EPA Protective Action Guideline exposure levels outside the EXCLUSION AREA BOUNDRY.</p> <p>(Refer to Figure 4-C on preceding page)</p>
All	<p>Events are in process or have occurred, which involve an actual or potential substantial degradation of the level of safety of the plant, <i>or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of intentional malicious dedicated efforts of HOSTILE ACTION</i>. Any releases are expected to be limited to small fractions of the EPA Protective Action Guideline exposure levels.</p>
All	<p>Events are in process or have occurred which indicate a potential degradation of the level of safety of the plant <i>or indicate a security threat to facility protection</i>. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.</p>

UNUSUAL EVENT ALERT SITE AREA GENERAL

SPECIFIC DEFINITIONS

HOSTILE ACTION:

Any combination of attributes that alone or together indicates a systematic use of violence, terror, deadly force, or intimidation to achieve an end. As used in this context **HOSTILE ACTION** includes; land based attacks, water borne attacks, air borne attacks, explosive devices, **BOMBS**, incendiary devices or projectiles. Other acts that satisfy the overall intent may be included. **HOSTILE ACTION** does not include acts of **CIVIL DISTURBANCE** or **STRIKE ACTION**. These activities should be classified using non-violent based EALs.

**Table 4-3
EQUIPMENT REQUIRED AT
SHUTDOWN PANEL**

- One Auxiliary Feedwater Pump
- One Atmospheric Steam Dump
- One Charging Pump
- One Boric Acid Pump and Boration Valve
- 2CHS*FCV122

**Table 4-4
SECURITY EVENTS**

- SABOTAGE/INTRUSION** has or is Occurring Between the **SITE PERIMETER** and **PROTECTED AREA**-(Figure 4-A)
- HOSTAGE/EXTORTION** Situation That Threatens to Interrupt Plant Operations
- CIVIL DISTURBANCE** Ongoing
- Hostile **STRIKE ACTION** Within the **PROTECTED AREA** Which Threatens to Interrupt Normal Plant Operations (Judgement Based on Behavior of Strikers and/or Intelligence Received) (Figure 4-A)
- A credible site-specific security threat notification.

HAZARDS / ED JUDGEMENT - U2
4.5, 4.6, 4.7, Table 4-3, Table 4-4

DEFINITIONS/ACRONYMS

ALERT, UNUSUAL EVENT, GENERAL EMERGENCY, SITE AREA EMERGENCY: See EAL 4.7

BOMB: A fused explosive device.

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EXCLUSION AREA BOUNDARY (EAB): A boundary surrounding the BVPS units beyond which the postulated UFSAR accidents will not result in population doses exceeding the criteria of 10 CFR Part 100. Refer to Figure 7-A.

EXPLOSION: A rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment that imparts energy of sufficient force to potentially damage permanent structures, systems or components

EXTORTION: An attempt to cause an action at the station by threat of force.

FAULTED: (Steam Generator) Existence of secondary side leakage (*i.e., steam or feed line rupture*) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

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ORANGE PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under severe challenge.

PROJECTILE: An object ejected, thrown, or launched towards a plant structure. The source of the projectile may be onsite or offsite. Potential for damage is sufficient to cause concern regarding the integrity of the affected structure or the operability or reliability of safety equipment contained therein.

The **PROTECTED AREA** encompasses all owner controlled areas within the security perimeter fence as shown on Figure 4-A.

RED PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under extreme challenge.

RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude sufficient to require or cause a reactor trip and

safety injection.

SABOTAGE: Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment unavailable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) Automatic turbine runback >25% thermal reactor power, (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation

The **SITE PERIMETER** encompasses all owner controlled areas in the immediate site environs as shown on Figure 4-A.

STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on the BVPS or one of its vendors. The STRIKE ACTION must threaten to interrupt normal plant operations to be considered.

TOXIC GAS: A gas that is dangerous to life or health by reason of inhalation or skin contact (*e.g., chlorine*).

UNPLANNED: An event or action is UNPLANNED if it is not the expected result of normal operations, testing, or maintenance. Events that result in corrective or mitigative actions being taken in accordance with abnormal or emergency procedures are UNPLANNED.

With specific regard to radioactivity releases, a release of radioactivity is UNPLANNED if it has not been authorized by a Radioactive Waste Discharge Authorization (RWDA). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the RWDA (*e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank*).

VALID: An indication or report or condition is considered to be VALID when it is conclusively verified by (1) an instrument channel check, or (2) indications on related or redundant indicators, or (3) by direct observation by plant personnel, such that doubt related to the indicator's operability, the condition's existence, or the report's accuracy is removed. Implicit in this definition is the need for timely assessment (*i.e., within 15 minutes*).

VISIBLE DAMAGE: Damage to equipment or structure that is readily observable without measurements, testing, or analyses. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage includes: deformation due to heat or impact, denting, penetration, rupture, cracking, paint blistering. Surface blemishes (*e.g., paint chipping, scratches*) should not be included.

VITAL AREA is any area within the PROTECTED AREA which contains equipment, systems, components, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation

5.1 Earthquake	
Mode	Criterion / Indicator
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
All	<p>Earthquake greater than 0.06g acceleration occurs [1 and 2]</p> <ol style="list-style-type: none"> A seismic event has occurred as indicated by Ann A10-5H "Init of Seismic Exceed Preset and/or Spectral Accelerations" [a and b] <ol style="list-style-type: none"> "OBE" lamp lit on [2ERS-CCC-1], Seismic Instrumentation Central Control Cabinet. (Indicative of a >.06g acceleration) Event determined to be a valid seismic event as defined by 2OM-45B.4.F. <p>Also refer to 1/2OM-53C.4A.75.3 "Acts of Nature-Earthquake"</p>
All	<p>Earthquake detected by site seismic instrumentation >0.01g acceleration [1 and 2]</p> <ol style="list-style-type: none"> Ann A10-5H "Init of Seismic Exceed Preset and/or Spectral Accelerations" indicates initiation of the Accelerograph Recording System [a or b] <ol style="list-style-type: none"> Ground motion sensed by plant personnel Unit 1 reports seismic event detected on unit instrumentation <p>Also refer to 1/2OM-53C.4A.75.3 "Acts of Nature-Earthquake"</p>

5.2 Tornado	
Mode	Criterion / Indicator
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
All	<p>Tornado or high wind strikes any structure listed in Table 5-1 and results in structural damage [1 and 2]</p> <ol style="list-style-type: none"> Tornado or high wind strikes any structure listed in Table 5-1 [a or b] <ol style="list-style-type: none"> Confirmed report of any VISIBLE DAMAGE to specified structures Control room indications of degraded safety system or component response within listed structures due to event
All	<p>Tornado within the SITE PERIMETER</p> <ol style="list-style-type: none"> Plant personnel report a tornado has been sighted within the SITE PERIMETER (refer to Figure 5-A)

