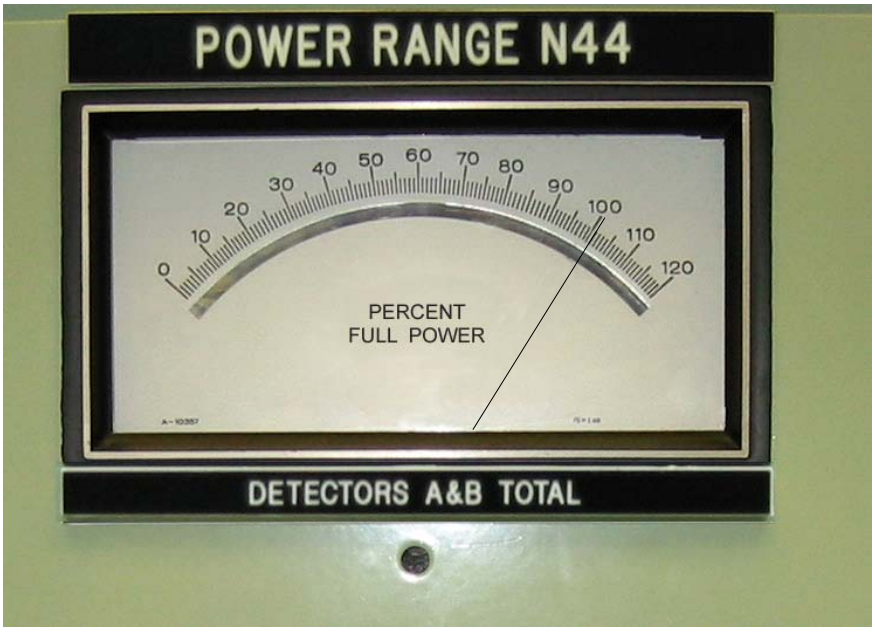

POWER RANGE N41
0
10
20
30
40
50
60
70
80
90
100
110
120
PERCENT
FULL POWER
DETECTORS A&B TOTAL


POWER RANGE N42
0
10
20
30
40
50
60
70
80
90
100
110
120
PERCENT
FULL POWER
DETECTORS A&B TOTAL


POWER RANGE N43
0
10
20
30
40
50
60
70
80
90
100
110
120
PERCENT
FULL POWER
DETECTORS A&B TOTAL


POWER RANGE N44
0
10
20
30
40
50
60
70
80
90
100
110
120
PERCENT
FULL POWER
DETECTORS A&B TOTAL

DC Cook

Point #	:	Point Name	Database	Point Type	Point Description
Point 1	:	U2_U0601DL	PPC2	Analog Input	LEFM PCT RTP 10 MIN AVG
Point 2	:	U2_U0601DV	PPC2	Analog Input	VENT PCT RTP 10 MIN AVG

DATE	TIME	U2_U0601DL	U2_U0601DV
03/19/07	07:00:00.000	99.81 GOOD PC	99.50 GOOD PC
03/19/07	07:10:00.000	99.80 GOOD PC	99.49 GOOD PC
03/19/07	07:20:00.000	99.77 GOOD PC	99.45 GOOD PC
03/19/07	07:30:00.000	99.79 GOOD PC	99.44 GOOD PC
03/19/07	07:40:00.000	99.80 GOOD PC	99.44 GOOD PC
03/19/07	07:50:00.000	99.78 GOOD PC	99.45 GOOD PC
03/19/07	08:00:00.000	99.76 GOOD PC	99.43 GOOD PC
03/19/07	08:10:00.000	99.80 GOOD PC	99.47 GOOD PC
03/19/07	08:20:00.000	99.82 GOOD PC	99.47 GOOD PC
03/19/07	08:30:00.000	99.87 GOOD PC	99.53 GOOD PC
03/19/07	08:40:00.000	99.83 GOOD PC	99.51 GOOD PC
03/19/07	08:50:00.000	99.84 GOOD PC	99.53 GOOD PC
03/19/07	09:00:00.000	99.84 GOOD PC	99.47 GOOD PC
03/19/07	09:10:00.000	99.91 GOOD PC	99.54 GOOD PC
03/19/07	09:20:00.000	99.90 GOOD PC	99.55 GOOD PC
03/19/07	09:30:00.000	99.82 GOOD PC	99.52 GOOD PC
03/19/07	09:40:00.000	99.84 GOOD PC	99.53 GOOD PC
03/19/07	09:50:00.000	99.85 GOOD PC	99.50 GOOD PC
03/19/07	10:00:00.000	99.85 GOOD PC	99.51 GOOD PC
03/19/07	10:10:00.000	99.83 GOOD PC	99.47 GOOD PC
03/19/07	10:20:00.000	99.86 GOOD PC	99.50 GOOD PC
03/19/07	10:30:00.000	99.82 GOOD PC	99.48 GOOD PC
03/19/07	10:40:00.000	99.87 GOOD PC	99.53 GOOD PC
03/19/07	10:50:00.000	99.84 GOOD PC	99.50 GOOD PC
03/19/07	11:00:00.000	99.83 GOOD PC	99.50 GOOD PC
03/19/07	11:10:00.000	99.81 GOOD PC	99.46 GOOD PC
03/19/07	11:20:00.000	99.81 GOOD PC	99.47 GOOD PC
03/19/07	11:30:00.000	99.81 GOOD PC	99.47 GOOD PC
03/19/07	11:40:00.000	99.80 GOOD PC	99.45 GOOD PC
03/19/07	11:50:00.000	99.80 GOOD PC	99.45 GOOD PC

DATE	TIME	U2_U0601DL	U2_U0601DV
03/19/07	12:00:00.000	99.79 GOOD PC	99.45 GOOD PC
03/19/07	12:10:00.000	99.75 GOOD PC	99.44 GOOD PC
03/19/07	12:20:00.000	99.76 GOOD PC	99.41 GOOD PC
03/19/07	12:30:00.000	99.77 GOOD PC	99.40 GOOD PC
03/19/07	12:40:00.000	99.71 GOOD PC	99.39 GOOD PC
03/19/07	12:50:00.000	99.71 GOOD PC	99.40 GOOD PC
03/19/07	13:00:00.000	99.77 GOOD PC	99.44 GOOD PC
03/19/07	13:10:00.000	99.73 GOOD PC	99.40 GOOD PC
03/19/07	13:20:00.000	99.72 GOOD PC	99.36 GOOD PC
03/19/07	13:30:00.000	99.73 GOOD PC	99.41 GOOD PC
03/19/07	13:40:00.000	99.71 GOOD PC	99.38 GOOD PC
03/19/07	13:50:00.000	99.70 GOOD PC	99.39 GOOD PC
03/19/07	14:00:00.000	99.72 GOOD PC	99.39 GOOD PC
03/19/07	14:10:00.000	99.68 GOOD PC	99.36 GOOD PC
03/19/07	14:20:00.000	99.64 GOOD PC	99.33 GOOD PC
03/19/07	14:30:00.000	99.66 GOOD PC	99.34 GOOD PC
03/19/07	14:40:00.000	99.68 GOOD PC	99.37 GOOD PC
03/19/07	14:50:00.000	99.73 GOOD PC	99.41 GOOD PC
03/19/07	15:00:00.000	99.71 GOOD PC	99.44 GOOD PC
03/19/07	15:10:00.000	99.72 GOOD PC	99.40 GOOD PC
03/19/07	15:20:00.000	99.75 GOOD PC	99.41 GOOD PC
03/19/07	15:30:00.000	99.77 GOOD PC	99.44 GOOD PC
03/19/07	15:40:00.000	99.69 GOOD PC	99.40 GOOD PC
03/19/07	15:50:00.000	99.71 GOOD PC	99.38 GOOD PC
03/19/07	16:00:00.000	99.70 GOOD PC	99.39 GOOD PC
03/19/07	16:10:00.000	99.72 GOOD PC	99.39 GOOD PC
03/19/07	16:20:00.000	99.70 GOOD PC	99.37 GOOD PC
03/19/07	16:30:00.000	99.70 GOOD PC	99.37 GOOD PC
03/19/07	16:40:00.000	99.67 GOOD PC	99.34 GOOD PC
03/19/07	16:50:00.000	99.70 GOOD PC	99.37 GOOD PC
03/19/07	17:00:00.000	99.66 GOOD PC	99.34 GOOD PC
03/19/07	17:10:00.000	99.68 GOOD PC	99.36 GOOD PC
03/19/07	17:20:00.000	99.67 GOOD PC	99.36 GOOD PC
03/19/07	17:30:00.000	99.73 GOOD PC	99.38 GOOD PC
03/19/07	17:40:00.000	99.77 GOOD PC	99.44 GOOD PC
03/19/07	17:50:00.000	99.76 GOOD PC	99.44 GOOD PC
03/19/07	18:00:00.000	99.78 GOOD PC	99.44 GOOD PC
03/19/07	18:10:00.000	99.73 GOOD PC	99.40 GOOD PC
03/19/07	18:20:00.000	99.80 GOOD PC	99.46 GOOD PC
03/19/07	18:30:00.000	99.77 GOOD PC	99.43 GOOD PC

DATE	TIME	U2_U0601DL	U2_U0601DV
03/19/07	18:40:00.000	99.75 GOOD PC	99.39 GOOD PC
03/19/07	18:50:00.000	99.77 GOOD PC	99.45 GOOD PC
03/19/07	19:00:00.000	99.75 GOOD PC	99.41 GOOD PC
03/19/07	19:10:00.000	99.76 GOOD PC	99.45 GOOD PC
03/19/07	19:20:00.000	99.75 GOOD PC	99.39 GOOD PC
03/19/07	19:30:00.000	99.74 GOOD PC	99.40 GOOD PC
03/19/07	19:40:00.000	99.73 GOOD PC	99.38 GOOD PC
03/19/07	19:50:00.000	99.74 GOOD PC	99.31 GOOD PC
03/19/07	20:00:00.000	99.73 GOOD PC	99.20 GOOD PC
03/19/07	20:10:00.000	99.72 GOOD PC	98.99 GOOD PC
03/19/07	20:20:00.000	99.71 GOOD PC	98.93 GOOD PC
03/19/07	20:30:00.000	99.69 GOOD PC	98.70 GOOD PC
03/19/07	20:40:00.000	99.15 BAD PC	98.81 GOOD PC
03/19/07	20:50:00.000	99.03 BAD PC	98.98 GOOD PC
03/19/07	21:00:00.000	99.00 BAD PC	99.16 GOOD PC
03/19/07	21:10:00.000	79.60 BAD PC	99.23 GOOD PC
03/19/07	21:20:00.000	29.28 BAD PC	98.94 GOOD PC
03/19/07	21:30:00.000	88.99 BAD PC	98.65 GOOD PC
03/19/07	21:40:00.000	48.40 BAD PC	98.04 GOOD PC
03/19/07	21:50:00.000	57.95 BAD PC	97.61 GOOD PC
03/19/07	22:00:00.000	27.49 BAD PC	97.13 GOOD PC
03/19/07	22:10:00.000	77.11 BAD PC	96.81 GOOD PC
03/19/07	22:20:00.000	87.02 BAD PC	96.73 GOOD PC
03/19/07	22:30:00.000	97.04 BAD PC	96.72 GOOD PC
03/19/07	22:40:00.000	17.04 BAD PC	96.71 GOOD PC
03/19/07	22:50:00.000	27.05 BAD PC	96.72 GOOD PC
03/19/07	23:00:00.000	47.08 BAD PC	96.75 GOOD PC
03/19/07	23:10:00.000	96.98 BAD PC	96.66 GOOD PC
03/19/07	23:20:00.000	27.22 BAD PC	96.89 GOOD PC
03/19/07	23:30:00.000	36.97 BAD PC	96.59 GOOD PC
03/19/07	23:40:00.000	47.07 BAD PC	96.73 GOOD PC
03/19/07	23:50:00.000	16.88 BAD PC	96.53 GOOD PC
03/20/07	00:00:00.000	87.03 BAD PC	96.70 GOOD PC
03/20/07	00:10:00.000	36.77 BAD PC	96.42 GOOD PC
03/20/07	00:20:00.000	47.12 BAD PC	96.81 GOOD PC
03/20/07	00:30:00.000	56.87 BAD PC	96.54 GOOD PC
03/20/07	00:40:00.000	16.75 BAD PC	96.43 GOOD PC
03/20/07	00:50:00.000	96.95 BAD PC	96.62 GOOD PC
03/20/07	01:00:00.000	36.81 BAD PC	96.50 GOOD PC
03/20/07	01:10:00.000	56.94 BAD PC	96.60 GOOD PC

DATE	TIME	U2_U0601DL	U2_U0601DV
03/20/07	01:20:00.000	57.17 BAD PC	96.85 GOOD PC
03/20/07	01:30:00.000	17.73 BAD PC	97.39 GOOD PC
03/20/07	01:40:00.000	37.94 BAD PC	97.60 GOOD PC
03/20/07	01:50:00.000	17.94 BAD PC	97.63 GOOD PC
03/20/07	02:00:00.000	18.07 BAD PC	97.74 GOOD PC
03/20/07	02:10:00.000	48.43 BAD PC	98.12 GOOD PC
03/20/07	02:20:00.000	38.80 BAD PC	98.49 GOOD PC
03/20/07	02:30:00.000	48.91 BAD PC	98.59 GOOD PC
03/20/07	02:40:00.000	18.96 BAD PC	98.66 GOOD PC
03/20/07	02:50:00.000	29.12 BAD PC	98.78 GOOD PC
03/20/07	03:00:00.000	79.24 BAD PC	98.89 GOOD PC
03/20/07	03:10:00.000	99.48 BAD PC	98.87 GOOD PC
03/20/07	03:20:00.000	89.65 BAD PC	98.82 GOOD PC
03/20/07	03:30:00.000	39.77 BAD PC	98.94 GOOD PC
03/20/07	03:40:00.000	69.87 BAD PC	98.85 GOOD PC
03/20/07	03:50:00.000	19.95 BAD PC	98.88 GOOD PC
03/20/07	04:00:00.000	49.91 BAD PC	98.89 GOOD PC
03/20/07	04:10:00.000	99.86 BAD PC	98.92 GOOD PC
03/20/07	04:20:00.000	29.88 BAD PC	98.93 GOOD PC
03/20/07	04:30:00.000	69.92 BAD PC	98.98 GOOD PC
03/20/07	04:40:00.000	39.97 BAD PC	98.92 GOOD PC
03/20/07	04:50:00.000	19.91 BAD PC	98.87 GOOD PC
03/20/07	05:00:00.000	29.82 BAD PC	98.79 GOOD PC
03/20/07	05:10:00.000	49.88 BAD PC	98.82 GOOD PC
03/20/07	05:20:00.000	19.82 BAD PC	98.80 GOOD PC
03/20/07	05:30:00.000	89.86 BAD PC	98.92 GOOD PC
03/20/07	05:40:00.000	79.87 BAD PC	98.96 GOOD PC
03/20/07	05:50:00.000	69.87 BAD PC	98.85 GOOD PC
03/20/07	06:00:00.000	29.90 BAD PC	98.88 GOOD PC
03/20/07	06:10:00.000	79.98 BAD PC	98.91 GOOD PC
03/20/07	06:20:00.000	69.92 BAD PC	98.89 GOOD PC
03/20/07	06:30:00.000	59.95 BAD PC	98.82 GOOD PC
03/20/07	06:40:00.000	39.87 BAD PC	98.83 GOOD PC
03/20/07	06:50:00.000	59.85 BAD PC	98.78 GOOD PC
03/20/07	07:00:00.000	49.88 BAD PC	98.82 GOOD PC

DC Cook

Point #	Point Name	Database	Point Type	Point Description	
Point 1 :	U2_T0418A	PPC2	Analog Input	SG 1 FEEDWATER TEMPERATURE	FTQ-210
Point 2 :	U2_T0438A	PPC2	Analog Input	SG 2 FEEDWATER TEMPERATURE	FTQ-220
Point 3 :	U2_T0458A	PPC2	Analog Input	SG 3 FEEDWATER TEMPERATURE	FTQ-230
Point 4 :	U2_T0478A	PPC2	Analog Input	SG 4 FEEDWATER TEMPERATURE	FTQ-240

DATE	TIME	U2_T0418A	U2_T0438A	U2_T0458A	U2_T0478A
03/19/07	07:00:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	07:10:00.000	429.1 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	07:20:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	07:30:00.000	429.0 GOOD DEGF	429.0 GOOD DEGF	428.3 GOOD DEGF	429.3 GOOD DEGF
03/19/07	07:40:00.000	428.9 GOOD DEGF	429.0 GOOD DEGF	428.2 GOOD DEGF	429.1 GOOD DEGF
03/19/07	07:50:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	08:00:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	08:10:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	08:20:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	08:30:00.000	429.2 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07	08:40:00.000	429.0 GOOD DEGF	429.0 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07	08:50:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07	09:00:00.000	429.0 GOOD DEGF	429.3 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07	09:10:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.3 GOOD DEGF
03/19/07	09:20:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.3 GOOD DEGF
03/19/07	09:30:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	09:40:00.000	429.2 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	09:50:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	10:00:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	10:10:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.4 GOOD DEGF
03/19/07	10:20:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	10:30:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	10:40:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	10:50:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	11:00:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07	11:10:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.2 GOOD DEGF	429.3 GOOD DEGF
03/19/07	11:20:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.2 GOOD DEGF	429.2 GOOD DEGF
03/19/07	11:30:00.000	429.1 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF

DATE	TIME	U2_T0418A	U2_T0438A	U2_T0458A	U2_T0478A
03/19/07	11:40:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.2 GOOD DEGF
03/19/07	11:50:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	12:00:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07	12:10:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	12:20:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.3 GOOD DEGF	429.3 GOOD DEGF
03/19/07	12:30:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	12:40:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.3 GOOD DEGF
03/19/07	12:50:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	13:00:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	13:10:00.000	428.9 GOOD DEGF	429.3 GOOD DEGF	428.3 GOOD DEGF	429.3 GOOD DEGF
03/19/07	13:20:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.2 GOOD DEGF	429.2 GOOD DEGF
03/19/07	13:30:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07	13:40:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.0 GOOD DEGF
03/19/07	13:50:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07	14:00:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07	14:10:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.1 GOOD DEGF
03/19/07	14:20:00.000	428.8 GOOD DEGF	429.0 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07	14:30:00.000	428.8 GOOD DEGF	429.0 GOOD DEGF	428.2 GOOD DEGF	429.0 GOOD DEGF
03/19/07	14:40:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07	14:50:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	15:00:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.1 GOOD DEGF
03/19/07	15:10:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07	15:20:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.1 GOOD DEGF
03/19/07	15:30:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	15:40:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	15:50:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	16:00:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	16:10:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	16:20:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	16:30:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	16:40:00.000	428.8 GOOD DEGF	429.0 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07	16:50:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	17:00:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.1 GOOD DEGF
03/19/07	17:10:00.000	429.1 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	17:20:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	17:30:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	17:40:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	17:50:00.000	429.1 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	18:00:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	18:10:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF

DATE	TIME	U2_T0418A	U2_T0438A	U2_T0458A	U2_T0478A
03/19/07	18:20:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07	18:30:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	18:40:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	18:50:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	19:00:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	19:10:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	19:20:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	19:30:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	19:40:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	19:50:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	20:00:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	20:10:00.000	429.0 GOOD DEGF	429.0 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07	20:20:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07	20:30:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.1 GOOD DEGF
03/19/07	20:40:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	20:50:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	21:00:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	21:10:00.000	428.7 GOOD DEGF	428.9 GOOD DEGF	428.0 GOOD DEGF	429.0 GOOD DEGF
03/19/07	21:20:00.000	428.5 GOOD DEGF	428.6 GOOD DEGF	427.9 GOOD DEGF	428.9 GOOD DEGF
03/19/07	21:30:00.000	428.2 GOOD DEGF	428.3 GOOD DEGF	427.5 GOOD DEGF	428.3 GOOD DEGF
03/19/07	21:40:00.000	427.5 GOOD DEGF	427.8 GOOD DEGF	427.0 GOOD DEGF	427.8 GOOD DEGF
03/19/07	21:50:00.000	427.3 GOOD DEGF	427.5 GOOD DEGF	426.7 GOOD DEGF	427.6 GOOD DEGF
03/19/07	22:00:00.000	426.8 GOOD DEGF	426.9 GOOD DEGF	426.2 GOOD DEGF	427.0 GOOD DEGF
03/19/07	22:10:00.000	426.7 GOOD DEGF	426.8 GOOD DEGF	426.1 GOOD DEGF	427.0 GOOD DEGF
03/19/07	22:20:00.000	426.7 GOOD DEGF	426.8 GOOD DEGF	426.0 GOOD DEGF	427.0 GOOD DEGF
03/19/07	22:30:00.000	426.7 GOOD DEGF	426.9 GOOD DEGF	426.2 GOOD DEGF	426.9 GOOD DEGF
03/19/07	22:40:00.000	426.7 GOOD DEGF	426.9 GOOD DEGF	426.2 GOOD DEGF	427.0 GOOD DEGF
03/19/07	22:50:00.000	426.5 GOOD DEGF	426.7 GOOD DEGF	426.0 GOOD DEGF	426.9 GOOD DEGF
03/19/07	23:00:00.000	426.3 GOOD DEGF	426.4 GOOD DEGF	425.8 GOOD DEGF	426.6 GOOD DEGF
03/19/07	23:10:00.000	427.0 GOOD DEGF	427.1 GOOD DEGF	426.3 GOOD DEGF	427.1 GOOD DEGF
03/19/07	23:20:00.000	426.7 GOOD DEGF	426.8 GOOD DEGF	426.1 GOOD DEGF	427.0 GOOD DEGF
03/19/07	23:30:00.000	426.4 GOOD DEGF	426.6 GOOD DEGF	425.9 GOOD DEGF	426.7 GOOD DEGF
03/19/07	23:40:00.000	426.7 GOOD DEGF	426.7 GOOD DEGF	425.9 GOOD DEGF	426.9 GOOD DEGF
03/19/07	23:50:00.000	426.4 GOOD DEGF	426.5 GOOD DEGF	425.8 GOOD DEGF	426.7 GOOD DEGF
03/20/07	00:00:00.000	426.6 GOOD DEGF	426.8 GOOD DEGF	426.1 GOOD DEGF	426.7 GOOD DEGF
03/20/07	00:10:00.000	426.5 GOOD DEGF	426.9 GOOD DEGF	425.9 GOOD DEGF	426.7 GOOD DEGF
03/20/07	00:20:00.000	426.7 GOOD DEGF	426.7 GOOD DEGF	425.9 GOOD DEGF	427.0 GOOD DEGF
03/20/07	00:30:00.000	426.4 GOOD DEGF	426.6 GOOD DEGF	425.9 GOOD DEGF	426.6 GOOD DEGF
03/20/07	00:40:00.000	426.7 GOOD DEGF	427.0 GOOD DEGF	426.2 GOOD DEGF	426.8 GOOD DEGF
03/20/07	00:50:00.000	427.0 GOOD DEGF	427.1 GOOD DEGF	426.3 GOOD DEGF	427.2 GOOD DEGF

DATE	TIME	U2_T0418A	U2_T0438A	U2_T0458A	U2_T0478A
03/20/07	01:00:00.000	426.6 GOOD DEGF	426.7 GOOD DEGF	425.9 GOOD DEGF	426.9 GOOD DEGF
03/20/07	01:10:00.000	426.6 GOOD DEGF	426.7 GOOD DEGF	426.1 GOOD DEGF	426.8 GOOD DEGF
03/20/07	01:20:00.000	427.1 GOOD DEGF	427.2 GOOD DEGF	426.5 GOOD DEGF	427.3 GOOD DEGF
03/20/07	01:30:00.000	427.4 GOOD DEGF	427.7 GOOD DEGF	426.9 GOOD DEGF	427.7 GOOD DEGF
03/20/07	01:40:00.000	427.6 GOOD DEGF	427.7 GOOD DEGF	427.0 GOOD DEGF	427.7 GOOD DEGF
03/20/07	01:50:00.000	427.4 GOOD DEGF	427.8 GOOD DEGF	427.0 GOOD DEGF	427.8 GOOD DEGF
03/20/07	02:00:00.000	427.8 GOOD DEGF	428.0 GOOD DEGF	427.2 GOOD DEGF	428.0 GOOD DEGF
03/20/07	02:10:00.000	427.9 GOOD DEGF	428.1 GOOD DEGF	427.3 GOOD DEGF	428.1 GOOD DEGF
03/20/07	02:20:00.000	428.3 GOOD DEGF	428.4 GOOD DEGF	427.8 GOOD DEGF	428.6 GOOD DEGF
03/20/07	02:30:00.000	428.3 GOOD DEGF	428.5 GOOD DEGF	427.8 GOOD DEGF	428.5 GOOD DEGF
03/20/07	02:40:00.000	428.4 GOOD DEGF	428.5 GOOD DEGF	427.8 GOOD DEGF	428.7 GOOD DEGF
03/20/07	02:50:00.000	428.6 GOOD DEGF	428.7 GOOD DEGF	428.0 GOOD DEGF	428.7 GOOD DEGF
03/20/07	03:00:00.000	428.8 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.0 GOOD DEGF
03/20/07	03:10:00.000	428.8 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/20/07	03:20:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/20/07	03:30:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.3 GOOD DEGF
03/20/07	03:40:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.3 GOOD DEGF
03/20/07	03:50:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.4 GOOD DEGF
03/20/07	04:00:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/20/07	04:10:00.000	429.2 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/20/07	04:20:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/20/07	04:30:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.4 GOOD DEGF
03/20/07	04:40:00.000	429.3 GOOD DEGF	429.4 GOOD DEGF	428.6 GOOD DEGF	429.4 GOOD DEGF
03/20/07	04:50:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.2 GOOD DEGF
03/20/07	05:00:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/20/07	05:10:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/20/07	05:20:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.3 GOOD DEGF
03/20/07	05:30:00.000	429.2 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/20/07	05:40:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.7 GOOD DEGF	429.4 GOOD DEGF
03/20/07	05:50:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.4 GOOD DEGF
03/20/07	06:00:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.4 GOOD DEGF
03/20/07	06:10:00.000	429.2 GOOD DEGF	429.4 GOOD DEGF	428.6 GOOD DEGF	429.4 GOOD DEGF
03/20/07	06:20:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/20/07	06:30:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.4 GOOD DEGF
03/20/07	06:40:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.3 GOOD DEGF
03/20/07	06:50:00.000	429.2 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/20/07	07:00:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF

NRC2007-A1

TITLE	**Reactor Thermal Power Calculation – LEFM Not Available**	**REVISION**	**0**
PROGRAM	**Initial Licensed Operator (ILT)**	**TIME**	**20 Minutes**

SCOPE OF REVISION:

Initial Issue.

			DATE:
AUTHOR	**Name:**	John T Conrad	
	Signature:		
FACILITY REVIEWER	**Name:**		
	Signature:		
		Facility Supervisor / Manager	

REFERENCES

01-OHP-4030-214-029, Rev 7 Reactor Thermal Power

TASK

TASK ID: STP0040201, Determine Reactor Thermal Power Based on Feedwater Indications

K/A Number: SYS 015 A1.01, Ability to predict and/or monitor changes in parameters to prevent exceeding design limits) associated with operating the NIS controls including NIS calibration by heat balance. (CFR: 41.5 . 45.5)

K/A Importance: RO 3.5 SRO 3.8

EVALUATION SETTING

Classroom

HANDOUTS

02-OHP-4030-214-029, Attachment 2, PPC Derived Reactor Thermal Power Evaluation-Loss of LEFM
Handout 1 – PPC Thermal Power History Data
Handout 2 – PPC Feedwater Temperature Data
Handout 3 – Power Range NIs Readings

Calculator

ATTACHMENTS

None

SIMULATOR SETUP

None

TASK OBJECTIVES/STANDARDS

Perform a Reactor Thermal Power Calculation in Mode 1 with the LEFM not available.

EVALUATOR INSTRUCTIONS

None.

TASK BREIFING

You are the BOP in Unit 2.

The LEFM has been out of service for about 10 hours and is not expected to be returned to service until the next shift.

The Unit Supervisor has requested a Thermal Power Calculation in accordance with 02-OHP-4030-214-029, Reactor Thermal Power, Attachment 2, PPC Derived Reactor Thermal Power Evaluation-Loss of LEFM.

Perform the Thermal Power Calculation using the provided data from the PPC (Handouts 1, 2, and 3)

It is currently 0700 on 3/20/2007

2-SG-9, Point 16, Feedwater Heater 6A & 6B Outlet Temperature is reading 425°F.

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Attachment 2	PPC Derived Reactor Thermal Power Evaluation-Loss of LEFM		Pages: 15 - 24

1 PURPOSE AND SCOPE

1.1 Provide a method for comparing excore nuclear power channels to actual Reactor Thermal Power with the Leading Edge Flow Meter (LEFM) **NOT** available.

1.2 Corrected Venturi Reactor Thermal Power may be used to verify that Reactor power is within the licensed core power limits for up to 46 hours with the LEFM **NOT** available.

1.3 Technical Specification SR 3.3.1.2, Table 3.3.1-1, Function 2.a and TRM 8.7.14, Leading Edge Flow Meter (LEFM) are applicable to this attachment.

2 PREREQUISITES **INIT**

2.1 LEFM has been out of service for less than 48 hours. _____

2.2 No power changes in excess of 10% have been made during the time period that the LEFM has been out of service. _____

2.3 The following parameters have been stable for a minimum of 10 minutes:

- Reactor Power, as indicated by the Nuclear Instruments (NIS), stable
- Electrical load stable with no significant load changes expected
- Feedwater flow and temperature stable
- Tavg has been controlled to Tref
- Charging flow, including Seal Injection flow minus RCP Seal Leakoff flows is approximately equal to Letdown flow, and the Pressurizer level is stable
- Steam Generator levels and steam pressures stable
- Steam Generator Loop Blowdown flows stable _____

Operator determines that LEFM has only been out of service for 10 hours.

Operator determines from Handout 1 that no power changes greater than 10% have occurred during the time LEFM has been out of service.

Cue: All listed parameters have been stable for 10 minutes.

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3 PRECAUTIONS AND LIMITATIONS

3.1 PPC readings indicated in magenta or blue shall not be used.

3.2 Reactor Thermal Power can be maintained up to 3468 Mwt (100% RTP) with the LEFM out of service for up to 46 hours, provided no power changes in excess of 10 percent are made during the period in which LEFM is not available.

3.3 When the Steam Generator Blowdown CIV's are closed, the plant process computer assumes 0 gpm blowdown flow. However, during periods of low flow with the isolation valves not closed (i.e. startup and shutdown) the thermal power program may be unavailable.

3.4 Due to system calibration, the Process Computer points for Steam Generator blowdown flow only accept values up to 150 gpm. Higher flow rates will result in PPC point and thermal power program failures.

3.5 Any inoperable Power Range Nuclear Instrument shall be marked N/A.

Operator reviews Precautions and Limitations.

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4 DETAILS **INIT**

4.1 Verify Plant Process Computer Feedwater Temperature Accuracy.

4.1.1 Record Feedwater Heater Outlet Temperatures to Steam Generators.

a. **IF** 2-SG-9, Feedwater Temperature and Heater Differential Temperature Recorder is available, **THEN** perform ONE of the following:

1. Record 2-SG-9, Feedwater Temperature and Heater Differential Temperature Recorder Point 16, Feedwater heaters 6A & 6B Outlet Temperatures (2-FTR-259)

_____ °F _____

Operator enters 425°F (as provided in the Task Briefing)

-OR-

2. Determine Average High Pressure Heater String Outlet Temperature.

Step 4.1.1.a.2 is not applicable.

a) Record the following points from 2-SG-9, Feedwater Temperature and Heater Differential Temperature Recorder:

- Point 14, Feedwater Heater 6A Outlet Temperature 2-FTR-252.

_____ °F _____

- Point 15, Feedwater Heater 6B Outlet Temperature 2-FTR-253.

_____ °F _____

b) Calculate the Average Feedwater High Pressure Heater String Outlet Temperature.

(_____ °F + _____ °F) / 2 = _____ °F _____
2-FTR-252 2-FTR-253 Average

-OR-

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3. Record the available Feedwater Heater String Outlet Temperature:

   - Point 14, Feedwater Heater 6A Outlet Temperature 2-FTR-252.

     _____ °F _____

   -OR-

   - Point 15, Feedwater Heater 6B Outlet Temperature 2-FTR-253.

     _____ °F _____

Step 4.1.1.a.3 is not applicable.

b. **IF** 2-SG-9, Feedwater Temperature and Heater Differential Temperature Recorder is **NOT** available, **THEN** request MTI to obtain feedwater temperature utilizing 2-FTR-259, 2-FTR-252 or 2-FTR-253 thermocouple reading:

Step 4.1.1.b is not applicable.

1. Verify MTI instrumentation to be utilized is:

   - Within its calibration due date. _____
   - Has an Accuracy of at least 4.05°F. _____

2. Record the following M&TE data:

   - Instrument Description: _____
   - M&TE Number: _____
   - M&TE Cal. Due Date: _____ _____

3. Identify thermocouple and record reading:

   Circle one used: 2-FTR-259, 2-FTR-252, 2-FTR-253

   _____ °F _____

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4.1.2 Record Plant Process Computer Feedwater inlet temperatures to each Steam Generator:

- T0418A, #1 Steam Generator Inlet Temperature _____°F
- T0438A, #2 Steam Generator Inlet Temperature _____°F
- T0458A, #3 Steam Generator Inlet Temperature _____°F
- T0478A, #4 Steam Generator Inlet Temperature _____°F _____

4.1.3 Determine Feedwater Temperature Difference between Plant Process Computer points and control board readings are acceptable.

a. Compare the temperature for the Feedwater Heater Outlet Temperature obtained in Step 4.1.1 to each of the following PPC Steam Generator Inlet Temperature indications **AND** verify that the difference for each are < 7°F and > -7 °F:

- (_____°F - _____°F) = _____°F
  T0418A Step 4.1.1 difference

  7°F > Difference > -7°F ❑ Yes ❑ No _____

- (_____°F - _____°F) = _____°F
  T0438A Step 4.1.1 difference

  7°F > Difference > -7°F ❑ Yes ❑ No _____

- (_____°F - _____°F) = _____°F
  T0458A Step 4.1.1 difference

  7°F > Difference > -7°F ❑ Yes ❑ No _____

- (_____°F - _____°F) = _____°F
  T0478A Step 4.1.1 difference

  7°F > Difference > -7°F ❑ Yes ❑ No _____

Operator records Feedwater Inlet Temperatures to SGs from Handout 2 for 0700 hours on 3/20/07:

- T0418A: 429.2°F
- T0438A: 429.3°F
- T0458A: 428.5°F
- T0478A: 429.3°F

CT: Operator determines that all Feedwater Inlet Temperatures to SGs are within limits.

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4.1.4 **IF** the S/G Inlet Temperature channel check for any of the channels identified in Step 4.1.3 is found **NOT** indicating within the required ±7°F temperature band, **THEN** perform the following:

a. Reduce Reactor power to less than or equal to 3411 Mwt (98.35% RTP) per 2-OHP-4021-001-003, Power Reduction. _____

b. Determine Reactor Thermal Power per Attachment 4, Manual Calorimetric Procedure **OR** Attachment 5, Manual Calorimetric Using Computer Spreadsheet. _____

4.2 Determine Reactor Thermal Power Correction Factor (N/A if previously calculated):

NOTE: Data recorded in Steps 4.2.1 and 4.2.2 is obtained from the same time period from PPC Point ID history (within 2 minutes of each other). PPC Points with acceptable quality are to be used to calculate the RTP Correction Factor. PPC Point ID history can be used to identify a LEFM RTP and Venturi RTP with acceptable quality if the Venturi RTP is **NOT** acceptable at the last valid LEFM RTP.

PPC addresses U0601DL/U0601DV is preferred for calculating RTP Correction Factor. PPC addresses U2026AL/U2026AV is used if U0601DL is **NOT** available.

4.2.1 Record U0601DL, LEFM Reactor Thermal Power (RTP_L) 10 minute rolling average (preferred) **OR** U2026AL, LEFM Reactor Thermal Power (alternate), using the last valid LEFM reading **AND** associated time from the PPC Point ID history (check option used):

❑ U0601DL (preferred) ❑ U2026AL (alternate)

RTP_L: _____% Time: _____ _____

Step 4.1.4 is not applicable.

Operator uses Handout 1 to determine that last valid RTP using LEFM was 99.69% from 2030 hrs on 3/19/2007 (U0601DL).

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4.2.2 Record the associated Venturi Reactor Thermal Power (RTP_V) at the last valid LEFM reading **AND** associated time from the PPC Point ID history (check option used):

❑ U0601DV ❑ U2026AV

RTP_V: _____ % Time: _____ _____

4.2.3 Calculate Correction Factor (CF):

_____ ÷ _____ = _____
RTP_L (Step 4.2.1) RTP_V (Step 4.2.2) CF _____

4.3 Determine Corrected Venturi Reactor Thermal Power (RTP_{CORR}):

4.3.1 Record current Venturi Reactor Thermal Power from the same PPC address used in Step 4.2.2 :

❑ U0601DV ❑ U2026AV

RTP_V: _____ _____

4.3.2 Calculate Corrected Venturi Reactor Thermal Power (RTP_{CORR}):

_____ × _____ = _____%
RTP_V (Step 4.3.1) CF (RTP_{CORR}) _____

4.4 Determine calculated Power Difference as follows:

4.4.1 Record OPERABLE Power Range Nuclear Instruments :

- N-41 _____ %
- N-42 _____ %
- N-43 _____ %
- N-44 _____ % _____

Operator uses Handout 1 to determine that corresponding RTP using Venturi was 98.70% from 2030 hrs on 3/19/2007 (U0601DV).

CT: Operator determines that correction factor is 1.01.

Operator enters current Venturi RTP reading of 98.82

CT: Operator determines that corrected Venturi RTP is 99.90% (± 0.1%).