Figure 5-A Site Perimeter

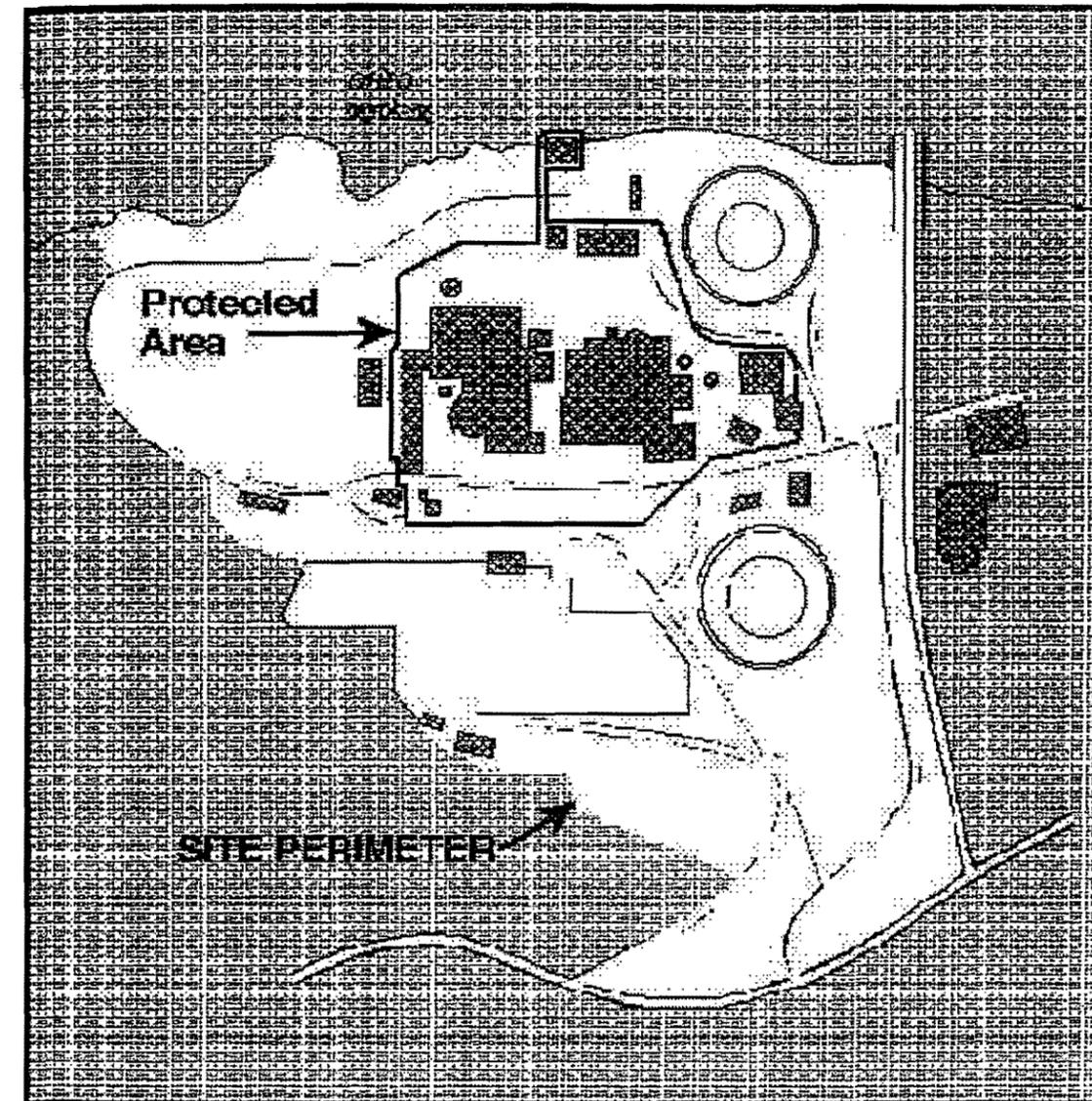


Table 5-1 Plant Structures Associated With Tornado/Hi Wind and Aircraft EALs

- | | |
|--|----------------------------------|
| Containment Building | Control Bldg |
| Safeguards Building | Cable Vault and Rod Control Bldg |
| Primary Aux. Building | Main Steam Valve Room |
| Fuel Handling Building | Main Intake Structure |
| RWST (2QSS-TK21) | Demin. Water Sto. (2FWE-TK-210) |
| 24 ton CO2 unit | Diesel Generator Building |
| Service Building (incl. FW Reg Vlv Rm) | |

DEFINITIONS/ACRONYMS

ALERT, UNUSUAL EVENT, GENERAL EMERGENCY, SITE AREA EMERGENCY: See EAL 4.7

BOMB: A fused explosive device.

CIVIL DISTURBANCE: A group of ten (10) or more persons violently protesting station operations or activities at the site.

Each **CRITERION** identifies the emergency condition and any numeric values which define that condition (*i.e., the basis of the declaration*). All classifications are based on an assessment (*i.e., determination that the condition is VALID*) by the Emergency Director that the **CRITERION** has been met or exceeded. Implicit in this protocol is the necessity for these assessments to be completed within 15 minutes (unless otherwise noted) of indications being available to Control Room operators that an Emergency Action Level (EAL) has been exceeded.

CRITICAL SAFETY FUNCTION (CSFs): A plant safety function required to prevent significant release of core radioactivity to the environment. There are six CSFs: Subcriticality, Core Cooling, Heat Sink, Vessel Integrity (*Pressurized Thermal Shock*), Integrity (*Containment*) and Inventory (*RCS*).

EXCLUSION AREA BOUNDARY (EAB): A boundary surrounding the BVPS units beyond which the postulated UFSAR accidents will not result in population doses exceeding the criteria of 10 CFR Part 100. Refer to Figure 7-A.

EXPLOSION: A rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment that imparts energy of sufficient force to potentially damage permanent structures, systems or components

EXTORTION: An attempt to cause an action at the station by threat of force.