Operator enters readings for Power Range NIs (± 0.4%):

- N41: 98.5%
- N42: 99.0%
- N43: 99.5%
- N44: 101.0%

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4.4.2 Determine the difference between OPERABLE Power Range NI channels and Corrected Venturi Reactor Thermal Power as follows:

(Power Range NI) – (RTP_{CORR}) = Difference

_____% – _____ % = _____%
N-41 (RTP_{CORR})

_____% – _____ % = _____%
N-42 (RTP_{CORR})

_____% – _____ % = _____%
N-43 (RTP_{CORR})

_____% – _____ % = _____%
N-44 (RTP_{CORR})

_____

NOTE: NI power greater than RTP is conservative if the difference is maintained less than or equal to 2% (TS SR 3.3.1.2). If NI adjustments are required to be made during power changes, NIs should be maintained greater than RTP without exceeding the Tech Spec 2% difference. NI power less than RTP is **NOT** conservative.

4.5 **IF** any of the following conditions are met **OR** as directed by US, **THEN** perform Attachment 6, Power Range NI Adjustments, for applicable channel(s): (Check (✓) condition met Yes/No) _____

- Average (calculated below) of OPERABLE Power Range NI channels from Step 4.4.1 is less than Corrected Reactor Thermal Power (RTP_{CORR}): ❑ YES ❑ NO

Sum = (NI-41)+(NI-42)+(NI-43)+(NI-44)

= (_____)+(_____)+(_____)+(_____) = _____ %

Average = (_____) / (_____) = _____ %
Sum # of OPERABLE NIs

Operator determines difference between corrected Ventures RTP of 99.90% and actual NIs.

- -1.4
- -0.9
- -0.4
- +1.1

CT: Operator calculates the average Power Range NIs of 99.5% (Less than corrected Venturi RTP) and checks “Yes” block

Acceptable range of 99.2 – 99.8%

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- Difference between any OPERABLE Power Range NI channel and RTP_{CORR} (PRNI minus RTP_{CORR}) is more negative than -1.0%. ❑ YES ❑ NO
- Any OPERABLE Power Range NI is **NOT** within 2% of RTP_{CORR}. ❑ YES ❑ NO
- Any OPERABLE Power Range NI % power is greater than 100.5% power. ❑ YES ❑ NO

5 ACCEPTANCE CRITERIA

- All Power Range NIs read within 2% of RTP.

6 CORRECTIVE MEASURES

6.1 Failure to satisfy the acceptance criterion in this Attachment requires the Test Performer to notify the Shift Manager, or Unit Supervisor, of the failure, and to ensure immediate initiation of a corrective action, in accordance with PMP-7030-CAP-001.

7 FINAL CONDITIONS

7.1 **Test Performance**

❑ Testing has been completed. All problems reported to Department Supervision. WO#_____

Test Start Time: _____ Date: ___/___/___

Test Completed By: _____ Time: _____ Date: ___/___/___
Test Performer or Lead Worker

Comments:_____
_____

CT: Operator determines that greater than 1% deviation exists between actual NIs and corrected Venturi RTP and checks "Yes" block.

Operator determines that all NIs are within 2% of corrected Venturi RTP and checks "No" block.

CT: Operator determines that N44 is reading greater than 100.5% and checks "Yes" block.

CT: Operator determines that NIs need adjusting in accordance with Attachment 6.

EVALUATOR: "THIS JPM IS COMPLETE"

Task Briefing

You are the BOP in Unit 2.

The LEFM has been out of service for about 10 hours and is not expected to be returned to service until the next shift.

The Unit Supervisor has requested a Thermal Power Calculation in accordance with 02-OHP-4030-214-029, Reactor Thermal Power, Attachment 2, PPC Derived Reactor Thermal Power Evaluation-Loss of LEFM.

Perform the Thermal Power Calculation using the provided data from the PPC (Handouts 1, 2, and 3)

It is currently 0700 on 3/20/2007

2-SG-9, Point 16, Feedwater Heater 6A & 6B Outlet Temperature is reading 425°F

DC Cook

Point #	Point Name	Database	Point Type	Point Description	
Point 1 :	U2_T0418A	PPC2	Analog Input	SG 1 FEEDWATER TEMPERATURE	FTQ-210
Point 2 :	U2_T0438A	PPC2	Analog Input	SG 2 FEEDWATER TEMPERATURE	FTQ-220
Point 3 :	U2_T0458A	PPC2	Analog Input	SG 3 FEEDWATER TEMPERATURE	FTQ-230
Point 4 :	U2_T0478A	PPC2	Analog Input	SG 4 FEEDWATER TEMPERATURE	FTQ-240

DATE	TIME	U2_T0418A	U2_T0438A	U2_T0458A	U2_T0478A
03/19/07	07:00:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	07:10:00.000	429.1 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	07:20:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	07:30:00.000	429.0 GOOD DEGF	429.0 GOOD DEGF	428.3 GOOD DEGF	429.3 GOOD DEGF
03/19/07	07:40:00.000	428.9 GOOD DEGF	429.0 GOOD DEGF	428.2 GOOD DEGF	429.1 GOOD DEGF
03/19/07	07:50:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	08:00:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	08:10:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	08:20:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07	08:30:00.000	429.2 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07	08:40:00.000	429.0 GOOD DEGF	429.0 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07	08:50:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07	09:00:00.000	429.0 GOOD DEGF	429.3 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07	09:10:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.3 GOOD DEGF
03/19/07	09:20:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.3 GOOD DEGF
03/19/07	09:30:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07	09:40:00.000	429.2 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	09:50:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	10:00:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	10:10:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.4 GOOD DEGF
03/19/07	10:20:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	10:30:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	10:40:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	10:50:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07	11:00:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07	11:10:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.2 GOOD DEGF	429.3 GOOD DEGF
03/19/07	11:20:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.2 GOOD DEGF	429.2 GOOD DEGF
03/19/07	11:30:00.000	429.1 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF

DATE TIME	U2_T0418A	U2_T0438A	U2_T0458A	U2_T0478A
03/19/07 11:40:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.2 GOOD DEGF
03/19/07 11:50:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07 12:00:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07 12:10:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 12:20:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.3 GOOD DEGF	429.3 GOOD DEGF
03/19/07 12:30:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07 12:40:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.3 GOOD DEGF
03/19/07 12:50:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07 13:00:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 13:10:00.000	428.9 GOOD DEGF	429.3 GOOD DEGF	428.3 GOOD DEGF	429.3 GOOD DEGF
03/19/07 13:20:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.2 GOOD DEGF	429.2 GOOD DEGF
03/19/07 13:30:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07 13:40:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.0 GOOD DEGF
03/19/07 13:50:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07 14:00:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07 14:10:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.1 GOOD DEGF
03/19/07 14:20:00.000	428.8 GOOD DEGF	429.0 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07 14:30:00.000	428.8 GOOD DEGF	429.0 GOOD DEGF	428.2 GOOD DEGF	429.0 GOOD DEGF
03/19/07 14:40:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07 14:50:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 15:00:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.1 GOOD DEGF
03/19/07 15:10:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07 15:20:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.1 GOOD DEGF
03/19/07 15:30:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 15:40:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 15:50:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 16:00:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 16:10:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 16:20:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 16:30:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 16:40:00.000	428.8 GOOD DEGF	429.0 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07 16:50:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 17:00:00.000	428.9 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.1 GOOD DEGF
03/19/07 17:10:00.000	429.1 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 17:20:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 17:30:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07 17:40:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07 17:50:00.000	429.1 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 18:00:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 18:10:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF

DATE TIME	U2_T0418A	U2_T0438A	U2_T0458A	U2_T0478A
03/19/07 18:20:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/19/07 18:30:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 18:40:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 18:50:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 19:00:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07 19:10:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07 19:20:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 19:30:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 19:40:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 19:50:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 20:00:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/19/07 20:10:00.000	429.0 GOOD DEGF	429.0 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07 20:20:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/19/07 20:30:00.000	429.0 GOOD DEGF	429.1 GOOD DEGF	428.4 GOOD DEGF	429.1 GOOD DEGF
03/19/07 20:40:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07 20:50:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/19/07 21:00:00.000	428.9 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.2 GOOD DEGF
03/19/07 21:10:00.000	428.7 GOOD DEGF	428.9 GOOD DEGF	428.0 GOOD DEGF	429.0 GOOD DEGF
03/19/07 21:20:00.000	428.5 GOOD DEGF	428.6 GOOD DEGF	427.9 GOOD DEGF	428.9 GOOD DEGF
03/19/07 21:30:00.000	428.2 GOOD DEGF	428.3 GOOD DEGF	427.5 GOOD DEGF	428.3 GOOD DEGF
03/19/07 21:40:00.000	427.5 GOOD DEGF	427.8 GOOD DEGF	427.0 GOOD DEGF	427.8 GOOD DEGF
03/19/07 21:50:00.000	427.3 GOOD DEGF	427.5 GOOD DEGF	426.7 GOOD DEGF	427.6 GOOD DEGF
03/19/07 22:00:00.000	426.8 GOOD DEGF	426.9 GOOD DEGF	426.2 GOOD DEGF	427.0 GOOD DEGF
03/19/07 22:10:00.000	426.7 GOOD DEGF	426.8 GOOD DEGF	426.1 GOOD DEGF	427.0 GOOD DEGF
03/19/07 22:20:00.000	426.7 GOOD DEGF	426.8 GOOD DEGF	426.0 GOOD DEGF	427.0 GOOD DEGF
03/19/07 22:30:00.000	426.7 GOOD DEGF	426.9 GOOD DEGF	426.2 GOOD DEGF	426.9 GOOD DEGF
03/19/07 22:40:00.000	426.7 GOOD DEGF	426.9 GOOD DEGF	426.2 GOOD DEGF	427.0 GOOD DEGF
03/19/07 22:50:00.000	426.5 GOOD DEGF	426.7 GOOD DEGF	426.0 GOOD DEGF	426.9 GOOD DEGF
03/19/07 23:00:00.000	426.3 GOOD DEGF	426.4 GOOD DEGF	425.8 GOOD DEGF	426.6 GOOD DEGF
03/19/07 23:10:00.000	427.0 GOOD DEGF	427.1 GOOD DEGF	426.3 GOOD DEGF	427.1 GOOD DEGF
03/19/07 23:20:00.000	426.7 GOOD DEGF	426.8 GOOD DEGF	426.1 GOOD DEGF	427.0 GOOD DEGF
03/19/07 23:30:00.000	426.4 GOOD DEGF	426.6 GOOD DEGF	425.9 GOOD DEGF	426.7 GOOD DEGF
03/19/07 23:40:00.000	426.7 GOOD DEGF	426.7 GOOD DEGF	425.9 GOOD DEGF	426.9 GOOD DEGF
03/19/07 23:50:00.000	426.4 GOOD DEGF	426.5 GOOD DEGF	425.8 GOOD DEGF	426.7 GOOD DEGF
03/20/07 00:00:00.000	426.6 GOOD DEGF	426.8 GOOD DEGF	426.1 GOOD DEGF	426.7 GOOD DEGF
03/20/07 00:10:00.000	426.5 GOOD DEGF	426.9 GOOD DEGF	425.9 GOOD DEGF	426.7 GOOD DEGF
03/20/07 00:20:00.000	426.7 GOOD DEGF	426.7 GOOD DEGF	425.9 GOOD DEGF	427.0 GOOD DEGF
03/20/07 00:30:00.000	426.4 GOOD DEGF	426.6 GOOD DEGF	425.9 GOOD DEGF	426.6 GOOD DEGF
03/20/07 00:40:00.000	426.7 GOOD DEGF	427.0 GOOD DEGF	426.2 GOOD DEGF	426.8 GOOD DEGF
03/20/07 00:50:00.000	427.0 GOOD DEGF	427.1 GOOD DEGF	426.3 GOOD DEGF	427.2 GOOD DEGF

DATE	TIME	U2_T0418A	U2_T0438A	U2_T0458A	U2_T0478A
03/20/07	01:00:00.000	426.6 GOOD DEGF	426.7 GOOD DEGF	425.9 GOOD DEGF	426.9 GOOD DEGF
03/20/07	01:10:00.000	426.6 GOOD DEGF	426.7 GOOD DEGF	426.1 GOOD DEGF	426.8 GOOD DEGF
03/20/07	01:20:00.000	427.1 GOOD DEGF	427.2 GOOD DEGF	426.5 GOOD DEGF	427.3 GOOD DEGF
03/20/07	01:30:00.000	427.4 GOOD DEGF	427.7 GOOD DEGF	426.9 GOOD DEGF	427.7 GOOD DEGF
03/20/07	01:40:00.000	427.6 GOOD DEGF	427.7 GOOD DEGF	427.0 GOOD DEGF	427.7 GOOD DEGF
03/20/07	01:50:00.000	427.4 GOOD DEGF	427.8 GOOD DEGF	427.0 GOOD DEGF	427.8 GOOD DEGF
03/20/07	02:00:00.000	427.8 GOOD DEGF	428.0 GOOD DEGF	427.2 GOOD DEGF	428.0 GOOD DEGF
03/20/07	02:10:00.000	427.9 GOOD DEGF	428.1 GOOD DEGF	427.3 GOOD DEGF	428.1 GOOD DEGF
03/20/07	02:20:00.000	428.3 GOOD DEGF	428.4 GOOD DEGF	427.8 GOOD DEGF	428.6 GOOD DEGF
03/20/07	02:30:00.000	428.3 GOOD DEGF	428.5 GOOD DEGF	427.8 GOOD DEGF	428.5 GOOD DEGF
03/20/07	02:40:00.000	428.4 GOOD DEGF	428.5 GOOD DEGF	427.8 GOOD DEGF	428.7 GOOD DEGF
03/20/07	02:50:00.000	428.6 GOOD DEGF	428.7 GOOD DEGF	428.0 GOOD DEGF	428.7 GOOD DEGF
03/20/07	03:00:00.000	428.8 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.0 GOOD DEGF
03/20/07	03:10:00.000	428.8 GOOD DEGF	429.1 GOOD DEGF	428.3 GOOD DEGF	429.1 GOOD DEGF
03/20/07	03:20:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.2 GOOD DEGF
03/20/07	03:30:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.3 GOOD DEGF
03/20/07	03:40:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.3 GOOD DEGF
03/20/07	03:50:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.4 GOOD DEGF
03/20/07	04:00:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/20/07	04:10:00.000	429.2 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/20/07	04:20:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/20/07	04:30:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.4 GOOD DEGF
03/20/07	04:40:00.000	429.3 GOOD DEGF	429.4 GOOD DEGF	428.6 GOOD DEGF	429.4 GOOD DEGF
03/20/07	04:50:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.2 GOOD DEGF
03/20/07	05:00:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.4 GOOD DEGF	429.3 GOOD DEGF
03/20/07	05:10:00.000	429.0 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/20/07	05:20:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.3 GOOD DEGF
03/20/07	05:30:00.000	429.2 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/20/07	05:40:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.7 GOOD DEGF	429.4 GOOD DEGF
03/20/07	05:50:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.4 GOOD DEGF
03/20/07	06:00:00.000	429.1 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.4 GOOD DEGF
03/20/07	06:10:00.000	429.2 GOOD DEGF	429.4 GOOD DEGF	428.6 GOOD DEGF	429.4 GOOD DEGF
03/20/07	06:20:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/20/07	06:30:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.4 GOOD DEGF
03/20/07	06:40:00.000	429.1 GOOD DEGF	429.3 GOOD DEGF	428.6 GOOD DEGF	429.3 GOOD DEGF
03/20/07	06:50:00.000	429.2 GOOD DEGF	429.2 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF
03/20/07	07:00:00.000	429.2 GOOD DEGF	429.3 GOOD DEGF	428.5 GOOD DEGF	429.3 GOOD DEGF

NRC2007-A2

TITLE	**Review Completed Reactor Thermal Power Calculation – LEFM Not Available**	**REVISION**	**0**
PROGRAM	**Initial Licensed Operator (ILT)**	**TIME**	**20 Minutes**

SCOPE OF REVISION:

Initial Issue.

			DATE:
AUTHOR	**Name:**	John T Conrad	
	Signature:		
FACILITY REVIEWER	**Name:**		
	Signature:		
		Facility Supervisor / Manager	

REFERENCES

01-OHP-4030-214-029, Rev 7 Reactor Thermal Power

TASK

TASK ID: STP0040201, Determine Reactor Thermal Power Based on Feedwater Indications

K/A Number: SYS 015 A1.01, Ability to predict and/or monitor changes in parameters to prevent exceeding design limits) associated with operating the NIS controls including NIS calibration by heat balance. (CFR: 41.5 . 45.5)

K/A Importance: RO 3.5 SRO 3.8

EVALUATION SETTING

Classroom

HANDOUTS

02-OHP-4030-214-029, Attachment 2, PPC Derived Reactor Thermal Power Evaluation-Loss of LEFM (Completed by RO)
Handout 1 – PPC Thermal Power History Data
Handout 2 – PPC Feedwater Temperature Data
Handout 3 – Power Range NIs Readings

Calculator

ATTACHMENTS

None

SIMULATOR SETUP

None

TASK OBJECTIVES/STANDARDS

Review the completed Reactor Thermal Power Calculation performed in Mode 1 with the LEFM not available.

EVALUATOR INSTRUCTIONS

None.

TASK BREIFING

You are the Unit Supervisor in Unit 2.

The LEFM has been out of service for about 10 hours and is not expected to be returned to service until the next shift.

A Reactor Thermal Power calculation has been completed in accordance with 02-OHP-4030-214-029, Reactor Thermal Power, Attachment 2, PPC Derived Reactor Thermal Power Evaluation-Loss of LEFM.

Review the completed Thermal Power Calculation using the provided data from the PPC (Handouts 1, 2, and 3)

The Calculation was performed for 0700 on 3/20/2007.

2-SG-9, Point 16, Feedwater Heater 6A & 6B Outlet Temperature is reading 425°F.

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Reactor Thermal Power			
Attachment 2	PPC Derived Reactor Thermal Power Evaluation-Loss of LEFM		Pages: 15 - 24

1 PURPOSE AND SCOPE

1.1 Provide a method for comparing excore nuclear power channels to actual Reactor Thermal Power with the Leading Edge Flow Meter (LEFM) **NOT** available.

1.2 Corrected Venturi Reactor Thermal Power may be used to verify that Reactor power is within the licensed core power limits for up to 46 hours with the LEFM **NOT** available.

1.3 Technical Specification SR 3.3.1.2, Table 3.3.1-1, Function 2.a and TRM 8.7.14, Leading Edge Flow Meter (LEFM) are applicable to this attachment.

2 PREREQUISITES **INIT**

2.1 LEFM has been out of service for less than 48 hours. _____

2.2 No power changes in excess of 10% have been made during the time period that the LEFM has been out of service. _____

2.3 The following parameters have been stable for a minimum of 10 minutes:

- Reactor Power, as indicated by the Nuclear Instruments (NIS), stable
- Electrical load stable with no significant load changes expected
- Feedwater flow and temperature stable
- Tavg has been controlled to Tref
- Charging flow, including Seal Injection flow minus RCP Seal Leakoff flows is approximately equal to Letdown flow, and the Pressurizer level is stable
- Steam Generator levels and steam pressures stable
- Steam Generator Loop Blowdown flows stable _____

SRO reviews the completed paperwork to verify that the RO completed the Calculation correctly. SRO should be able to Identify **CT1 & CT2 (These CT's are identified in multiple places - only 1 item under each CT is required)**

Operator determined that LEFM has only been out of service for 10 hours.

Operator determined from Handout 1 that no power changes greater than 10% have occurred during the time LEFM has been out of service.

Cue: All listed parameters have been stable for 10 minutes.