FAULTED: (Steam Generator) Existence of secondary side leakage (*i.e., steam or feed line rupture*) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute fires. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

HOSTAGE: A person or object held as leverage against the station to ensure that demands will be met by the station

INDICATOR(s): Are available via instrumentation, calculations, procedure Entry (AOPs, EOPs, etc.), operator knowledge of plant conditions (pressure, temperatures, etc.) in the Control Room, or reports received from plant personnel, whichever is most limiting, or other evidence that the associated criterion may be exceeded. Inherent in this protocol is the necessity for these assessments to be completed with 15 minutes (unless otherwise noted) of sufficient indications being available to Control Room Operators that an Emergency Action Level (EAL) has been exceeded.

INEFFECTIVE: The specified restoration action(s) does not result in a reduction in the level of severity of the RED PATH condition within 15 minutes from identification of the Core Cooling CSF Status Tree RED PATH TERMINUS. A reduction in the level of severity is an improvement in the applicable parameters (*e.g., increasing trend in reactor vessel water level (RVLIS full range) and/or decreasing trend on core thermocouple temperatures*).

INTRUSION/INTRUDER: Suspected hostile individual present in a protected area without authorization.

LOWER EXPLOSIVE LIMIT (LEL): Concentration level below which combustible gases will not explode due to ignition.

LCO, LIMITING CONDITION FOR OPERATION: as specified in the BVPS Technical Specifications, the minimum functional performance level for equipment required for safe shutdown.

ORANGE PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under severe challenge.

PROJECTILE: An object ejected, thrown, or launched towards a plant structure. The source of the projectile may be onsite or offsite. Potential for damage is sufficient to cause concern regarding the integrity of the affected structure or the operability or reliability of safety equipment contained therein.

The **PROTECTED AREA** encompasses all owner controlled areas within the security perimeter fence as shown on Figure 4-A.

RED PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under extreme challenge.

RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude sufficient to require or cause a reactor trip and

safety injection.

SABOTAGE: Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment unavailable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) Automatic turbine runback >25% thermal reactor power, (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation

The **SITE PERIMETER** encompasses all owner controlled areas in the immediate site environs as shown on Figure 4-A.

STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on the BVPS or one of its vendors. The STRIKE ACTION must threaten to interrupt normal plant operations to be considered.

TOXIC GAS: A gas that is dangerous to life or health by reason of inhalation or skin contact (*e.g., chlorine*).

UNPLANNED: An event or action is UNPLANNED if it is not the expected result of normal operations, testing, or maintenance. Events that result in corrective or mitigative actions being taken in accordance with abnormal or emergency procedures are UNPLANNED.

With specific regard to radioactivity releases, a release of radioactivity is UNPLANNED if it has not been authorized by a Radioactive Waste Discharge Authorization (RWDA). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the RWDA (*e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank*).

VALID: An indication or report or condition is considered to be VALID when it is conclusively verified by (1) an instrument channel check, or (2) indications on related or redundant indicators, or (3) by direct observation by plant personnel, such that doubt related to the indicator's operability, the condition's existence, or the report's accuracy is removed. Implicit in this definition is the need for timely assessment (*i.e., within 15 minutes*).

VISIBLE DAMAGE: Damage to equipment or structure that is readily observable without measurements, testing, or analyses. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage includes: deformation due to heat or impact, denting, penetration, rupture, cracking, paint blistering. Surface blemishes (*e.g., paint chipping, scratches*) should not be included.

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5.3 Aircraft/Projectile Crash	
Mode	Criterion / Indicator
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
ALL	<p>Aircraft or PROJECTILE impacts (strikes) any plant structure listed in Table 5-1 resulting in structural damage [1 and 2].</p> <ol style="list-style-type: none"> Plant personnel report aircraft or PROJECTILE has impacted any structure listed in Table 5-1 on previous page [a or b] <ol style="list-style-type: none"> Confirmed report of any VISIBLE DAMAGE to specified structures Control Room indications of degraded safety system or component response (within listed structures) due to event
ALL	<p>Aircraft crash or PROJECTILE impact within the SITE PERIMETER</p> <ol style="list-style-type: none"> Plant personnel report aircraft crash or PROJECTILE impact within the SITE PERIMETER (refer to Figure 5-A on previous page)

5.4 River Level HIGH	
Mode	Criterion / Indicator
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
ALL	<p>River water level > 705 Ft mean sea level [1 or 2]</p> <ol style="list-style-type: none"> 1LR-CW-101, if accessible, indicates >705 mean sea level National Weather Bureau (412-262-1882) or Montgomery Lock (724-643-8400) reports Montgomery Lower Pool Lower Gauge Reading >52.48 Ft <p>Note Mean Sea Level = Lower Gauge Reading + 652.52 Ft</p>
ALL	<p>River water level >700 Ft Mean Sea Level [1 or 2]</p> <ol style="list-style-type: none"> 1LR-CW-101 indicates > 700 Ft Mean Sea Level National Weather Bureau (412-262-1882) or Montgomery Lock (724-643-8400) reports Montgomery Lower Pool Lower Gauge Reading >47.48 Ft <p>Note: Mean Sea Level = Lower Gauge Reading + 652.52 Ft</p>

5.5 River Level LOW	
Mode	Criterion / Indicator
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
ALL	<p>River water level < 650 Ft Mean Sea Level [1 or 2]</p> <ol style="list-style-type: none"> 1LR-CW-101 indicates <650 Ft Mean Sea Level National Weather Bureau (412-262-1882) or Montgomery Lock (724-643-8400) Reports Montgomery Lower Pool Lower Gauge Reading < -2.52 Ft <p>Note Mean Sea Level = Lower Gauge Reading + 652.52 Ft</p>
ALL	<p>River water level < 654' Ft Mean Sea Level [1 or 2]</p> <ol style="list-style-type: none"> 1LR-CW-101 indicates < 654 Ft Mean Sea Level National Weather Bureau (412-262-1882) or Montgomery Lock (724-643-8400) Reports Montgomery Lower Pool Lower Gauge Reading <+1.48 Ft <p>Note: Mean Sea Level = Lower Gauge Reading + 652.52 Ft</p>

5.6 Watercraft Crash	
Mode	Criterion / Indicator
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
	Refer to Tab 1 "Fission Product Barrier Matrix"
ALL	<p>Watercraft strikes primary intake structure and results in a reduction of Service Water flow [1 and 2]</p> <ol style="list-style-type: none"> Plant personnel report a watercraft has struck the primary intake structure SWS flow reduction indicated by sustained pressure reduction to <30 psig on 2SWS-PI-113A and/or 113B <p>Refer to AOP 2.30.1 "Loss of Service Water"</p>

DEFINITIONS/ACRONYMS

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EXTORTION: An attempt to cause an action at the station by threat of force.

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HOSTAGE: A person or object held as leverage against the station to ensure that demands will be met by the station

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The **SITE PERIMETER** encompasses all owner controlled areas in the immediate site environs as shown on Figure 4-A.

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6.1 Loss of Shutdown Systems	
Mode	Criterion / Indicator
	Refer to Tab 7.1 "Gaseous Effluents"
	Refer to Tab 7.1 "Gaseous Effluents"
5 6	<p>Inability to maintain unit in cold shutdown [1 and 2]</p> <ol style="list-style-type: none"> UNPLANNED Loss of RHS or CCP or SWS [a or b or c] <ol style="list-style-type: none"> Core exit thermocouples (CETC) (if available) indicate the temperature has increased >10 F and has exceeded 200F. (w/RHS in service) RHS inlet temperature has increased >10 F and has exceeded 200 F. (w/o CETCs or RHS), loss has exceeded 30 minutes or there is evidence of boiling in the Rx vessel.
5 6	<p>UNPLANNED loss of any function needed for cold shutdown that results in a core exit temperature increase of more than 10 F [1 and 2]</p> <ol style="list-style-type: none"> UNPLANNED Loss of RHS or CCP or SWS [a or b or c] <ol style="list-style-type: none"> Core exit thermocouples (CETC) (if available) indicate the temperature has increased >10 F (W/RHS in service) RHS inlet temperature has increased >10 F (w/o CETCs or RHS), loss has exceeded 15 minutes

6.2 RCS Inventory - Shutdown	
Mode	Criterion / Indicator
	Refer to Tab 7.1 "Gaseous Effluents"
5 6	<p>Loss of water level in the reactor vessel that has or will uncover fuel in the reactor vessel [1 and 2]</p> <ol style="list-style-type: none"> [a or b] <ol style="list-style-type: none"> Loss of RHS or CCP or SWS Loss of RCS Inventory with inadequate makeup [a and b] <ol style="list-style-type: none"> Ops personnel report 2RCS-LI-102, LR-102 RCS level instrumentation (if available) in the Control Room indicates a level drop to 0 inches Other confirmed indications of fuel uncover
	Not Applicable
5 6	<p>Loss of Reactor Coolant System Inventory with inadequate make-up [1 and 2]</p> <ol style="list-style-type: none"> Ops personnel report 2RCS-LI-102, LR-102 RCS level instrumentation in the Control Room indicates a level drop to less than 14.5 inches Ops personnel report inability to make-up RCS inventory

6.3 Loss of AC (Shutdown)	
Mode	Criterion / Indicator
	Refer to Tab 7.1 "Gaseous Effluents"
	Refer to Tab 7.1 "Gaseous Effluents"
5 6 De-Fuel	<p>UNPLANNED loss of offsite and onsite AC power for >15 minutes</p> <ol style="list-style-type: none"> AE and DF 4KV emergency buses not energized from Unit 2 sources for >15 minutes <p>Also refer to Tab 6.1 "Loss of Shutdown Systems"</p>
5 6 De-Fuel	<p>UNPLANNED loss of all offsite power supply for >15 minutes [1 and 2]</p> <ol style="list-style-type: none"> Offsite power supply to AE and DF 4KV buses unavailable for >15 minutes. Either diesel generator is supplying power to its respective emergency bus

6.4 Loss of DC (Shutdown)	
Mode	Criterion / Indicator
	Refer to Tab 7.1 "Gaseous Effluents"
	Refer to Tab 7.1 "Gaseous Effluents"
	Refer to Tab 6.1 "Loss of Shutdown Systems"
5 6 De-Fuel	<p>UNPLANNED loss of the required train of DC power for >15 minutes [1 or 2]</p> <ol style="list-style-type: none"> Voltage <110.4 VDC on DC buses 2-1 and 2-3 for >15 minutes if train A is the priority train Voltage <110.4 VDC on DC buses 2-2 and 2-4 for >15 minutes if train B is the priority train

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VALID: An indication or report or condition is considered to be VALID when it is conclusively verified by (1) an instrument channel check, or (2) indications on related or redundant indicators, or (3) by direct observation by plant personnel, such that doubt related to the indicator's operability, the condition's existence, or the report's accuracy is removed. Implicit in this definition is the need for timely assessment (*i.e., within 15 minutes*).

VISIBLE DAMAGE: Damage to equipment or structure that is readily observable without measurements, testing, or analyses. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage includes: deformation due to heat or impact, denting, penetration, rupture, cracking, paint blistering. Surface blemishes (*e.g., paint chipping, scratches*) should not be included.

VITAL AREA is any area within the PROTECTED AREA which contains equipment, systems, components, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation

6.5 Fuel Handling	
Mode	Criterion / Indicator
	Refer to Tab 7.1 "Gaseous Effluents"
	Refer to Tab 7.1 "Gaseous Effluents"
ALL	<p>Major damage to irradiated fuel; or loss of water level that has or will uncover irradiated fuel outside the reactor vessel [1 and 2]</p> <ol style="list-style-type: none"> VALID HIGH alarm on 2RMF-RQ202 [1031], 2HVR-RQ104A/B [1024, 1028], 2RMF-RQ301A/B [1032, 2032], or 2RMR-RQ203 [1025] [a or b] <ol style="list-style-type: none"> Plant personnel report damage of irradiated fuel sufficient to rupture fuel rods Plant personnel report water level drop has or will exceed available makeup capacity such that irradiated fuel will be uncovered <p>Refer to Tab 6.2 for In-vessel Uncovery</p>
ALL	<p>UNPLANNED loss of water level in spent fuel pool or reactor cavity or transfer canal with fuel remaining covered [1 and 2 and 3]</p> <ol style="list-style-type: none"> Plant personnel report water level drop in spent fuel pool or reactor cavity, or transfer canal VALID HIGH alarm on 2RMR-RQ203 [1025] or 2RMF-RQ-202 [1031] Fuel remains covered with water

6.6 Inadvertent Criticality	
Mode	Criterion / Indicator
	Refer to Tab 7.1 "Gaseous Effluents"
	Refer to Tab 7.1 "Gaseous Effluents"
3 4 5 6	<p>Inadvertent reactor criticality</p> <p>Nuclear instrumentation indicate unanticipated sustained positive startup rate</p>
	Not Applicable

INTENTIONALLY BLANK

DEFINITIONS/ACRONYMS

ALERT, UNUSUAL EVENT, GENERAL EMERGENCY, SITE AREA EMERGENCY: See EAL 4.7

BOMB: A fused explosive device.

CIVIL DISTURBANCE: A group of ten (10) or more persons violently protesting station operations or activities at the site.