3 PRECAUTIONS AND LIMITATIONS

3.1 PPC readings indicated in magenta or blue shall not be used.

3.2 Reactor Thermal Power can be maintained up to 3468 Mwt (100% RTP) with the LEFM out of service for up to 46 hours, provided no power changes in excess of 10 percent are made during the period in which LEFM is not available.

3.3 When the Steam Generator Blowdown CIV's are closed, the plant process computer assumes 0 gpm blowdown flow. However, during periods of low flow with the isolation valves not closed (i.e. startup and shutdown) the thermal power program may be unavailable.

3.4 Due to system calibration, the Process Computer points for Steam Generator blowdown flow only accept values up to 150 gpm. Higher flow rates will result in PPC point and thermal power program failures.

3.5 Any inoperable Power Range Nuclear Instrument shall be marked N/A.

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Reactor Thermal Power			
Attachment 2	PPC Derived Reactor Thermal Power Evaluation-Loss of LEFM		Pages: 15 - 24

4 DETAILS **INIT**

4.1 Verify Plant Process Computer Feedwater Temperature Accuracy.

4.1.1 Record Feedwater Heater Outlet Temperatures to Steam Generators.

a. **IF** 2-SG-9, Feedwater Temperature and Heater Differential Temperature Recorder is available, **THEN** perform ONE of the following:

1. Record 2-SG-9, Feedwater Temperature and Heater Differential Temperature Recorder Point 16, Feedwater heaters 6A & 6B Outlet Temperatures (2-FTR-259)

_____ °F _____

-OR-

2. Determine Average High Pressure Heater String Outlet Temperature.

a) Record the following points from 2-SG-9, Feedwater Temperature and Heater Differential Temperature Recorder:

- Point 14, Feedwater Heater 6A Outlet Temperature 2-FTR-252.

_____ °F _____

- Point 15, Feedwater Heater 6B Outlet Temperature 2-FTR-253.

_____ °F _____

b) Calculate the Average Feedwater High Pressure Heater String Outlet Temperature.

(_____ °F + _____ °F) / 2 = _____ °F _____
2-FTR-252 2-FTR-253 Average

-OR-

Verifies Operator entered 425°F (as provided in the Task Briefing)

Step 4.1.1.a.2 was not applicable.

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3. Record the available Feedwater Heater String Outlet Temperature:

   - Point 14, Feedwater Heater 6A Outlet Temperature 2-FTR-252.

     _____ °F _____

   -OR-

   - Point 15, Feedwater Heater 6B Outlet Temperature 2-FTR-253.

     _____ °F _____

b. **IF** 2-SG-9, Feedwater Temperature and Heater Differential Temperature Recorder is **NOT** available, **THEN** request MTI to obtain feedwater temperature utilizing 2-FTR-259, 2-FTR-252 or 2-FTR-253 thermocouple reading:

1. Verify MTI instrumentation to be utilized is:

   - Within its calibration due date. _____
   - Has an Accuracy of at least 4.05°F. _____

2. Record the following M&TE data:

   - Instrument Description: _____
   - M&TE Number: _____
   - M&TE Cal. Due Date: _____ _____

3. Identify thermocouple and record reading:

   Circle one used: 2-FTR-259, 2-FTR-252, 2-FTR-253

   _____ °F _____

Step 4.1.1.a.3 was not applicable.

Step 4.1.1.b was not applicable.

Continuous	2-OHP-4030-214-029	Rev. 7	Page 19 of 76
Reactor Thermal Power			
Attachment 2	PPC Derived Reactor Thermal Power Evaluation-Loss of LEFM		Pages: 15 - 24

4.1.2 Record Plant Process Computer Feedwater inlet temperatures to each Steam Generator:

- T0418A, #1 Steam Generator Inlet Temperature _____°F
- T0438A, #2 Steam Generator Inlet Temperature _____°F
- T0458A, #3 Steam Generator Inlet Temperature _____°F
- T0478A, #4 Steam Generator Inlet Temperature _____°F _____

4.1.3 Determine Feedwater Temperature Difference between Plant Process Computer points and control board readings are acceptable.

a. Compare the temperature for the Feedwater Heater Outlet Temperature obtained in Step 4.1.1 to each of the following PPC Steam Generator Inlet Temperature indications **AND** verify that the difference for each are < 7°F and > -7 °F:

- (_____°F - _____°F) = _____°F
  T0418A Step 4.1.1 difference

  7°F > Difference > -7°F ❑ Yes ❑ No _____
- (_____°F - _____°F) = _____°F
  T0438A Step 4.1.1 difference

  7°F > Difference > -7°F ❑ Yes ❑ No _____
- (_____°F - _____°F) = _____°F
  T0458A Step 4.1.1 difference

  7°F > Difference > -7°F ❑ Yes ❑ No _____
- (_____°F - _____°F) = _____°F
  T0478A Step 4.1.1 difference

  7°F > Difference > -7°F ❑ Yes ❑ No _____

Verifies that the Operator recorded Feedwater Inlet Temperatures to SGs from Handout 2 for 0700 hours on 3/20/07:

- T0418A: 429.2°F
- T0438A: 429.3°F
- T0458A: 428.5°F
- T0478A: 429.3°F

Checks that the Operator determined that all Feedwater Inlet Temperatures to SGs were within limits.

Continuous	2-OHP-4030-214-029	Rev. 7	Page 20 of 76
Reactor Thermal Power			
Attachment 2	PPC Derived Reactor Thermal Power Evaluation-Loss of LEFM		Pages: 15 - 24

4.1.4 **IF** the S/G Inlet Temperature channel check for any of the channels identified in Step 4.1.3 is found **NOT** indicating within the required ±7°F temperature band, **THEN** perform the following:

a. Reduce Reactor power to less than or equal to 3411 Mwt (98.35% RTP) per 2-OHP-4021-001-003, Power Reduction. _____

b. Determine Reactor Thermal Power per Attachment 4, Manual Calorimetric Procedure **OR** Attachment 5, Manual Calorimetric Using Computer Spreadsheet. _____

4.2 Determine Reactor Thermal Power Correction Factor (N/A if previously calculated):

NOTE: Data recorded in Steps 4.2.1 and 4.2.2 is obtained from the same time period from PPC Point ID history (within 2 minutes of each other). PPC Points with acceptable quality are to be used to calculate the RTP Correction Factor. PPC Point ID history can be used to identify a LEFM RTP and Venturi RTP with acceptable quality if the Venturi RTP is **NOT** acceptable at the last valid LEFM RTP.

PPC addresses U0601DL/U0601DV is preferred for calculating RTP Correction Factor. PPC addresses U2026AL/U2026AV is used if U0601DL is **NOT** available.

4.2.1 Record U0601DL, LEFM Reactor Thermal Power (RTP_L) 10 minute rolling average (preferred) **OR** U2026AL, LEFM Reactor Thermal Power (alternate), using the last valid LEFM reading **AND** associated time from the PPC Point ID history (check option used):

❑ U0601DL (preferred) ❑ U2026AL (alternate)

RTP_L: _____% Time: _____ _____

Step 4.1.4 was not applicable.

CT 1: Determines that the Operator used Handout 1 incorrectly and used the 2040 reading of 99.15 instead of the last valid RTP which was 99.69% from 2030 hrs on 3/19/2007 (U0601DL).

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Reactor Thermal Power			
Attachment 2	PPC Derived Reactor Thermal Power Evaluation-Loss of LEFM		Pages: 15 - 24

4.2.2 Record the associated Venturi Reactor Thermal Power (RTPv) at the last valid LEFM reading **AND** associated time from the PPC Point ID history (check option used):

❑ U0601DV ❑ U2026AV

RTPv: _____ % Time: _____ _____

4.2.3 Calculate Correction Factor (CF):

_____ ÷ _____ = _____
RTPL (Step 4.2.1) RTPv (Step 4.2.2) CF _____

4.3 Determine Corrected Venturi Reactor Thermal Power (RTP_{CORR}):

4.3.1 Record current Venturi Reactor Thermal Power from the same PPC address used in Step 4.2.2 :

❑ U0601DV ❑ U2026AV

RTPv: _____ _____

4.3.2 Calculate Corrected Venturi Reactor Thermal Power (RTP_{CORR}):

_____ × _____ = _____%
RTPv (Step 4.3.1) CF (RTP_{CORR}) _____

4.4 Determine calculated Power Difference as follows:

4.4.1 Record OPERABLE Power Range Nuclear Instruments :

- N-41 _____ %
- N-42 _____ %
- N-43 _____ %
- N-44 _____ % _____

Verifies that the Operator used Handout 1 to determine that corresponding RTP using Venturi was 98.70% from 2030 hrs on 3/19/2007 (U0601DV).

CT 1: Unit Supervisor recognizes incorrect value of 99.15 was used (2040 reading), leading to incorrect correction factor of 1.005. Correct value should have been 1.01.

Cue: If required, Direct the operator to make the required corrections and review the rest of the surviellance

Checks that the Operator read the correct value of 98.62 for the current Venturi RTP.

CT 1: Notes that the Operator determined the corrected Venturi RTP using incorrect correction value is 99.11%. **(Should be 99.60%)**

Verifies Operator entered readings for Power Range NIs (± 0.3%):

- N41: 98.3%
- N42: 99.0%
- N43: 99.4%
- N44: 101.0%

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Reactor Thermal Power			
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4.4.2 Determine the difference between OPERABLE Power Range NI channels and Corrected Venturi Reactor Thermal Power as follows:

(Power Range NI) – (RTP_{CORR}) = Difference

_____% – _____ % = _____%
N-41 (RTP_{CORR})

_____% – _____ % = _____%
N-42 (RTP_{CORR})

_____% – _____ % = _____%
N-43 (RTP_{CORR})

_____% – _____ % = _____%
N-44 (RTP_{CORR})

_____

NOTE: NI power greater than RTP is conservative if the difference is maintained less than or equal to 2% (TS SR 3.3.1.2). If NI adjustments are required to be made during power changes, NIs should be maintained greater than RTP without exceeding the Tech Spec 2% difference. NI power less than RTP is **NOT** conservative.

4.5 **IF** any of the following conditions are met **OR** as directed by US, **THEN** perform Attachment 6, Power Range NI Adjustments, for applicable channel(s): (Check (✓) condition met Yes/No) _____

- Average (calculated below) of OPERABLE Power Range NI channels from Step 4.4.1 is less than Corrected Reactor Thermal Power (RTP_{CORR}): ❑ YES ❑ NO

Sum = (NI-41)+(NI-42)+(NI-43)+(NI-44)

= (_____)+(_____)+(_____)+(_____) = _____ %

Average = (_____) / (_____) = _____ %
Sum # of OPERABLE NIs

Operator determined differences are incorrect based in incorrect value for corrected Venturi RTP. (Using the correct RTPcorr of 99.60% the values should read:

- -1.3%
- -0.6%
- -0.2%
- +1.4%

Operator calculated the average Power Range NIs of 99.42% (Should have been less than corrected Venturi RTP and checked the "Yes" block

Acceptable range of 99.2 – 99.6%

CT2: US determines that box should have been checked as "Yes"

Continuous	2-OHP-4030-214-029	Rev. 7	Page 23 of 76
Reactor Thermal Power			
Attachment 2	PPC Derived Reactor Thermal Power Evaluation-Loss of LEFM		Pages: 15 - 24

- Difference between any OPERABLE Power Range NI channel and RTP_{CORR} (PRNI minus RTP_{CORR}) is more negative than -1.0%. ❑ YES ❑ NO

- Any OPERABLE Power Range NI is **NOT** within 2% of RTP_{CORR}. ❑ YES ❑ NO

- Any OPERABLE Power Range NI % power is greater than 100.5% power. ❑ YES ❑ NO

5 ACCEPTANCE CRITERIA

- All Power Range NIs read within 2% of RTP.

6 CORRECTIVE MEASURES

6.1 Failure to satisfy the acceptance criterion in this Attachment requires the Test Performer to notify the Shift Manager, or Unit Supervisor, of the failure, and to ensure immediate initiation of a corrective action, in accordance with PMP-7030-CAP-001.

7 FINAL CONDITIONS

7.1 **Test Performance**

❑ Testing has been completed. All problems reported to Department Supervision. WO#_____

Test Start Time: _____ Date: ___/___/___

Test Completed By: _____ Time: _____ Date: ___/___/___
Test Performer or Lead Worker

Comments:_____
_____

CT2: US determines that box should have been checked as "Yes"

Operator determines that all NIs are within 2% of corrected Venturi RTP and checks "No" block.

CT2:US determines that box should have been checked as "Yes"

CT2: Unit Supervisor determines that NIs should have been adjusted in accordance with Attachment 6.

EVALUATOR: "THIS JPM IS COMPLETE"

Task Briefing

You are the Unit Supervisor in Unit 2.

The LEFM has been out of service for about 10 hours and is not expected to be returned to service until the next shift.

A Reactor Thermal Power calculation has been completed in accordance with 02-OHP-4030-214-029, Reactor Thermal Power, Attachment 2, PPC Derived Reactor Thermal Power Evaluation-Loss of LEFM.

Review the completed Thermal Power Calculation using the provided data from the PPC (Handouts 1, 2, and 3)

The Calculation was performed for 0700 on 3/20/2007.

2-SG-9, Point 16, Feedwater Heater 6A & 6B Outlet Temperature is reading 425°F.

NRC2007-A3

TITLE	**Calculate RCS Time to Boil/Core Uncovery - Loss of RHR**	**REVISION**	**0**
PROGRAM	**LOR/ILT**	**TIME**	**10 Minutes**

SCOPE OF REVISION:

Initial Issue: Derived from RO-O-ADM007, Rev. 0.

			DATE:
AUTHOR	**Name:**	John T Conrad	
	Signature:		
FACILITY REVIEWER	**Name:**		
	Signature:		
		Facility Supervisor / Manager	

REFERENCES

02-OHP-4022-017-001, Rev. 15 Loss of RHR Cooling

Task Number: ADM0050304, Implement Operations Department Procedures
K/A Number: 2.1.25, Ability to obtain and interpret station reference such as graphs, monographs, and tables which contain performance data.

K/A Importance RO 2.8 SRO 3.1

EVALUATION SETTING

Unit 2 Simulator/Classroom

HANDOUTS

Task Briefing for NRC2007-A3

ATTACHMENTS

Task Briefing
Copy of 02-OHP-4022-017-001, Rev. 15

SIMULATOR SETUP

1. None

TASK OBJECTIVES/STANDARDS

- The operator correctly identifies the applicable curves and determines the time to Core Uncovery.

TASK BRIEFING

You are an extra RO.

It is March 19, 2007. Unit 2 is in a SG Replacement Outage and has experienced a loss of RHR. Efforts are underway to restore RHR or some other method of core cooling. The unit was shutdown on January 17, 2007 after operating since October 20, 2006.

The Unit Supervisor directs you to determine the amount of time to Core Boiling and the amount of time from Boiling until Core Uncovery as per the NOTE prior to Step 15 of 02-OHP-4022-017-001, Loss of RHR Cooling.

The Reactor vessel is currently open to Containment (Vessel Head removed) and RCS temperature is approximately 115°F.

Time to Core Boiling _____

Time from Boiling until Core Uncovery _____

Number:	Title:	Revision Number:
02-OHP-4022 017-001	LOSS OF RHR COOLING	15

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

- Changes in RCS pressure could result in inaccuracies in both RCS wide range level readings. 2-NLI-122 (narrow range on MLMS cart) is unaffected by pressure changes and should be used.
- Boiling in the core is possible within 10 minutes after Loss Of RHR at reduced inventories. Therefore, containment closure must be completed within 30 minutes.

NOTE

- If core boiling occurs, 2-NLI-122 indication may be erratic. RVLIS may be used for trending RCS level changes, if available.
- Figure 3, Time To Boil For Liquid At 100°F Subcooling (Page 57) and Figure 4, Time From Onset Of Boiling To Core Uncovery (Page 58) should be used as needed to determine the amount of time prior to core boiling and core uncovery due to a loss of all RHR flow.

15. Check If RHR Pumps Should Be Stopped:

a. RHR pumps - ANY RUNNING

a. **IF** RHR pump was lost due to a fault **AND** RCS level is greater than 614.0' **THEN** align standby RHR pump for start:

1) Verify the following valves are closed:

- 2-IRV-310, East RHR Hx outlet
- 2-IRV-320, West RHR Hx outlet
- 2-IRV-311, RHR Hx bypass

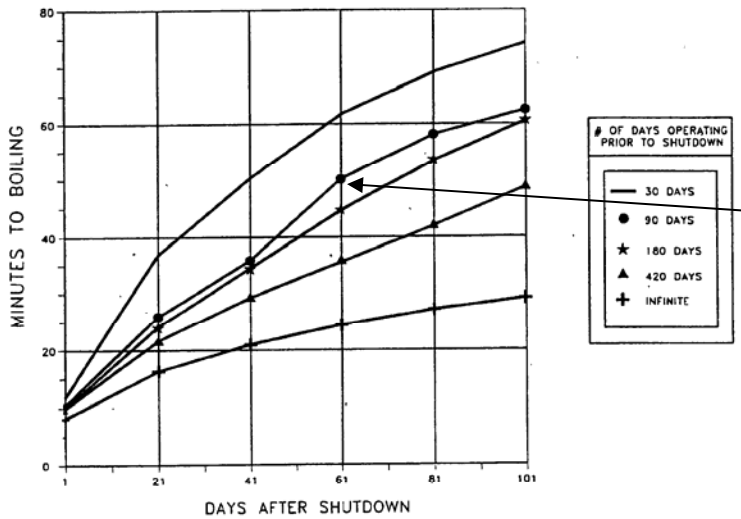
2) Start the standby RHR pump.

(Step 15 Continued On Next Page)

Candidate determines that Figure 3 and 4 must be used.

Number:	Title:	Revision Number:
02-OHP-4022 017-001	LOSS OF RHR COOLING	15

Figure 3
Time To Boil For Liquid At 100°F Subcooling



-END OF FIGURE-

Page 57 of 67

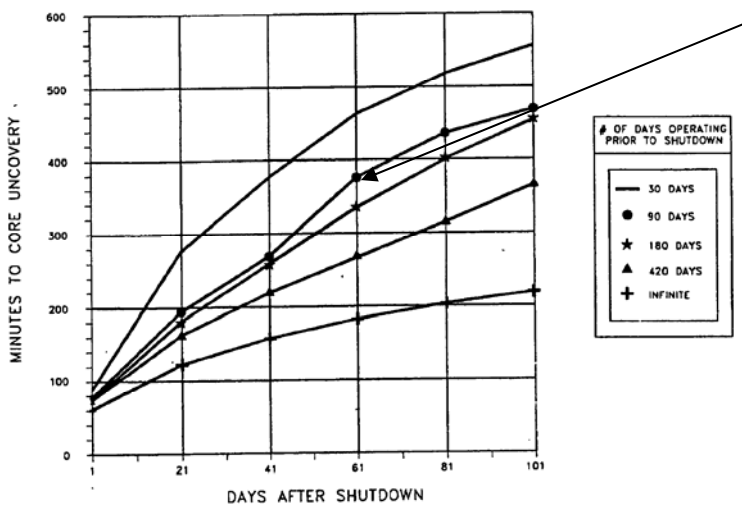
Candidate determines that the plant has been shutdown for 61 days after operating for approximately 90 days.

CT: Candidate reports the calculated Time to Boil is 50 (45 to 55) minutes.