Each **CRITERION** identifies the emergency condition and any numeric values which define that condition (*i.e., the basis of the declaration*). All classifications are based on an assessment (*i.e., determination that the condition is VALID*) by the Emergency Director that the **CRITERION** has been met or exceeded. Implicit in this protocol is the necessity for these assessments to be completed within 15 minutes (unless otherwise noted) of indications being available to Control Room operators that an Emergency Action Level (EAL) has been exceeded.

CRITICAL SAFETY FUNCTION (CSFs): A plant safety function required to prevent significant release of core radioactivity to the environment. There are six CSFs: Subcriticality, Core Cooling, Heat Sink, Vessel Integrity (*Pressurized Thermal Shock*), Integrity (*Containment*) and Inventory (*RCS*).

EXCLUSION AREA BOUNDARY (EAB): A boundary surrounding the BVPS units beyond which the postulated UFSAR accidents will not result in population doses exceeding the criteria of 10 CFR Part 100. Refer to Figure 7-A.

EXPLOSION: A rapid, violent, unconfined combustion, or a catastrophic failure of pressurized equipment that imparts energy of sufficient force to potentially damage permanent structures, systems or components

EXTORTION: An attempt to cause an action at the station by threat of force.

FAULTED: (Steam Generator) Existence of secondary side leakage (*i.e., steam or feed line rupture*) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute fires. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

HOSTAGE: A person or object held as leverage against the station to ensure that demands will be met by the station

INDICATOR(s): Are available via instrumentation, calculations, procedure Entry (AOPs, EOPs, etc.), operator knowledge of plant conditions (pressure, temperatures, etc.) in the Control Room, or reports received from plant personnel, whichever is most limiting, or other evidence that the associated criterion may be exceeded. Inherent in this protocol is the necessity for these assessments to be completed with 15 minutes (unless otherwise noted) of sufficient indications being available to Control Room Operators that an Emergency Action Level (EAL) has been exceeded.

INEFFECTIVE: The specified restoration action(s) does not result in a reduction in the level of severity of the RED PATH condition within 15 minutes from identification of the Core Cooling CSF Status Tree RED PATH TERMINUS. A reduction in the level of severity is an improvement in the applicable parameters (*e.g., increasing trend in reactor vessel water level (RVLIS full range) and/or decreasing trend on core thermocouple temperatures*).

INTRUSION/INTRUDER: Suspected hostile individual present in a protected area without authorization.

LOWER EXPLOSIVE LIMIT (LEL): Concentration level below which combustible gases will not explode due to ignition.

LCO, LIMITING CONDITION FOR OPERATION: as specified in the BVPS Technical Specifications, the minimum functional performance level for equipment required for safe shutdown.

ORANGE PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under severe challenge.

PROJECTILE: An object ejected, thrown, or launched towards a plant structure. The source of the projectile may be onsite or offsite. Potential for damage is sufficient to cause concern regarding the integrity of the affected structure or the operability or reliability of safety equipment contained therein.

The **PROTECTED AREA** encompasses all owner controlled areas within the security perimeter fence as shown on Figure 4-A.

RED PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under extreme challenge.

RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude sufficient to require or cause a reactor trip and

safety injection.

SABOTAGE: Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment unavailable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) Automatic turbine runback >25% thermal reactor power, (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation

The **SITE PERIMETER** encompasses all owner controlled areas in the immediate site environs as shown on Figure 4-A.

STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on the BVPS or one of its vendors. The **STRIKE ACTION** must threaten to interrupt normal plant operations to be considered.

TOXIC GAS: A gas that is dangerous to life or health by reason of inhalation or skin contact (*e.g., chlorine*).

UNPLANNED: An event or action is UNPLANNED if it is not the expected result of normal operations, testing, or maintenance. Events that result in corrective or mitigative actions being taken in accordance with abnormal or emergency procedures are UNPLANNED.

With specific regard to radioactivity releases, a release of radioactivity is UNPLANNED if it has not been authorized by a Radioactive Waste Discharge Authorization (RWDA). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the RWDA (*e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank*).

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VITAL AREA is any area within the PROTECTED AREA which contains equipment, systems, components, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation

7.1 Gaseous Effluents	
Mode	Criterion / Indicator
All	EAB dose resulting from an actual or imminent release of gaseous radioactivity that exceeds 1000 mR TEDE or 5000 mR child thyroid CDE for the actual or projected duration of the release [1 or 2 or 3] 1. A VALID gas effluent rad monitor reading exceeds the values in Column 4 of Table 7-1 for >15 minutes, unless dose projections within this time period confirms that the CRITERION is NOT exceeded 2. Field survey results indicate EAB dose >1000 mR β-γ for the actual or projected duration of the release 3. EPP dose projection results indicate EAB dose >1000 mR TEDE or >5000 mR child thyroid CDE for the actual or projected duration of the release
All	EAB dose resulting from an actual or imminent release of gaseous radioactivity that exceeds 100 mR TEDE or 500 mR child thyroid CDE for the actual or projected duration of the release [1 or 2 or 3] 1. A VALID gas effluent rad monitor reading exceeds the values in Column 3 of Table 7-1 for >15 minutes, unless dose projections within this time period confirms that the CRITERION is NOT exceeded 2. Field survey results indicate EAB dose >100 mR β-γ for the actual or projected duration of the release 3. EPP dose projection results indicate EAB dose >100 mR TEDE or >500 mR child thyroid CDE for the actual or projected duration of the release
All	Any UNPLANNED release of gaseous radioactivity that exceeds 200 times T.S. 5.5.2 / Offsite Dose Calculation Manual Limit for 15 minutes [1 or 2 or 3] 1. A VALID gas effluent rad monitor reading exceeds the values in Column 2 of Table 7-1 for >15 minutes, unless dose projections within this time period confirms that the CRITERION is NOT exceeded 2. Field survey results indicate >10 mR/hr β-γ at the EAB for >15 minutes 3. EPP dose projection results indicate EAB dose >10 mR TEDE for the duration of the release
All	Any UNPLANNED release of gaseous radioactivity that exceeds 2 times T.S. 5.5.2 / Offsite Dose Calculation Manual Limit for 60 minutes [1 or 2 or 3] 1. A VALID gas effluent rad monitor reading exceeds the values in Column 1 of Table 7-1 for >60 minutes, unless dose projections within this time period confirms that the CRITERION is NOT exceeded 2. Field survey results indicate >0.1 mR/hr β-γ at the EAB for >60 minutes 3. EPP dose projection results indicate EAB dose >0.1 mR TEDE for the duration of the release