CUE: Acknowledge the Time to Boil is _____ minutes.

Number:	Title:	Revision Number:
02-OHP-4022 017-001	LOSS OF RHR COOLING	15

Figure 4
Time From Onset Of Boiling To Core Uncovery



-END OF FIGURE-

Candidate determines that the plant has been shutdown for 61 days after operating for approximately 90 days.

CT: Candidate reports the calculated Time to Core Uncovery is 381 (371 - 391) minutes from the onset of boiling.

Calculates time to core uncovery = 381

CUE: Acknowledge the Time from Boiling to Core Uncovery is _____ minutes.

Evaluator: **"JPM IS COMPLETE"**

Task Briefing

You are an extra RO.

It is March 19, 2007. Unit 2 is in a SG Replacement Outage and has experienced a loss of RHR. Efforts are underway to restore RHR or some other method of core cooling. The unit was shutdown on January 17, 2007 after operating since October 20, 2006.

The Unit Supervisor directs you to determine the amount of time to Core Boiling and the amount of time from Boiling until Core Uncovery as per the NOTE prior to Step 15 of 02-OHP-4022-017-001, Loss of RHR Cooling.

The Reactor vessel is currently open to Containment (Vessel Head removed) and RCS temperature is approximately 115°F.

Time to Core Boiling _____

Time from Boiling until Core Uncovery _____

NRC2007-A4

TITLE	**Perform Unit 1 Appendix R Requirements for Unit 2 – CCW Section**	**REVISION**	**0**
PROGRAM	**Initial Licensed Operator (ILT)**	**TIME**	**25 Minutes**

SCOPE OF REVISION:

Initial Issue: Derived from 2002 Audit Exam JPM AD5b.

			DATE:
AUTHOR	**Name:**	J T Conrad	
	Signature:		
FACILITY REVIEWER	**Name:**		
	Signature:		
		Facility Supervisor / Manager	

References

01-OHP-4030-066-4025, Unit 1 Appendix R and Ventilation Requirements for Unit 2

Task:

K/A Number: GENERIC 2.2.13, Knowledge of Surveillance Procedures
K/A Importance: RO 3.0 SRO 3.4

K/A Number: APE067 AA2.16, Ability to interpret and determine vital equipment and control systems to be maintained and operated during a fire.
K/A Importance: RO 3.3 SRO 4.0

Evaluation Setting

Classroom

Handouts

Task Briefing for NRC2007-A4
Field Copy of 01-OHP-4030-066-4025, Unit 1 Appendix R and Ventilation Requirements for Unit 2

Attachments

None

Simulator Setup

N/A

Task Objectives/Standards

When directed by the Unit Supervisor, determine the Unit 1 CCW Flowpath Requirements for Unit 2 Modes 1-4 are met per 01-OHP-4030-066-4025 Sections 4.1.3 and 4.1.4

Task Briefing

Due to a recent clearance placed on the CCW system, the US directs you to perform 01-OHP-4030-066-4025, Unit 1 Appendix R and Ventilation Requirements for Unit 2, Sections 4.1.3 and 4.1.4 to determine if the Unit 1 CCW Flowpath Requirements for Unit 2 Modes 1-4 are met as follows:

1. Complete appropriate Attachment for the available Unit 1 CCW Flowpath.
2. When a choice is made among multiple components (i.e. only 1 available) denote the available component(s) in the Comments section.
3. Highlight system flowpath per appropriate Figure

Equipment Availability (page 2 of briefing) indicates the condition of pertinent plant equipment. Equipment that is Tagged can NOT be changed. Equipment that is DE-Energized is NOT electrically available but is otherwise intact.

Continuous	01-OHP-4030-066-4025	Rev. 5	Page 23 of 59
Unit 1 Appendix R and Ventilation Requirements For Unit 2			
Attachment 3	Unit 1-Train A CCW Flowpath Requirements For Unit 2 Modes 1-4		Pages: 23 - 24

CCW FLOWPATH

Component	Description	Function	Available
1-PP-10E	Component Cooling Pump E AVAILABLE	Verify East CCW Pump is AVAILABLE.	Y N
1-CCW-167	East CCW Suct Unit Cross-tie	Verify CCW suction header crosstie is AVAILABLE.	Y N
2-CCW-167	East CCW Suction Unit Cross-tie	Verify CCW suction header crosstie is AVAILABLE.	Y N
1-CCW-172	East CCW Discharge Unit Cross-tie	Verify CCW discharge header crosstie is AVAILABLE.	Y N
2-CCW-172	East CCW Discharge Unit Cross-tie	Verify CCW discharge header crosstie is AVAILABLE.	Y N
1-CMO-410	East CCW Heat Exchanger Outlet MOV	Flowpath through east CCW HX.	Y N
1-CMO-411	CCW Pumps Suction Crosstie	Provide or Isolate Misc. CCW HDR.	Y N
1-CMO-412 1-CMO-414	CCW Pump Discharge Crossties	1 of 2 required to split CCW HDR.	Y N
1-CMO-415	E CCW Miscellaneous Header Isolation Valve	Allows single CCW pump and HX to supply loads from both trains.	Y N
12-HV-ACCP-1 12-HV-ACCP-2 12-HV-ACCP-3	CCW Pump Ventilation North Supply Fan AVAILABLE CCW Pump Ventilation Middle Supply Fan AVAILABLE CCW Pump Ventilation South Supply Fan AVAILABLE	2 (of 3) required. [1]	Y N

[1] Two of the three fans must be able to be supplied from their respective diesel.

General CUES:

Provide a Copy of Field Copy of 01-OHP-4030-066-4025, Unit 1 Appendix R and Ventilation Requirements for Unit 2, Attachments 3, 8, and Figure 4
CT: Student Correctly Selects Attachment 3

Circles 'Y" Pump is available

Circles 'Y" 1-CCW-167 is available

Circles 'Y" 2-CCW-167 is available

Circles 'Y" 1-CCW-172 is available

Circles 'Y" 2-CCW-172 is available

Circles 'Y" 1-CMO-410 is available

Circles 'Y" 1-CMO-411 is available

Circles 'Y" 1-CMO-412 is available (1-CMO-414 is tagged open so it can NOT split trains)
Circles 'Y" 1-CMO-415 is available

Circles 'Y" 12-HV-ACCP-2 and 12-HV-ACCP-3 are available (12-HV-ACCP-1 requires 2AB DG which is tagged out)

Continuous	01-OHP-4030-066-4025	Rev. 5	Page 24 of 59
Unit 1 Appendix R and Ventilation Requirements For Unit 2			
Attachment 3	Unit 1-Train A CCW Flowpath Requirements For Unit 2 Modes 1-4		Pages: 23 - 24

FAN	DIESEL	BUS / BREAKER
12-HV-ACCP-1	Unit 2 AB	2-AM-A / R5C
12-HV-ACCP-2	Unit 1 AB	1-AM-A / R5C
12-HV-ACCP-3	Unit 1 CD	1-AM-D / R5A

Normally three fans are available

A. For Unit 1 in Modes 5, 6 or Defueled: At least one Unit 1 fan must be backed by an available diesel generator (capable of auto start and auto loading to the bus), or OPERABLE DG. IF diesel is inoperable, THEN applicable Technical Specifications apply.

For Unit 2 in Modes 1-4: The fan is available to support OPERABLE equipment. IF a diesel is inoperable, THEN applicable Technical Specification for EDGs apply.

B. IF both Units are in Modes 1-4, THEN refer to PMP-4030-001-001.

FINAL CONDITIONS

Record any comments during procedure use:

_____

_____

_____

_____

Verified Complete By: _____ Date: __/__/__

Reviewed By: _____ Date: __/__/__
Supervisor/Manager Signature

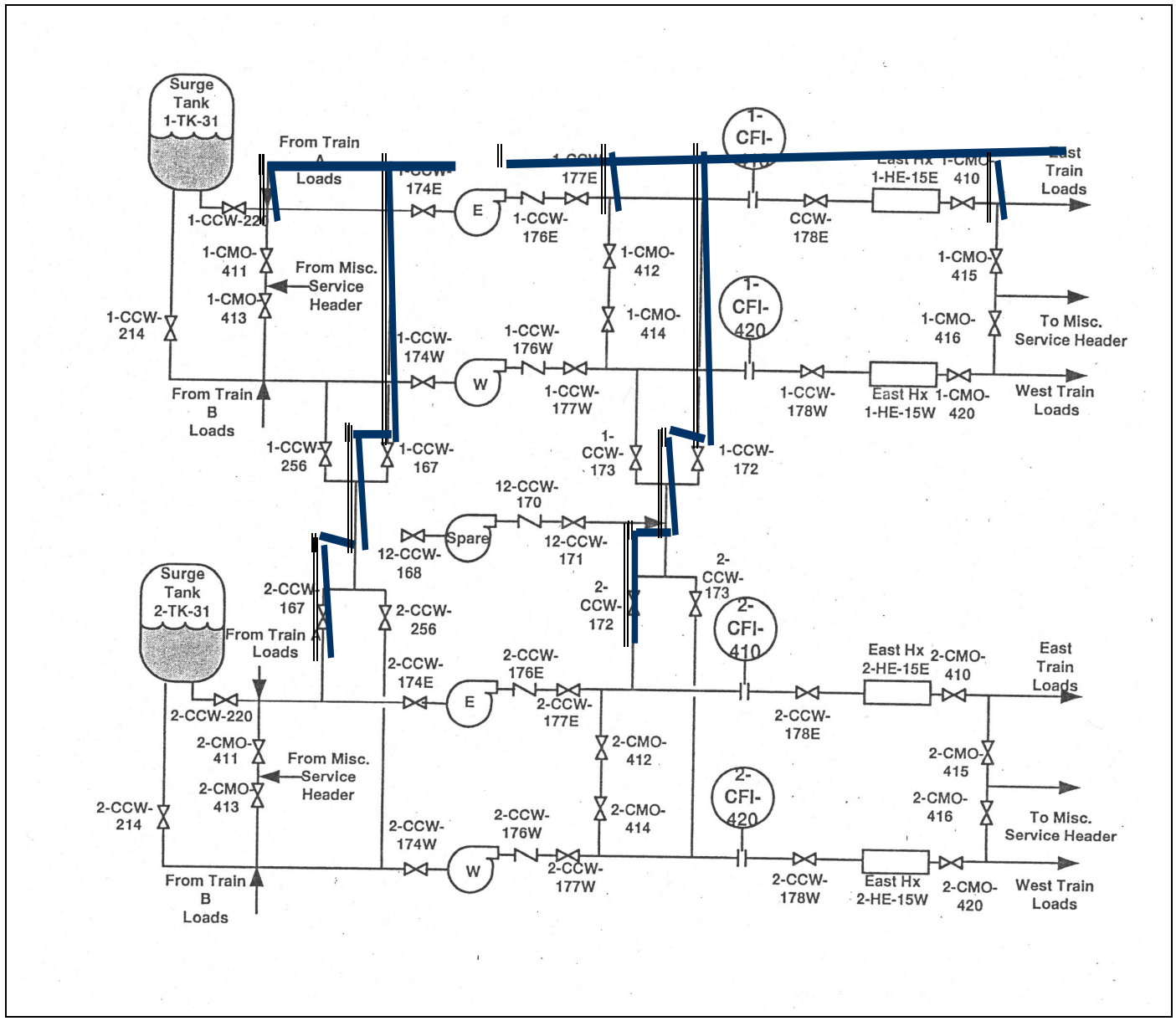
Denotes that 12-HV-ACCP-2 and 12-HV-ACCP-3 were used

Denotes that 1-CMO-412 was used

Signs & Dates Complete By

CT: Student determines that Unit 1Train A CCW Flowpath is available for Unit 2 support.

Note: Attachment 8 may be completed but candidate should identify that Train B is NOT Available.



CT: Student correctly ~~Highlights~~highlights flowpath between 1E CCW and Unit 2 CCW system on Figure 4.

NOTE: Flowpath should show capability of both the ~~sullply~~ supply and return flowpaths between Unit 1 East CCW to Unit 2 CCW.

JPM IS COMPLETE.

NRC2007–A4: Task Briefing

Due to a recent clearance placed on the CCW system, the US directs you to perform 01-OHP-4030-066-4025, Unit 1 Appendix R and Ventilation Requirements for Unit 2, Sections 4.1.3 and 4.1.4 to determine if the Unit 1 CCW Flowpath Requirements for Unit 2 Modes 1-4 are met as follows:

1. Complete appropriate Attachment for the available Unit 1 CCW Flowpath.
2. When a choice is made among multiple components (i.e. only 1 available) denote the available component(s) in the Comments section.
3. Highlight system flowpath per appropriate Figure

Equipment Availability (page 2 of briefing) indicates the condition of pertinent plant equipment. Equipment that is Tagged can NOT be changed. Equipment that is DE-Energized is NOT electrically available but is otherwise intact.

~~Due to a recent clearance placed on the CCW system, the US directs you to determine if the Unit 1 Train A CCW Flowpath Requirements for Unit 2 Modes 1-4 are met per 01-OHP-4030-066-4025 Sections 4.1.3 and 4.1.4 with the following requirements:~~

1. Complete appropriate Attachment for Train A CCW Flowpath.
2. ~~When a choice is made among multiple components (i.e. only 1 available) denote the available component(s) in the Comments section.~~
3. ~~Highlight complete system flowpath (To/From Opposite Unit) per appropriate Figure.~~

~~Equipment Availability is shown on the attached page. Equipment that is tagged can not be changed. Equipment that is De-energized is not electrically available but is otherwise intact.~~

Unit 1 and Unit 2 Equipment Status

Item	Description/Title	Status
12-HV-ACCP-1	CCW Pump Ventilation North Supply Fan	Running
12-HV-ACCP-2	CCW Pump Ventilation Middle Supply Fan	Running
12-HV-ACCP-3	CCW Pump Ventilation South Supply Fan	In Standby
1-CCW-167	East CCW Suction Unit Cross-tie	Closed
1-CCW-172	East CCW Discharge Unit Cross-tie	Closed
1-CCW-173	West CCW Discharge Unit Cross-tie	Closed
1-CCW-256	West CCW Suction Unit Cross-tie	Closed
1-CMO-410	East CCW Heat Exchanger Outlet MOV	Open **AND** Energized
1-CMO-411	CCW Pumps Suction Crosstie	Open **AND** De-energized
1-CMO-412	CCW Pump Discharge Crosstie	Open **AND** Energized
1-CMO-413	CCW Pumps Suction Crosstie	Open **AND** De-energized
1-CMO-414	CCW Pump Discharge Crosstie	Tagged Open **AND** De-energized
1-CMO-415	E CCW Miscellaneous Header Isolation Valve	Open **AND** De-energized
1-CMO-416	W CCW Miscellaneous Header Isolation Valve	Open **AND** Energized
1-CMO-420	West CCW Heat Exchanger Outlet MOV	Closed **AND** Energized
1-OME-150-AB	Unit 1 AB EDG	Operable
1-OME-150-CD	Unit 1 CD EDG	Operable
1-PP-10E	1E CCW Pump	Running
1-PP-10W	1W CCW Pump	Breaker Tagged Out
2-CCW-167	East CCW Suction Unit Cross-tie	Closed
2-CCW-172	East CCW Discharge Unit Cross-tie	Closed
2-CCW-173	West CCW Discharge Unit Cross-tie	Clearance Tagged Closed
2-CCW-256	West CCW Suction Unit Cross-tie	Clearance Tagged Closed
2-OME-150-AB	Unit 2 AB EDG	Tagged Out
2-OME-150-CD	Unit 2 CD EDG	Operable~~Able to be manually started (Auto Start disabled)~~
Surveillance	01-OHP-4030-116~~STP~~-020E	Current
Surveillance	01-OHP-4030-116~~STP~~-020W	Current
Surveillance	01-OHP-4030-STP-045	Current

NRC2007-A5

TITLE	**Perform a Containment Purge Release per 02-OHP-4021-028-005.**	**REVISION**	**0**
PROGRAM	**Initial Licensed Operator (ILT)**	**TIME**	**30 Minutes**

SCOPE OF REVISION:

Initial Issue

			DATE:
AUTHOR	**Name:**	John T Conrad	
	Signature:		
FACILITY REVIEWER	**Name:**		
	Signature:		
		Facility Supervisor / Manager	

REFERENCES

02-OHP-4021-028-005, Rev 23 Operations of the Containment Purge System

TASK

TASK ID: 0280090101 Perform a Containment Purge

K/A Statement: 2.3.9 Knowledge of the process for performing a containment purge. (CFR: 43.4 / 45.10)

K/A Importance: RO: 2.5 SRO: 3.4

EVALUATION SETTING

Simulator

HANDOUTS

Annotated 2-OHP-4021-028-005
2-OHP-4021-028-005 Data Sheet 1
Release paperwork.

ATTACHMENTS

None

SIMULATOR SETUP

None

TASK OBJECTIVES/STANDARDS

Perform a Containment Purge.

EVALUATOR INSTRUCTIONS

Provide the operator with a copy of 2-OHP-4021-028-005, Data Sheet 1 & the Release Paperwork.

TASK BREIFING

You are an Extra Operator in Unit 2:

The following conditions exist:

- Unit 2 is in Mode 3 preparing for a startup.
- No Waste Gas Decay Tanks are being released.
- Due to an inadvertent lifting of a Pressurizer Safety Valve, the PRT rupture disc has blown and needs to be replaced.
- Engineering prefers that the repair be completed in Mode 3 to minimize cyclic temperature stresses on the RCS.

The Unit Supervisor has requested that you place the Containment Purge System in service in the "Cleanup Mode" for Lower Containment only to prepare the containment environment for the required PRT rupture disc replacement. Purge paperwork (Data Sheet 1) has already been initiated.

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1 PURPOSE AND SCOPE

1.1 Provide instructions to perform the following:

- Operate the Containment Purge System during PURGING for Containment entry and during refueling operations
- Operate the Containment Purge System to assist in seating or to maintain closure of Ice Condenser Lower Inlet Doors (LIDs) as necessary to support maintenance activities by aligning the system for Upper Containment Purge Supply with Lower Containment Purge Exhaust (Step 4.7.5).
- Satisfy Off-Site Dose Calculation Manual surveillance requirement of Attachment No. 3.5, item 2.a, 3.a and b Source Check of 2-VRS-2505, 2-ERS-2305/2405 and 2-ERS 2301/2401.
- Satisfy Off-Site Dose Calculation Manual sampling requirement of Attachment No. 3.7, item b for Containment Purge

2 PREREQUISITES **INIT**

2.1 The Shift Manager is aware that this procedure is being implemented. _____

2.2 12-OHP-4021-023-002, Release Of Radioactive Waste From Gas Decay Tanks, is **NOT** being conducted except during prolonged PURGING/ventilating during an outage. _____

2.3 RP has been notified the Containment Purge System flowpath or flowrates are being changed to ensure any compensatory actions may be taken as necessary. Notification shall be logged in the Control Room Log. _____

2.4 Eberline RMS Channels 2-VRS-2505 and 2-VFR-2510 are OPERABLE. _____

2.5 Required Radiation Monitor Channels are OPERABLE (TS 3.3.6, Table 3.3.6-1, Function 3). _____

2.6 **IF** in MODE 1 or 2, **THEN** Environmental concurrence of purge has been obtained. _____

CUE: All prerequisites have been satisfied.

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3 PRECAUTIONS AND LIMITATIONS

3.1 Containment Purge must be commenced within 24 hours of obtaining RP approval.

3.2 When possible, Containment Purge should be performed when atmospheric conditions are most favorable for dispersion. The most favorable times for dispersion (in order of best to worst) are: [Ref. 6.2.1f]

- Day
- Dusk
- Night
- Dawn

3.3 All Containment and Auxiliary Building Ventilation flow changes (for example, fan starts and stops, and Containment Purge System valve lineups) should be logged in the Control Room Log to aid in quantifying releases.

3.4 Vent Stack flowrates shall not exceed 110% of the value used to calculate the 2-VRS-2505 high alarm release setpoint.

- Purge Cleanup operations shall be terminated until Vent Stack flowrates are returned to their original value or 2-VRS-2505 setpoint is recalculated
- Recalculations must be documented on Data Sheet No. 1, Section 4 of this procedure.
- Flow restrictions do not apply after 2-VRS-2505 and 2-VFR-2510 alarm setpoints have been returned to their pre-release setpoint

3.5 **IF** it is desired to raise the Purge rate of Containment Cleanup from a reduced flow or half-flow to full-flow Purge rate, **THEN** another Containment Purge Release Permit must be initiated.

3.6 In MODE 1 - 4, Containment PURGE operations should be restricted to less than 240 hours per year. [UFSAR Section 5.5.3]

Operator reviews the Precautions and Limitations.

Operator verifies RP approval is within 24 hours of purge.

CUE: It is day shift. The Shift Manager has requested that purge be in service my noon.

CUE: All logging will be performed by another operator.

CUE: This is the first recorded Containment Purge for the year.

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3.7 No more than one PURGE supply path and one PURGE exhaust path shall be open at a time. [TS SR 3.6.3.1 and 3.6.3 bases]

3.8 A personnel safety hazard exists with a differential pressure across a closed Airlock Door without the Airlock Interlocks being established. Containment and Auxiliary Building Ventilation Systems should be operated as necessary to minimize the differential pressure across the Airlock Doors prior to opening.

3.9 Changes in the Containment Purge System lineups may cause changes in Containment pressure, which may in turn affect mid-loop level indication.

3.10 The Containment Purge System is usually operated continuously during Refueling Operations. Temporary Purge outages shall be coordinated with RP in order to provide proper compensatory actions prior to securing the Containment Purge System.

3.11 At least one Unit 2 Auxiliary Building Exhaust Fan (AES fan or Aux Building General Area Exhaust Fan) shall be operating during the entire release.

3.12 If both Containment Noble Gas Activity Monitor (Train "A" 2-ERS-2305) and (Train "B" 2-ERS 2405) are inoperable, immediately suspend PURGING or VENTING (CPR) of radioactive effluents via this pathway. [Ref.: 6.2.2j]

3.13 Steps of this attachment, other than those pertaining to lineup of the Containment Purge System, do not need to be re-performed for restoration from planned outages or trips.

3.14 Once Purge (Cleanup) has been completed, and "Ventilation" Mode of Purge is commenced – resultant return to Purge (Cleanup) can be made with no additional sampling requirements or paperwork - so long as either 2-ERS-2305 **OR** 2-ERS-2405 Monitor Channels are OPERABLE.

Operator reviews this page

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3.15 Operation of the Containment Purge System in the Purge (Cleanup) Mode is defined by conditions in PMP-6010-OSD-001, Att. 3.4, under "Consider releases as occurring 'via this pathway' under the following conditions:"

- The Containment Purge System is in operation and Containment OPERABILITY is established/required,

-OR-

- The Containment Purge System is in operation and is being used as the vent path for the venting of contaminated systems within the Containment Building prior to completing both degas and depressurization of the RCS. [Ref: 6.1.3]

IF neither of the above are applicable, **THEN** the containment purge system is acting as a ventilation system and is covered by Item 2 (Unit Vent. Auxiliary Building Ventilation System) of this Attachment.

-OR-

- A Containment Pressure Relief (CPR) is being performed.

3.16 The following Technical Specifications may apply:

- 3.3.6, Containment Purge Supply and Exhaust System Isolation Instrumentation
- 3.4.15, Reactor Coolant System Leakage Detection Systems
- 3.6.3, Containment Isolation Valves
- 3.6.5, Containment Air Temperature
- 3.6.12, Ice Condenser Doors
- 3.9.3, Containment Penetrations

3.17 The following Technical Requirements Manual (TRM) requirements may apply:

- 8.7.1, Steam Generator Pressure and Temperature Limit

Operator reviews this page

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4 DETAILS **INIT**

4.1 **IF** all of the following conditions are met, **THEN** Data Sheet 1 does **NOT** have to be performed:

- Purge System has been off for less than 24 hours. N/A
- Containment Cleanup is complete per Radiation Protection. ____
- The following RMS channels are OPERABLE:
  - 2-VRA-2501 ____
  - 2-VRS-2505 ____
  - at least 2-ERS-2305 or 2405 ____
  - at least 2-ERS-2301 or 2401 ____

4.2 **IF** any of the above conditions are **NOT** met, **THEN** obtain the appropriate approvals:

4.2.1 Complete Sections 1.0 and 2.0 of Data Sheet No. 1, Containment Purge Release Permit and forward to Radiation Protection. [Ref: P&L 3.14] ____

4.2.2 Verify Section 3.0 of Data Sheet No. 1 - COMPLETE. [Ref: 6.2.2g] ____

These Steps are N/A.

Operator verifies Data Sheet 1, Sections 1.0 and 2.0 are complete.

Operator verifies Data Sheet 1, Section 3.0 is complete

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NOTE: An Eberline event is defined as follows:

- Loss of all Control Room RMS alarm functions
- High alarm on Rad Monitor required for Containment Purge System Cleanup operation
- Fail alarm on Rad Monitor required for Containment Purge System Cleanup operation
- Maintenance alarm on Rad Monitor required for Containment Purge System Cleanup operation

4.3 **IF**, during Containment Purge System operation for Cleanup, an Eberline Event occurs, **THEN** perform the following:

- Stop Containment Purge fans. _____
- Close Containment Purge Isolation Valves. _____
- **IF** a Containment Isolation occurs, **THEN** notify RP as soon as possible. _____
- Refer to Figure 1, Planned Evolutions, for reporting requirements. _____
- **WHEN** cause of event has been determined and corrected, **THEN** obtain RP concurrence prior to restarting Containment Purge. _____

4.4 **IF**, during Containment Purge for Cleanup, Noble Gas Activity Monitors (2-VRS-2505 or 2-ERS-2305 and 2405) become inoperable, **THEN** perform the following:

- Stop Containment Purge fans. _____
- Close Containment Purge Isolation Valves. _____
- Investigate cause of the alarm. _____
- **IF** Containment Purge cannot be immediately restarted, **THEN** notify Radiation Protection Supervision [Ref: 6.1.3]. _____

Operator reads conditional steps.

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CAUTION: If purging in MODE 1, 2, 3, 4, or during movement of irradiated fuel assemblies in Containment, the minimum channels OPERABLE requirements of TS 3.3.6, Table 3.3.6-1 must be met.

4.5 Verify Radiation Monitoring Requirements.

4.5.1 Perform a SOURCE CHECK on the following OPERABLE Containment Radiation Monitors. ✓ OPERABLE monitors.

- ❑ 2-VRS-2101, Upper Cntmnt Normal Range Rad Detector.
- ❑ 2-VRS-2201, Upper Cntmnt Normal Range Rad Detector.
- ❑ 2-VRS-2505, Aux Bldg Vent Effluent Rad Monitor VRS-2500 Noble Gas Chamber Low Range Gamma Radiation Detector.
- ❑ 2-ERS-2301, Cntmt Lower Compt Train A Rad Monitor ERS-2300 Particulate Filter Beta Radiation Detector
- ❑ 2-ERS-2305, Cnmnt Lower Compt Train A Rad Monitor ERS-2300 Noble Gas Chamber Low Range Beta Rad Detector.
- ❑ 2-ERS-2401, Cntmt Lower Compt Train B Rad Monitor ERS-2400 Particulate Filter Beta Radiation Detector
- ❑ 2-ERS-2405, Cnmnt Lower Compt Train B Rad Monitor ERS-2400 Noble Gas Chamber Low Range Beta Rad Detector. _____

Note: The Operator may source check all of these channels except VRS 2505 from the Surv./Source Check Screen. The monitors may also be individually Source Checked.

CUE: After 2 source checks, “All remaining source checks have been completed satisfactorily”

CT: Operator performs Source Check on Radiation Monitors.

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4.5.2 Verify TRIP/BLOCK switches for the following OPERABLE RMS Monitors are in NORMAL position (step may be N/A in MODE 5, 6, or DEFUELED when no Core Alterations are in progress or no movement of irradiated fuel within Containment).
✓ OPERABLE monitors.

- ❑ 2-VRS-2101, Upper Cntmt Normal Rng Rad Det VRS-2101 Trip Block Switch
- ❑ 2-ERS-2300, Lower Containment Rad Monitor ERS-2300 Trip Block Switch
- ❑ 2-VRS-2201, Upper Cntmt Normal Rng Rad Monit VRS 2201 Trip Block Switch
- ❑ 2-ERS-2400, Lower Containment Rad Monitor ERS-2400 Trip Block Switch _____

4.5.3 Record Purge release information in Section 4.0 of Data Sheet 1 (N/A if conditions of Step 4.1 have been met). _____

NOTE: If the release setpoints for 2-VRS-2505 are less than the original setpoints as documented on Data Sheet 1, Containment Purge Release Permit, the setpoints for 2-VRS-2505 and 2-VFR-2510 do not have to be changed.

4.5.4 Have Radiation Protection (RP) check 2-VRS-2505, Aux Bldg Vent Effluent Rad Monitor and 2-VFR-2510 setpoint (N/A if conditions of Step 4.1 have been met **OR** setpoints do not require changing). _____

a. **IF** necessary, **THEN** have RP input 2-VRS-2505, Aux Bldg Vent Effluent Rad Monitor, release setpoint. _____

b. **IF** the current Vent Stack flowrate (2-VFR-2510) is less than or equal to the initial 2-VFR-2510, Auxiliary Building Ventilation Effluent Radiation Monitor VRS-2500 Flow Recorder Transmitter (from DS 1), **THEN** have RP input the 2-VFR-2510 release setpoint. _____

CT: Operator places all TRIP/BLOCK switches in the NORMAL position.

CUE: RP has Completed Section 4 of Data Sheet 1 (Present copy of DS -1 Section 4)

CUE: Setpoints for 2-VRS-2505 have been changed as required.

CUE: Setpoints for 2-VFR-2510 do NOT need to be changed

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c. **IF** the current Vent Stack flowrate (2-VFR-2510) is greater than the initial 2-VFR-2510 flowrate (from DS 1), **THEN**

- Reduce Vent Stack Flowrate to less than or equal to the initial 2-VFR-2510 flowrate. _____
- Have RP input the 2-VFR-2510, Auxiliary Building Ventilation Effluent Radiation Monitor VRS-2500 Flow Recorder Transmitter, release setpoint per DS 1. _____
- **IF** the flow cannot be reduced to less than the initial 2-VFR-2510 flowrate, **THEN** initiate a new DS 1. _____

4.6 **IF** the Containment Purge System is currently operating in Ventilation Mode, **THEN** go to Step 4.9. N/A _____

4.7 Align The Containment Purge System. N/A steps not performed:

NOTE:	2-HV-CPS-VD-1 and 2-HV-CPS-VD-2 may be tagged closed for Plant Winterization per 12-IHP-5040-EMP-004, Plant Winterization and De-Winterization.

4.7.1 **IF** Plant Winterization is in effect, **THEN** perform the following:

a. Verify tags are removed from the following:

- 2-HV-CPS-VD-1, Containment Purge Supply Ventilation Unit HV-CPS-1 Inlet Volume Damper N/A _____
- 2-HV-CPS-VD-2, Containment Purge Supply Ventilation Unit HV-CPS-2 Inlet Volume Damper _____
- 2-HV-CPS-1, Cntmt Purge Supply Fan 1 _____
- 2-HV-CPS-2, Cntmt Purge Supply Fan 2 _____

Operator Determines these steps are NA

Step is N/A.

Cue: Winterization is NOT in effect

Step is N/A.

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b. Verify the filter box is closed for the following: N/A

- 2-HV-CPS-1, Cntmt Purge Supply Fan 1 _____
- 2-HV-CPS-2, Cntmt Purge Supply Fan 2 _____

4.7.2 Verify Containment Purge Supply dampers are positioned as follows: [Ref 6.2.2h]

Operator requests AEO to check that Inlet Volume Dampers are open.

- 2-HV-CPS-VD-1, Containment Purge Supply Ventilation Unit HV-CPS-1 Inlet Volume Damper – OPEN _____
- 2-HV-CPS-VD-2, Containment Purge Supply Ventilation Unit HV-CPS-2 Inlet Volume Damper - OPEN _____

CUE: Report as AEO that 2-HV-CPS-VD-1 & 2 Containment Purge Supply Inlet Volume Dampers are open

4.7.3 **IF** outside temperature is less than 40°F or heating steam is desired, **THEN** perform Attachment 4, Operation of the Containment Purge System Heating Coils. [Ref 6.2.2h] N/A _____

Step is N/A. (Cue if required Outside Air Temperature is 55°F

4.7.4 **IF** aligning for full-flow operation in Mode 5, 6, or DEFUELED, **THEN** perform the following:

a. **IF** Containment pressure is – less than zero psig, **THEN** open the Upper Containment Purge Supply Air Valves:

Step is N/A.

- 2-VCR-105, Upper Cntmt Purge Supply Air _____
- 2-VCR-205, Upper Cntmt Purge Supply Air _____

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b. **WHEN** Containment pressure is - zero psig or greater, **THEN** open the Upper and Lower Containment Supply and Exhaust Air Valves:

N/A

- 2-VCR-103, Lower Cntmt Purge Supply Air _____
- 2-VCR-104, Lower Cntmt Purge Exhaust Air _____
- 2-VCR-105, Upper Cntmt Purge Supply Air _____
- 2-VCR-106, Upper Cntmt Purge Exhaust Air _____
- 2-VCR-203, Lower Cntmt Purge Supply Air _____
- 2-VCR-204, Lower Cntmt Purge Exhaust Air _____
- 2-VCR-205, Upper Cntmt Purge Supply Air _____
- 2-VCR-206, Upper Cntmt Purge Exhaust Air _____

4.7.5 **IF** aligning for Upper Containment Purge Supply with Lower Containment Purge Exhaust, **THEN** perform the following:

a. Verify the following valves – CLOSED:

N/A

- 2-VCR-101, Instn Room Purge Supply Air _____
- 2-VCR-102, Instn Room Purge Exhaust Air _____
- 2-VCR-103, Lower Cntmt Purge Supply Air _____
- 2-VCR-106, Upper Cntmt Purge Exhaust Air _____
- 2-VCR-201, Instn Room Purge Supply Air _____
- 2-VCR-202, Instn Room Purge Exhaust Air _____
- 2-VCR-203, Lower Cntmt Purge Supply Air _____
- 2-VCR-206, Upper Cntmt Purge Exhaust Air _____

These Steps are NA

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b. **IF** Containment pressure is - less than zero psig, **THEN** open the Upper Containment Purge Supply Air Valves:

N/A

- 2-VCR-105, Upper Cntmt Purge Supply Air _____
- 2-VCR-205, Upper Cntmt Purge Supply Air _____

c. **WHEN** Containment pressure is - zero psig or greater, **THEN** open the Upper Containment Supply and Lower Containment Exhaust Air Valves:

N/A

- 2-VCR-104, Lower Cntmt Purge Exhaust Air _____
- 2-VCR-105, Upper Cntmt Purge Supply Air _____
- 2-VCR-204, Lower Cntmt Purge Exhaust Air _____
- 2-VCR-205, Upper Cntmt Purge Supply Air _____

4.7.6 **IF** aligning for Upper Containment Purge Supply and Exhaust, **THEN** perform the following:

a. Verify the following valves - CLOSED:

N/A

- 2-VCR-101, Instn Room Purge Supply Air _____
- 2-VCR-102, Instn Room Purge Exhaust Air _____
- 2-VCR-103, Lower Cntmt Purge Supply Air _____
- 2-VCR-104, Lower Cntmt Purge Exhaust Air _____
- 2-VCR-201, Instn Room Purge Supply Air _____
- 2-VCR-202, Instn Room Purge Exhaust Air _____
- 2-VCR-203, Lower Cntmt Purge Supply Air _____
- 2-VCR-204, Lower Cntmt Purge Exhaust Air _____

These Steps are NA

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b. **IF** Containment pressure is - less than zero psig, **THEN** open the Upper Containment Purge Supply Air Valves:

N/A

- 2-VCR-105, Upper Cntmt Purge Supply Air _____
- 2-VCR-205, Upper Cntmt Purge Supply Air _____

c. **WHEN** Containment pressure is - zero psig or greater, **THEN** open the Upper Containment Supply and Exhaust Air Valves:

- 2-VCR-105, Upper Cntmt Purge Supply Air _____
- 2-VCR-106, Upper Cntmt Purge Exhaust Air _____
- 2-VCR-205, Upper Cntmt Purge Supply Air _____
- 2-VCR-206, Upper Cntmt Purge Exhaust Air _____

These Steps are NA

4.7.7 **IF** aligning for Lower Containment Purge Supply and Exhaust, **THEN** perform the following:

a. Verify the following valves – CLOSED:

Operator verifies that valves are closed

- 2-VCR-101, Instn Room Purge Supply Air _____
- 2-VCR-102, Instn Room Purge Exhaust Air _____
- 2-VCR-106, Upper Cntmt Purge Exhaust Air _____
- 2-VCR-201, Instn Room Purge Supply Air _____
- 2-VCR-202, Instn Room Purge Exhaust Air _____
- 2-VCR-206, Upper Cntmt Purge Exhaust Air. _____

b. **IF** Containment pressure is - less than zero psig, **THEN** open the Upper Containment Purge Supply Air Valves:

Operator determines step is N/A.

- 2-VCR-105, Upper Cntmt Purge Supply Air _____
- 2-VCR-205, Upper Cntmt Purge Supply Air _____

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c. **WHEN** Containment pressure is zero psig or greater, **THEN** close the Upper Containment Purge Supply Air Valves:

- 2-VCR-105, Upper Cntmt Purge Supply Air _____
- 2-VCR-205, Upper Cntmt Purge Supply Air. _____

d. Open the Lower Containment Supply and Exhaust Air Valves:

- 2-VCR-103, Lower Cntmt Purge Supply Air _____
- 2-VCR-104, Lower Cntmt Purge Exhaust Air _____
- 2-VCR-203, Lower Cntmt Purge Supply Air _____
- 2-VCR-204, Lower Cntmt Purge Exhaust Air. _____

4.7.8 **IF** aligning for Instrument Purge System operation, **THEN** perform the following:

a. Verify the following valves – CLOSED:

N/A

- 2-VCR-105, Upper Cntmt Purge Supply Air _____
- 2-VCR-205, Upper Cntmt Purge Supply Air _____
- 2-VCR-106, Upper Cntmt Purge Exhaust Air _____
- 2-VCR-206, Upper Cntmt Purge Exhaust Air _____
- 2-VCR-103, Lower Cntmt Purge Supply Air _____
- 2-VCR-104, Lower Cntmt Purge Exhaust Air _____
- 2-VCR-203, Lower Cntmt Purge Supply Air _____
- 2-VCR-204, Lower Cntmt Purge Exhaust Air _____

Operator determines step is N/A.