7.2 Liquid Effluents	
Mode	Criterion / Indicator
	Not Applicable
	Not Applicable
All	Any UNPLANNED release of liquid radioactivity that exceeds 200 times T.S. 5.5.2 / Offsite Dose Calculation Manual Limit for 15 minutes [1 or 2] 1. A VALID liquid effluent rad monitor reading exceeds the values in Column 2 of Table 7-1 for >15 minutes, unless dose projections within this time period confirms that the CRITERION is NOT exceeded 2. Sample results exceed 200 times T.S. 5.5.2/Offsite Dose Calculation Manual Limit for an unmonitored release of liquid radioactivity >15 minutes in duration
	Any UNPLANNED release of liquid radioactivity to the environment that exceeds 2 times T.S. 5.5.2 / Offsite Dose Calculation Manual Limit for 60 minutes [1 or 2] 1. A VALID liquid effluent rad monitor reading exceeds the values in Column 1 of Table 7-1 for >60 minutes, unless dose projections within this time period confirms that the CRITERION is NOT exceeded 2. Sample results exceed 2 times the T.S. 5.5.2/Offsite Dose Calculation Manual Limit for an unmonitored release of liquid radioactivity >60 minutes in duration

TABLE 7-1
EFFLUENT RADIATION MONITOR EALS

NOTE: The values below, if exceeded, indicate the need to perform the specified dose projection/assessment, as listed at the bottom of each column. If the assessment can not be completed within 15 minutes (60 minutes for UE), the declaration shall be made based on the VALID reading.

* NOTE: These monitors have the ability to divert or terminate effluent flow. Ensure that a release is in progress prior to using the EAL's.

	Column 1 UE	Column 2 Alert	Column 3 Site	Column 4 General
If a RWDA (Batch Release) is Applicable	2x the ODCM Limit	200x the ODCM Limit		
* 2SGC-RQ100 [1065]	2.28E-03 uCi/ml	n/a uCi/ml	n/a uCi/ml	n/a uCi/ml
2HVS-RQ101B [2039] RBC Purge	1.48E-04 uCi/cc	1.48E-02 uCi/cc	n/a uCi/cc	n/a uCi/cc
2HVS-RQ109B LR [2040] RBC Purge	6.36E-04 uCi/cc	6.36E-02 uCi/cc	n/a uCi/cc	n/a uCi/cc
2HVS-RQ109E Eff [5040] RBC Purge	2.26E+03 uCi/sec	2.26E+05 uCi/sec	n/a uCi/sec	n/a uCi/sec
* RM-1GW-108B (GWST)	7.86E+05 cpm	n/a cpm	n/a cpm	n/a cpm
RM-1GW-109 Channel 5 (GWST)	n/a cpm	n/a cpm	n/a cpm	n/a cpm
For All Other Unplanned Releases	2x the ODCM Limit	200x the ODCM Limit		
SLCRS Unfiltered Pathway (also called Ventilation Vent)				
2HVS-RQ101B [2039]	6.02E-04 uCi/cc	6.02E-02 uCi/cc	1.67E-01 uCi/cc	n/a uCi/cc
SLCRS Filtered Pathway (also called Elevated Release)				
2HVS-RQ109B LR [2040]	2.12E-04 uCi/cc	2.12E-02 uCi/cc	8.13E-02 uCi/cc	n/a uCi/cc
2HVS-RQ109C MR [3040]	n/a uCi/cc	n/a uCi/cc	7.26E-02 uCi/cc	7.26E-01 uCi/cc
2HVS-RQ109D HR [4040]	n/a uCi/cc	n/a uCi/cc	n/a uCi/cc	6.45E-01 uCi/cc
2HVS-RQ109E Eff [5040]	5.88E+03 uCi/sec	5.88E+05 uCi/sec	1.95E+06 uCi/sec	1.95E+07 uCi/sec
Decontamination Building Vent				
* 2RMQ-RQ301B [2033]	6.30E-03 uCi/cc	n/a uCi/cc	n/a uCi/cc	n/a uCi/cc
Waste Gas Storage Vault Vent				
* 2RMQ-RQ303B [2037]	5.16E-02 uCi/cc	n/a uCi/cc	n/a uCi/cc	n/a uCi/cc
Condensate Polishing Building Vent				
* 2HVL-RQ112B [2013]	3.22E-03 uCi/cc	3.22E-01 uCi/cc	n/a uCi/cc	n/a uCi/cc
Main Steam Reliefs				
2MSS-RQ101A/101B/101C [1005/3005/5005]	n/a uCi/cc	n/a uCi/cc	4.65E-01 uCi/cc	4.65E+00 uCi/cc
2MSS-RQ101A/101B/101C Eff [2005/4005/6005]	n/a uCi/sec	n/a uCi/sec	1.32E+06 uCi/sec	1.32E+07 uCi/sec
Liquid Effluent Pathways				
* 2SGC-RQ100 [1065]	2.28E-03 uCi/ml	n/a uCi/ml	n/a uCi/ml	n/a uCi/ml
2SWS-RQ101 [1068]	8.60E-05 uCi/ml	8.60E-03 uCi/ml	n/a uCi/ml	n/a uCi/ml
2SWS-RQ102 [1067]	8.60E-05 uCi/ml	8.60E-03 uCi/ml	n/a uCi/ml	n/a uCi/ml
Minimum Release Duration	60 minutes	15 minutes	15 minutes	15 minutes
Assessment Method for Gaseous Release	1/2-HPP-03.06.012 1/2-HPP-03.06.013	1/2-HPP-03.06.012 1/2-HPP-03.06.013 1/2-EPP-IP-2.6.x	1/2-EPP-IP-2.6.x	1/2-EPP-IP-2.6.x
Assessment Method for Liquid Release	1/2-EPP-IP-2.7 1/2-EPP-IP-2.7.1	1/2-EPP-IP-2.7 1/2-EPP-IP-2.7.1		

7-1, 7-2, Table RADIOLOGICAL / FUEL HANDLING - U2

DEFINITIONS/ACRONYMS

ALERT, UNUSUAL EVENT, GENERAL EMERGENCY, SITE AREA EMERGENCY: See EAL 4.7

BOMB: A fused explosive device.

CIVIL DISTURBANCE: A group of ten (10) or more persons violently protesting station operations or activities at the site.

Each **CRITERION** identifies the emergency condition and any numeric values which define that condition (*i.e., the basis of the declaration*). All classifications are based on an assessment (*i.e., determination that the condition is VALID*) by the Emergency Director that the CRITERION has been met or exceeded. Implicit in this protocol is the necessity for these assessments to be completed within 15 minutes (unless otherwise noted) of indications being available to Control Room operators that an Emergency Action Level (EAL) has been exceeded.