CT: Operator Opens Supply & Exhaust Valves

These Steps are NA

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These Steps are NA

b. Verify the following valves - OPEN:

N/A

- 2-VCR-101, Instn Room Purge Supply Air _____
- 2-VCR-102, Instn Room Purge Exhaust Air _____
- 2-VCR-201, Instn Room Purge Supply Air _____
- 2-VCR-202, Instn Room Purge Exhaust Air _____

4.8 Initiate Purge:

NOTE: Based on Figure 2 Section 1.1, either 1 or 2 PAIRs (Supply & Exhaust) of fans are required to be operated.
CUE: If required, Only 1 set of fans need be started.

4.8.1 Start the following fans using Figure 2, Containment Purge And Aux Bldg Ventilation Operation Guidelines. ✓ fan(s) started, N/A steps not used:

a. Containment Purge Exhaust Fans

CT: Operator determines Starts 1 or 2 Exhaust Fans

- ❑ 2-HV-CPX-1, Containment Purge Exhaust Fan 1 _____
- ❑ 2-HV-CPX-2, Containment Purge Exhaust Fan 2 _____
- ❑ 2-HV-CIPX-1, Containment Instrumentation Room Purge Exhaust Fan N/A _____

These Steps are NA

b. **IF** 2-HV-CIPX-1 was started, **THEN** verify 2-VDC-202, Containment Instrument Room Exhaust Air Volume Damper is open. N/A _____

c. Containment Purge Supply Fans

CT: Operator determines Starts 1 or 2 Supply Fans

- ❑ 2-HV-CPS-1, Cntmt Purge Supply Fan 1 _____
- ❑ 2-HV-CPS-2, Cntmt Purge Supply Fan 2 _____
- ❑ 2-HV-CIPS-1, Containment Instrumentation Room Purge Supply Fan N/A _____

These Steps are NA

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4.8.2 **IF** desired to adjust purge flow rate, **THEN** throttle the applicable dampers as necessary:

- 2-HV-CPS-VD-1, Containment Purge Supply Ventilation Unit HV-CPS-1 Inlet Volume Damper _____
- 2-HV-CPS-VD-2, Containment Purge Supply Ventilation Unit HV-CPS-2 Inlet Volume Damper _____

4.9 Document PURGE:

4.9.1 Record Purge release information in Section 4.0 of Data Sheet 1 (N/A if conditions of Step 4.1 have been met). _____

4.9.2 Record Purge release information in the Control Room Log. _____

4.9.3 **IF** in MODE 1-4, **THEN** record Purge operation time on Data Sheet 2, Containment Purge Log For Purge Times Modes 1-4. _____

4.10 Notify RP of start of Containment Purge for Cleanup. _____

4.11 **IF** a Containment personnel airlock or equipment hatch is open, **THEN** request RP validate that Containment Ventilation (airflow) is appropriate. _____

4.12 Reset Setpoints (N/A if conditions of Step 4.1 have been met **OR** setpoints were not changed):

EVALUATOR: "THIS JPM IS COMPLETE"

NOTE: Environmental will determine the required purge time when less than a full purge lineup is used.

4.12.1 **WHEN** Containment has been Purged for the equivalent of full Purge for 100 minutes, **AND** 2-ERS-2305/2405 are stable, **THEN** perform the following:

- Request Radiation Protection reset 2-VRS-2505, Aux Bldg Vent Effluent Rad Monitor, alarm setpoint to its original value. _____
- Request Radiation Protection reset 2-VFR-2510, Auxiliary Building Ventilation Effluent Radiation Monitor VRS-2500 Flow Recorder Transmitter, alarm setpoint to its original value. _____
- Document alarm setpoints returned to original value on Section 4.0 of Data Sheet 1. _____ RP

5	FINAL CONDITIONS	CIRCLE ONE	
5.1	Containment Purge is in operation in Cleanup Mode.	YES	NO
5.2	The following information has been recorded:		
	• AR written (Enter in comments)	YES	NO

Record any comments during procedure use:

_____
_____
_____
_____

Verified Complete By: _____ Date: ___/___/___

Reviewed By: _____ Date: ___/___/___
Supervisor/Manager Signature

Task Briefing

You are an Extra Operator in Unit 2:

The following conditions exist:

- Unit 2 is in Mode 3 preparing for a startup.
- No Waste Gas Decay Tanks are being released.
- Due to an inadvertent lifting of a Pressurizer Safety Valve, the PRT rupture disc has blown and needs to be replaced.
- Engineering prefers that the repair be completed in Mode 3 to minimize cyclic temperature stresses on the RCS.

The Unit Supervisor has requested that you place the Containment Purge System in service in the "Cleanup Mode" for Lower Containment only to prepare the containment environment for the required PRT rupture disc replacement. Purge paperwork (Data Sheet 1) has already been initiated.

GASEOUS WASTE RELEASE WORKSHEET

Release Source Unit 2 CP Release No. G-07-04

SAMPLE IDENTIFICATION

	Chem Lab Sample Number(#)	Sample Date/Time
Decay Tank Unit 2 CP		3/19/2007 03:29:00 AM
Instrument Room:	062011103, 062011111	
Upper Ctmt:	062011104, 062011113	
Lower Ctmt:	062011106, 062011108	
Other:		

INITIAL ESTIMATED RELEASE

Tank Pressure:	0.0	psig.
Source Flow Rate:	6000	cfm.
Source Volume:	1240000	ft3.

Estimated Duration of Release

$$\frac{\text{(Source Volume)} \quad 1240000 \quad \text{ft3}}{\text{(60)min/hr x (source Flow Rate)} \quad 6000 \text{ cfm}} = 3.44 \text{ hr}$$

Unit Conversion

$$\frac{\text{(Source Flow Rate)} \quad 6000.\ \text{cfm x (2.83E+04)} \quad \text{cc/ft3}}{\text{(60) sec/min}} = 2.80\text{E+06 cc/sec}$$

Noble Gas Nuclide	Concentration (uCi/cc)	x	Flow Rate (cc/sec)	=	Release Rate (uCi/sec)	x	Total Body DCF	=	Total Body DRDF
KR-85	2.05E-05	x	2.80E+06	=	5.74E+01	x	1.61E+01	=	9.24E+02
XE-133	3.67E-08	x	2.80E+06	=	1.03E-01	x	2.94E+02	=	3.02E+01

Sum Total Body DRDF = 9.54E+02

Noble Gas Nuclide	Concentration (uCi/cc)	x	Flow Rate (cc/sec)	=	Release Rate (uCi/sec)	x	Skin DCF	=	Total Skin DRDF
KR-85	2.05E-05	x	2.80E+06	=	5.74E+01	x	1.36E+03	=	7.81E+04
XE-133	3.67E-08	x	2.80E+06	=	1.03E-01	x	6.94E+02	=	7.15E+01

Sum Skin DRDF = 7.82E+04

Nuclide	Conc. (uCi/cc)	x	Filtr. Factor	=	Filtered Conc. (uCi/cc)	x	Flow Rate (cc/sec)	=	Release Rate (uCi/sec)	x	DCF	=	Any Organ DRDF
H-3	9.37E-06	x	N/A	=	N/A	x	2.80E+06	=	2.62E+01	x	1.12E+03	=	2.94E+04

Sum Any Organ DRDF = 2.94E+04

Dose Rate of Release

	DRDF	x	X/Q	=	Dose Rate of Release mrem/yr	Dose Rate Limit
Total Body	9.54E+02	x	2.04E-05	=	1.95E-02	500 mrem/yr
Skin	7.82E+04	x	2.04E-05	=	1.60E+00	3,000 mrem/yr
Any Organ	2.94E+04	x	2.04E-05	=	6.00E-01	1,500 mrem/yr

Estimated Dose of Release

Dose Rate of Release	x	Est. Duration of Release	x Conv Fac	=	Est. Dose of Release	Dose Limit of Release
Total Body	x	3.44	x 1.14E-4 Yr/Hr	=	7.63E-06	5 mrem
Skin	x	3.44	x 1.14E-4 Yr/Hr	=	6.26E-04	10 mrem
Any Organ	x	3.44	x 1.14E-4 Yr/Hr	=	2.35E-04	7.5 mrem

REDUCED FLOW RATE CALCULATIONS

Individual Reduced Flow Rates

Total Body:
(Source Flow Rate, cfm) x (500) mrem/yr = _____ cfm
(Calculated Total Body DR) mrem/yr

Skin:
(Source Flow Rate, cfm) x (3,000) mrem/yr = _____ cfm
(Calculated Skin DR) mrem/yr

Any Organ:
(Source Flow Rate, cfm) x (1,500) mrem/yr = _____ cfm
(Calculated Any Organ DR) mrem/yr

Increased Duration of Release

ft3 (source volume) = _____ hr
60 min/hr x _____ cfm (lowest available)

GASEOUS WASTE RELEASE WORKSHEET

Release No. G-07-04

Dose Rate Limit/Dose Rate of Release Ratio

Total Body:

(500) mrem/yr = 2.56E+04 (DR Ratio)

(Calculated DR) 1.95E-02 mrem/yr

Skin:

(3,000) mrem/yr = 1.88E+03 (DR Ratio)

(Calculated DR) 1.60E+00 mrem/yr

Any Organ:

(1,500) mrem/yr = 2.50E+03 (DR Ratio)

(Calculated DR) 6.00E-01 mrem/yr

Most Limitimg (smallest) DR Ratio = 1.88E+03

FINAL RELEASE DATA

Source Volume	1240000	ft3
Source Flow Rate.....	6000.	cfm
Unit Vent Stack Flow Rate.....	1.43E+05	cfm
Duration of Release.....	3.44	hour
Total Noble Gas Concentration	2.05E-05	uCi/cc

High Alarm Setpoint Calculation

	MRP	Most Limiting DR Ratio	Total Noble Gas Conc. uCi/cc	Est. Flow cfm	Source Rate
SP = (.9) x	4.10E-01 x	1.88E+03 x	2.05E-05	6000. =	5.73e-04 (uCi/cc)

$$SP = \frac{(.9) \times 4.10E-01 \times 1.88E+03 \times 2.05E-05 \times 6000.}{\underbrace{6000.}_{\text{Source Flow Rate (cfm)}} + \underbrace{1.43E+05}_{\text{Unit Vent Flow Rate (cfm)}}} = 5.73e-04 \text{ (uCi/cc)}$$

GASEOUS WASTE RELEASE WORKSHEET

Release No. G-07-04

Release Flow Rate

6000.	+	1.43E+05	=	1.49E+05 cfm
Source Flow Rate		Unit Vent Flow Rate		Release Flow Rate

High Unit Vent Flow Rate Setpoints

High Limit Flow Rate:	1.49E+05	x 1.1	=	1.63E+05
	Release Flow Rate (cfm)			(cfm)

Alert Alarm Setpoint

5.73e-04	x 0.8	=	4.58E-04
High Alarm Setpoint (uCi/cc)			(uCi/cc)

COMMENTS:

APPROVAL SECTION

Performed by: _____ _____ (Date) 0432 (Time)

Reviewed by: _____ _____ (Date) 0455 (Time)

NRC2007-A6

TITLE	**Perform an Initial Dose Assessment**	**REVISION**	**0**
PROGRAM	**NRC License Audit Exam**	**TIME**	**15 Minutes**

Revision 0: From Audit04-A7

			DATE:
DEVELOPING INSTRUCTOR:	Name:	John T Conrad	
	Signature:		
OPERATIONS REVIEW:	Name:		
	Signature:		

REFERENCES

Procedure: PMP-2080-EPP-108, Rev 9, Initial Dose Assessment

Task: EPP0070701 Perform and Initial Dose Assessment

K/A CROSS REFERENCE: 2.4.38

K/A IMPORTANCE: SRO 4.0 RO 2.2

EVALUATION SETTING

Computer terminal with Dose Assessment Program (DAP) installed.

HANDOUTS

Task Briefing

ATTACHMENTS

None

SIMULATOR SETUP

None

TASK

Given a set of plant conditions including specific instrumentation values, a computer with DAP installed and procedure PMP-2080-EPP-108, perform a dose assessment for the site boundary with protective action recommendations.

TASK BRIEFING

You are an extra RO

The following conditions exist:

- At 05:50 Unit 2 tripped due to a large Steam Generator tube rupture on the Loop 1 Steam Generator.
- The break flow is estimated at 175 gpm.
- Due to problems immediately following the trip, all MSIV's were closed.
- At 05:55 the BOP operator reported that the PORV on the ruptured steam generator is 25% open and can not be closed.
- Steam Generator Loop 1 PORV (MRA-2601) Discharge has a High Alarm.
- At 06:00 the Shift Manager assumes the role of Site Emergency Coordinator.
- At 06:00 the Shift Manager declares a Site Area Emergency based on Degraded Fission Product Barrier ICs - 2.2P and 3.3L.
- Current plant conditions are stable.

At 06:05 you are directed to perform an initial offsite dose assessment using the provided print out of the current PPC Dose Assessment Information screen (attached).

Once you have completed the initial offsite dose assessment, report the calculated TEDE and Adult thyroid CDE Site Boundary dose rates to the SEC/SM (examiner).

Unit 1 is at 100% power

Information	PMP-2080-EPP-108	Rev. 9	Page 3 of 9
Initial Dose Assessment			

4 DETAILS

4.1 The following steps may be completed in any order or sequence as long as all items are complete before the EMD-32 form(s) is/are completed.

NOTE: DAP contains extensive on line help. Help for any particular subject may be obtained by placing the mouse over the object in question. If help is available it will appear at the bottom of the screen.

NOTE: Dose assessment projections may only be performed using the DAP. **IF** projected doses are **NOT** available and a PAR is necessary, **THEN** use the default PAR in PMP-2080-EPP-100.

NOTE: DAP reports dose rates and doses as 0 when calculations result in dose rates or doses <0.1 mRem/hr or <0.1 mRem respectively.

4.2 Determine which forms are required.

4.2.1 EMD-32a, Nuclear Plant Event Notification.

- Is only transmitted to the State/County within 15 minutes of a change to the emergency classification or PAR.
- Must include an EMD-32b, Nuclear Plant Event Technical Data Form if the emergency classification is General Emergency and the PAR is based on dose calculations.

4.2.2 EMD-32b, Nuclear Plant Event Technical Data Form.

- Required to be transmitted to the State/County within 30-minute intervals of the last EMD-32b or EMD-32a form.

4.3 Obtain meteorological data from the PPC or from the intranet on the Operations Department web page using the "Midas Data" link. Attachment 1, Meteorological Data, contains additional sources of meteorological data and Attachment 2, Pasquill Category, provides for Pasquill Category (Stability Class) determinations.

Note:
A computer terminal with the current version of the Dose Assessment Program (DAP version 7.0.20) is necessary for completion of this JPM.

For the conditions described in this JPM, an EMD-32a would be completed. Completion of the EMD-32a is NOT necessary for successful completion of this JPM.

PPC meteorological data is provided with the briefing.

Information	PMP-2080-EPP-108	Rev. 9	Page 4 of 9
Initial Dose Assessment			

NOTE: Sources are listed in order of preference.

- 10 Meter Main
- 10 Meter Backup
- 60 Meter Main

4.4 Obtain RMS radiological data from one of the following sources:

NOTE: Sources are listed in order of preference.

- PPC
- RMS Display Terminals
- Direct readings from the Local Area Data Acquisition Modules

4.5 Determine the Unit 1 and Unit 2 reactor shutdown status and the date and time of shutdown as applicable.

NOTE: Changing Fuel Status greatly affects the calculated off-site doserates.

4.6 **IF** there are no other indications of fuel damage **THEN** determine the Coolant Type from the table below.

Coolant Type	Containment High Radiation Monitoring Reading
Normal Coolant	<200 R/hr
Cladding Damage	>200 R/hr - <1325 R/hr
Fuel Melt	>1325 R/hr

PPC Radiological data is provided with the briefing.

ONLY Unit 2 is applicable for this JPM. Unit 2 status is provided with the briefing.

Normal Coolant will be used in the calculation. Provided with briefing - both Containment High Radiation Monitors (VRA-2310 and VRA-2410) are less than 10 R/hr.

4.7 Determine whether an actual or potential release is occurring.

4.7.1 An actual release is occurring when any of the following are true:

- Valid indication on release point radiation monitoring system channels are present that are associated with a classified event,

  - OR-

- Measured off-site radiation readings indicate a release is in progress,

  - OR-

- Indications exist that an unmonitored release may be occurring.

4.7.2 A potential release exists if calculated data is postulated based on present plant conditions (i.e., Containment Loss of Coolant Accident (LOCA)).

4.8 Determine the Projected Duration of the Release.

- **IF** the projected duration of the release is unknown, **THEN** use 1 hour.
- **IF** releases are occurring from multiple points, **THEN** use the longest projected duration.

NOTE: A new incident is started in DAP for each event which causes entry into the Emergency Plan.

NOTE: A new scenario is started in DAP for each dose evaluation run. A DAP scenario is completed when EMD-32 form(s) for a dose evaluation is/are approved and communicated.

4.9 Enter the data into the Dose Assessment Program.

NOTE: The classifications may change based on the results of the assessment being run and must be updated accordingly prior to submitting the EMD-32a or EMD-32b forms for transmittal to the state or county.