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EXCLUSION AREA BOUNDARY (EAB): A boundary surrounding the BVPS units beyond which the postulated UFSAR accidents will not result in population doses exceeding the criteria of 10 CFR Part 100. Refer to Figure 7-A.

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EXTORTION: An attempt to cause an action at the station by threat of force.

FAULTED: (Steam Generator) Existence of secondary side leakage (*i.e., steam or feed line rupture*) that results in an uncontrolled decrease in steam generator pressure or the steam generator being completely depressurized.

FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute fires. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

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INDICATOR(s): Are available via instrumentation, calculations, procedure Entry (AOPs, EOPs, etc.), operator knowledge of plant conditions (pressure, temperatures, etc.) in the Control Room, or reports received from plant personnel, whichever is most limiting, or other evidence that the associated criterion may be exceeded. Inherent in this protocol is the necessity for these assessments to be completed with 15 minutes (unless otherwise noted) of sufficient indications being available to Control Room Operators that an Emergency Action Level (EAL) has been exceeded.

INEFFECTIVE: The specified restoration action(s) does not result in a reduction in the level of severity of the RED PATH condition within 15 minutes from identification of the Core Cooling CSF Status Tree RED PATH TERMINUS. A reduction in the level of severity is an improvement in the applicable parameters (*e.g., increasing trend in reactor vessel water level (RVLIS full range) and/or decreasing trend on core thermocouple temperatures*).

INTRUSION/INTRUDER: Suspected hostile individual present in a protected area without authorization.

LOWER EXPLOSIVE LIMIT (LEL): Concentration level below which combustible gases will not explode due to ignition.

LCO, LIMITING CONDITION FOR OPERATION: as specified in the BVPS Technical Specifications, the minimum functional performance level for equipment required for safe shutdown.

ORANGE PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under severe challenge.

PROJECTILE: An object ejected, thrown, or launched towards a plant structure. The source of the projectile may be onsite or offsite. Potential for damage is sufficient to cause concern regarding the integrity of the affected structure or the operability or reliability of safety equipment contained therein.

The **PROTECTED AREA** encompasses all owner controlled areas within the security perimeter fence as shown on Figure 4-A.

RED PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under extreme challenge.

RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude sufficient to require or cause a reactor trip and

safety injection.

SABOTAGE: Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment unavailable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) Automatic turbine runback >25% thermal reactor power, (2) Electrical load rejection >25% full electrical load; (3) Reactor Trip; (4) Safety Injection System Activation

The **SITE PERIMETER** encompasses all owner controlled areas in the immediate site environs as shown on Figure 4-A.

STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on the BVPS or one of its vendors. The STRIKE ACTION must threaten to interrupt normal plant operations to be considered.

TOXIC GAS: A gas that is dangerous to life or health by reason of inhalation or skin contact (*e.g., chlorine*).

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VITAL AREA is any area within the PROTECTED AREA which contains equipment, systems, components, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation

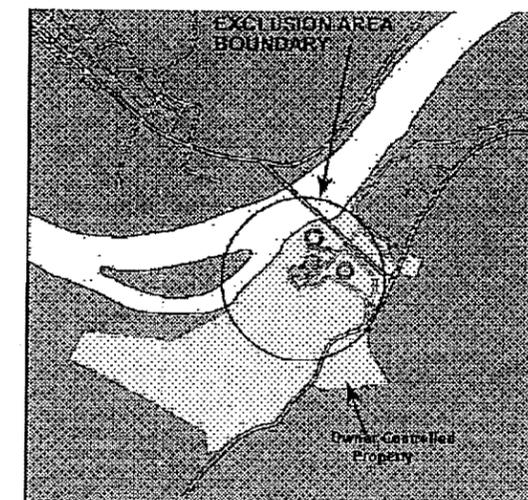
7.3 Radiation Levels	
Mode	Criterion / Indicator
	Refer to Tab 1 "Fission Product Barrier Matrix" or Tab 7.1 "Gaseous Effluents"
	Refer to Tab 1 "Fission Product Barrier Matrix" or Tab 7.1 "Gaseous Effluents"
All	<p>UNPLANNED increases in radiation levels within the facility that impedes safe operations or establishment or maintenance of cold shutdown [1 or 2]</p> <ol style="list-style-type: none"> VALID area radiation monitor readings or survey results exceed 15 mR/hr in the Control Room 2RMC-RQ201/202 [1069/1072] or PAF 2RMS-RQ223 [1071] for >15 minutes [a and b] <ol style="list-style-type: none"> VALID area radiation monitor readings or survey results exceed values listed in Table 7-2 Access restrictions impede operation of systems necessary for safe operation or the ability to establish or maintain cold shutdown
All	<p>UNPLANNED increase in radiation levels within the facility</p> <ol style="list-style-type: none"> VALID area radiation monitor readings increase by a factor of 1000 over normal levels for >15 minutes <p>Note: In either the UE or ALERT EAL, the ED must determine the cause of increase in radiation levels and review other CRITERIA/INDICATORS for applicability (e.g., a dose rate of 15 mR/hr in the Control Room could be caused by a release associated with a more significant event).</p>

7.4 Fuel Handling	
Mode	Criterion / Indicator
	Refer to Tab 7.1 "Gaseous Effluents"
	Refer to Tab 7.1 "Gaseous Effluents"
All	<p>Major damage to irradiated fuel; or loss of water level that has or will uncover irradiated fuel outside the reactor vessel [1 and 2]</p> <ol style="list-style-type: none"> VALID HIGH alarm on 2RMR-RQ203 [1025] or 2RMF-RQ202 [1031] or 2RMF-RQ301 A/B [1032/2032] or 2HVR-RQ104A/B [1024/1028] [a or b] <ol style="list-style-type: none"> Plant personnel report damage of irradiated fuel sufficient to rupture fuel rods Plant personnel report water level drop has or will exceed available makeup capacity such that irradiated fuel will be uncovered <p>Refer to Tab 6 "Shutdown Systems" for In-vessel Uncovery</p>
All	<p>UNPLANNED loss of water level in spent fuel pool or reactor cavity or transfer canal with fuel remaining covered [1 and 2 and 3]</p> <ol style="list-style-type: none"> Plant personnel report water level drop in spent fuel pool or reactor cavity, or transfer canal VALID HIGH alarm on 2RMR-RQ203 [1025] or 2RMF-RQ202 [1031] Fuel remains covered with water

Table 7-2
Areas Associated With EAL 7.3

LOCATION	INDICATOR	READING
730' Service Bldg (H2 Analyzers)	Survey Results	>100 mR/hr general area
PASS Cubicle (735' PAB)	RMP-RQ-204 [1050]	>100 mR/hr general area
Chem Sample Panel (718' PAB)	RMP-RQ-210 [1059]	>100 mR/hr general area
737' Safeguards (H2 Control System Operations)	RMR-RQ-205A,B [1022,1023]	>100 mR/hr general area
741' Safeguards (Safe Shutdown Valves)	Survey Results	>100 mR/hr general area
738' Cable Vault (RHR Suction Valves)	Survey Results	>100 mR/hr general area
773' PAB (WRGM Sampling)	Survey Results	>100 mR/hr general area
788' Main Steam & Cable Vault	Survey Results	>100 mR/hr general area
Alternate Shutdown Panel Room	Survey Results	>100 mR/hr general area
West Cable Vault (730')	Survey Results	>100 mR/hr general area
A Penetrations (713')	Survey Results	>5 R/hr general area
C&D Penetrations (718')	Survey Results	>100 mR/hr general area
Cable Vault (755')	Survey Results	>100 mR/hr general area
CNMT Instr Air Room (773')	Survey Results	>100 mR/hr general area
AE/DF Switchgear	Survey Results	>100 mR/hr general area
Turbine Bldg 735' West	Survey Results	>100 mR/hr general area
EDG 2-1, 2-2	Survey Results	>5 R/hr general area

Figure 7-A
EXCLUSION AREA
BOUNDARY



7.3, 7.4, Table 7-2, Figure 7-A

DEFINITIONS/ACRONYMS

ALERT, UNUSUAL EVENT, GENERAL EMERGENCY, SITE AREA EMERGENCY: See EAL 4.7

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CIVIL DISTURBANCE: A group of ten (10) or more persons violently protesting station operations or activities at the site.

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EXTORTION: An attempt to cause an action at the station by threat of force.

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FIRE: Combustion characterized by heat and light. Sources of smoke such as slipping drive belts or overheated electrical equipment do not constitute fires. Observation of flame is preferred but is NOT required if large quantities of smoke and heat are observed.

HOSTAGE: A person or object held as leverage against the station to ensure that demands will be met by the station

INDICATOR(s): Are available via instrumentation, calculations, procedure Entry (AOPs, EOPs, etc.), operator knowledge of plant conditions (pressure, temperatures, etc.) in the Control Room, or reports received from plant personnel, whichever is most limiting, or other evidence that the associated criterion may be exceeded. Inherent in this protocol is the necessity for these assessments to be completed with 15 minutes (unless otherwise noted) of sufficient indications being available to Control Room Operators that an Emergency Action Level (EAL) has been exceeded.

INEFFECTIVE: The specified restoration action(s) does not result in a reduction in the level of severity of the RED PATH condition within 15 minutes from identification of the Core Cooling CSF Status Tree RED PATH TERMINUS. A reduction in the level of severity is an improvement in the applicable parameters (*e.g., increasing trend in reactor vessel water level (RVLIS full range) and/or decreasing trend on core thermocouple temperatures*).

INTRUSION/INTRUDER: Suspected hostile individual present in a protected area without authorization.

LOWER EXPLOSIVE LIMIT (LEL): Concentration level below which combustible gases will not explode due to ignition.

LCO, LIMITING CONDITION FOR OPERATION: as specified in the BVPS Technical Specifications, the minimum functional performance level for equipment required for safe shutdown.

ORANGE PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under severe challenge.

PROJECTILE: An object ejected, thrown, or launched towards a plant structure. The source of the projectile may be onsite or offsite. Potential for damage is sufficient to cause concern regarding the integrity of the affected structure or the operability or reliability of safety equipment contained therein.

The **PROTECTED AREA** encompasses all owner controlled areas within the security perimeter fence as shown on Figure 4-A.

RED PATH: Monitoring of one or more CSFs by the EOPs which indicates that a CSF is under extreme challenge.

RUPTURED: (Steam Generator) Existence of primary to secondary leakage of a magnitude sufficient to require or cause a reactor trip and

safety injection.

SABOTAGE: Deliberate damage, mis-alignment, or mis-operation of plant equipment with the intent to render the equipment unavailable.

SIGNIFICANT TRANSIENT: An UNPLANNED event involving one or more of the following: (1) Automatic turbine runback >25% thermal reactor power, (2) Electrical load rejection >25% full electrical load, (3) Reactor Trip, (4) Safety Injection System Activation

The **SITE PERIMETER** encompasses all owner controlled areas in the immediate site environs as shown on Figure 4-A.

STRIKE ACTION: A work stoppage within the PROTECTED AREA by a body of workers to enforce compliance with demands made on the BVPS or one of its vendors. The STRIKE ACTION must threaten to interrupt normal plant operations to be considered.

TOXIC GAS: A gas that is dangerous to life or health by reason of inhalation or skin contact (*e.g., chlorine*).

UNPLANNED: An event or action is UNPLANNED if it is not the expected result of normal operations, testing, or maintenance. Events that result in corrective or mitigative actions being taken in accordance with abnormal or emergency procedures are UNPLANNED.

With specific regard to radioactivity releases, a release of radioactivity is UNPLANNED if it has not been authorized by a Radioactive Waste Discharge Authorization (RWDA). Implicit in this definition are unintentional releases, unmonitored releases, or planned releases that exceed a condition specified on the RWDA (*e.g., alarm setpoints, minimum dilution flow, minimum release times, maximum release rates, and/or discharge of incorrect tank*).

VALID: An indication or report or condition is considered to be VALID when it is conclusively verified by (1) an instrument channel check, or (2) indications on related or redundant indicators, or (3) by direct observation by plant personnel, such that doubt related to the indicator's operability, the condition's existence, or the report's accuracy is removed. Implicit in this definition is the need for timely assessment (*i.e., within 15 minutes*).

VISIBLE DAMAGE: Damage to equipment or structure that is readily observable without measurements, testing, or analyses. Damage is sufficient to cause concern regarding the continued operability or reliability of affected safety structure, system, or component. Example damage includes: deformation due to heat or impact, denting, penetration, rupture, cracking, paint blistering. Surface blemishes (*e.g., paint chipping, scratches*) should not be included.

VITAL AREA is any area within the PROTECTED AREA which contains equipment, systems, components, or material, the failure, destruction, or release of which could directly or indirectly endanger the public health and safety by exposure to radiation