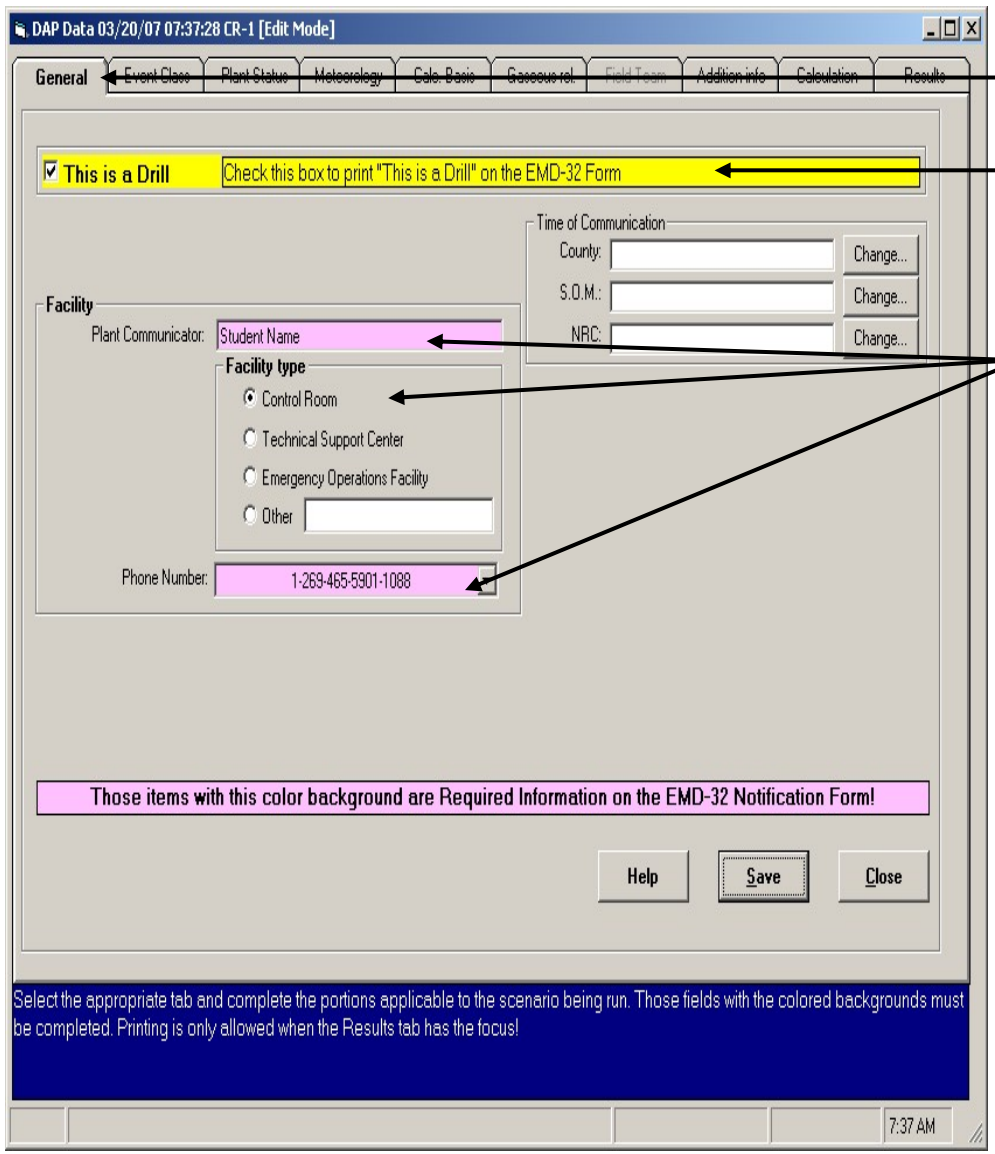
4.10 **IF** necessary, **THEN** update the current classification and Initiating Conditions on the EMD-32a and EMD-32b.

Actual release is in progress as provided with briefing.

CT: Projected duration of release is unknown. The 1 hour default will be used. (Same as on page 6 - Release Status – Expected Duration)

The following pages illustrate the Dose Assessment Program screens with the information entered. The “tabs” of the dose assessment may be completed in any order. However, the Calculation and Results tabs should be viewed last.

A completed EMD-32a is NOT necessary for successful completion of this JPM.

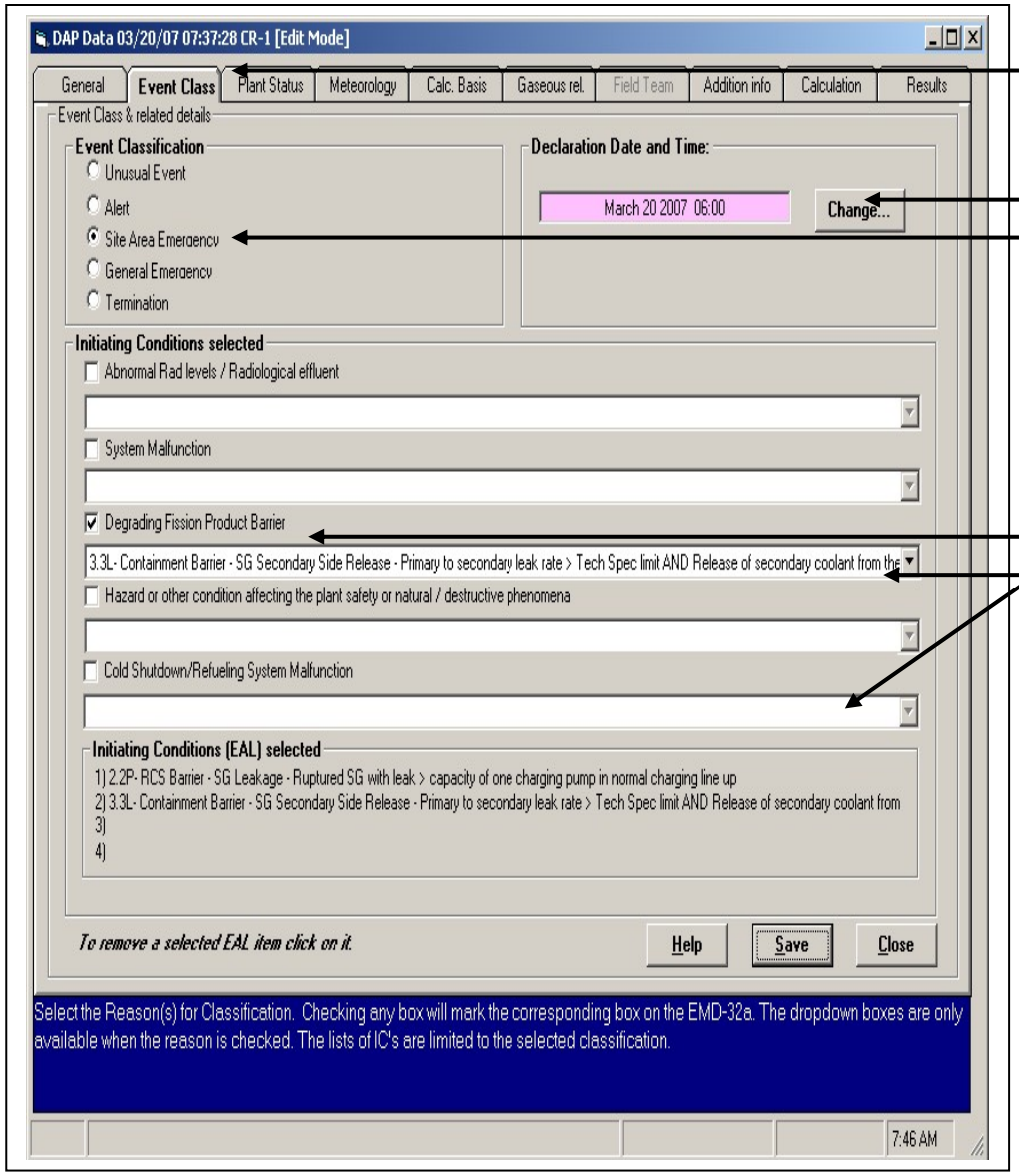


Under the General tab, the student should

Select “This is a drill”.

The student’s name, location, and phone number should be entered.

NOTE: Data entered on this tab is used ONLY to complete the EMD-32a and/or EMD-32b form and does NOT affect the dose assessment calculation.

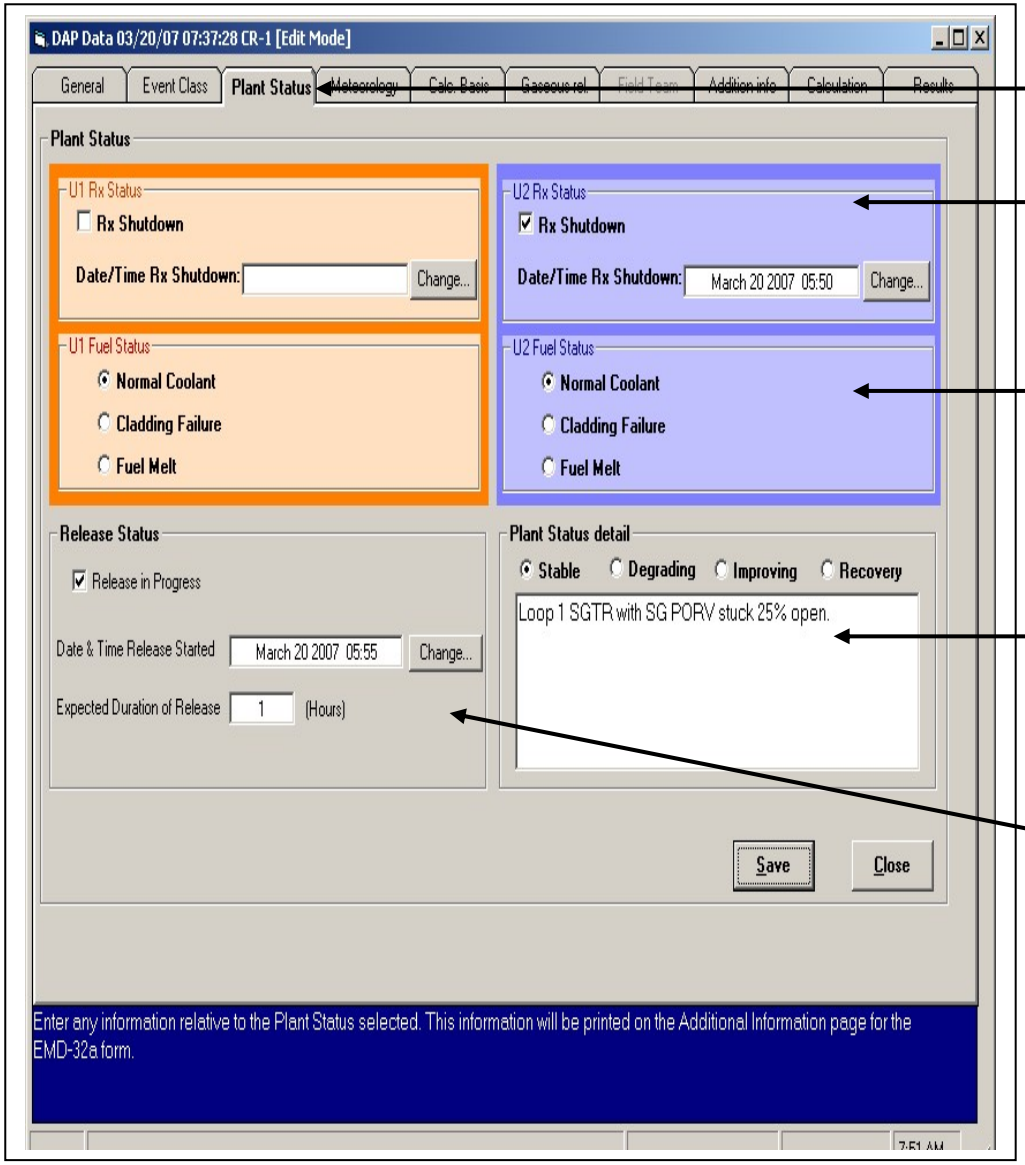


Under the Event Classification tab, the student should

Enter the date and time. (03/20/2007 06:00)
Select Site Area Emergency.

Select Degrading Fission Product Barrier and using the drop down screens select at least one Initiating Condition (EAL) for the classification selected.

NOTE: Data entered on this tab is used ONLY to complete the EMD-32a and/or EMD-32b form and does NOT affect the dose assessment calculation.



Under the Plant Status tab, the student should

CT Complete the U2 Rx Status by selecting RX shutdown and entering the date and time (per brief – 3/20/2007 05:50)

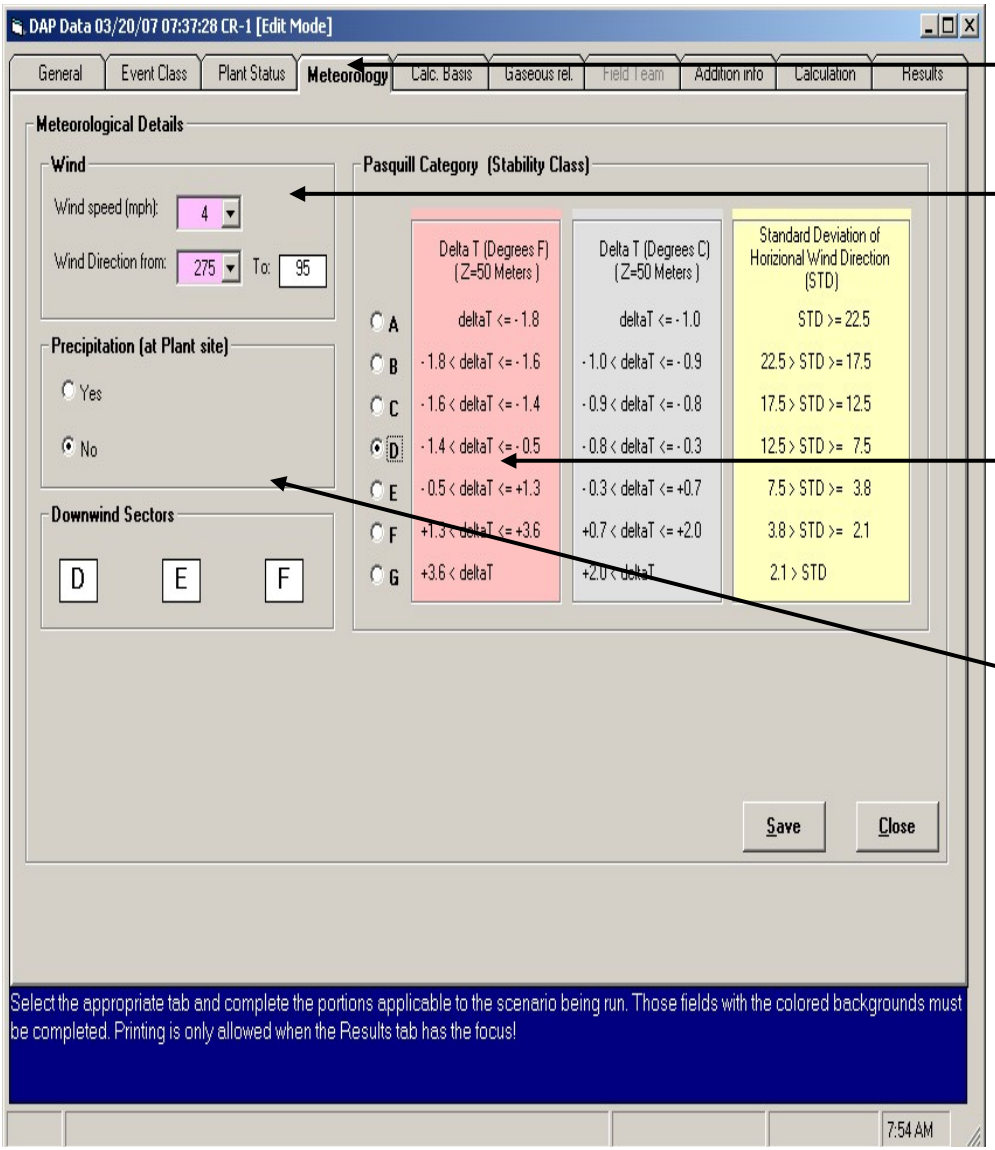
CT Complete U2 Fuel Status by selecting Normal Coolant per step 4.5 of PMP-2080-EPP-108.

U1 Rx Status is not applicable for the conditions of this JPM and therefore does not need to be completed per step 4.4 of PMP-2080-EPP-108.

Complete Plant Status detail by selecting Stable) and providing justification in the narrative box. Information here is used only to complete EMD form(s).

CT Complete Release Status by selecting Release in Progress and entering the date and time the release started (per brief - 3/20/2007 05:55). 1 Hour Default time must also be used (See Page 3 of JPM)

NOTE: Data entered for U2 RX Status, U2 Fuel Status, and Release Status affects the dose assessment calculation.



Under the Plant Status tab, the student should

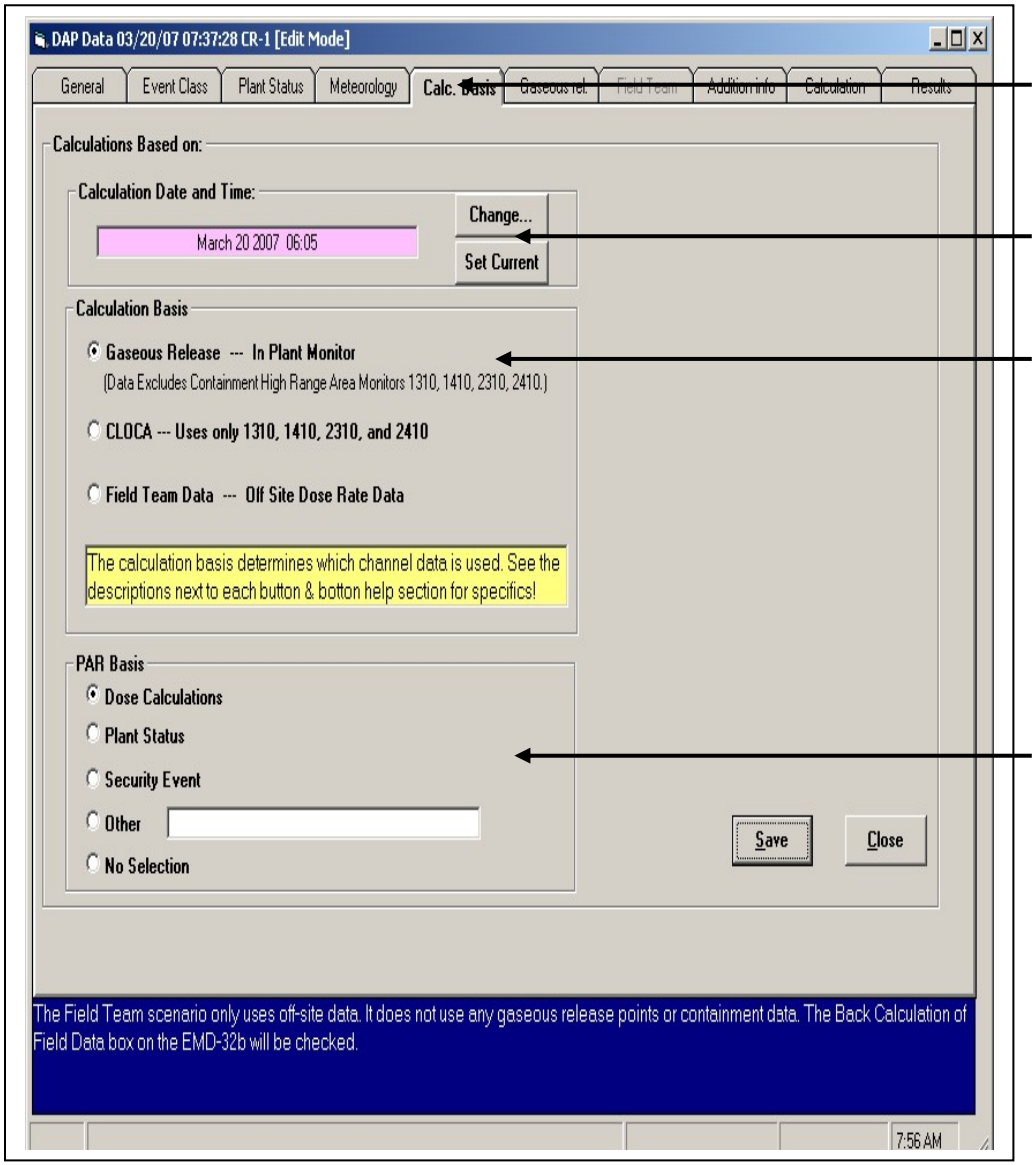
CT Complete Wind information by entering 10M Main wind speed (4 mph) and wind direction (275°) provided with the briefing.

CT Complete the Pasquill Category (Stability Class) by selecting the correct classification based on the information provided with the briefing.

Complete the Precipitation information using the information provided with the briefing.

Downwind Sectors are selected automatically based on the wind direction entered.

NOTE: Wind and Pasquill Category affect the dose assessment calculation.



Under the Calc. Basis tab, the student should

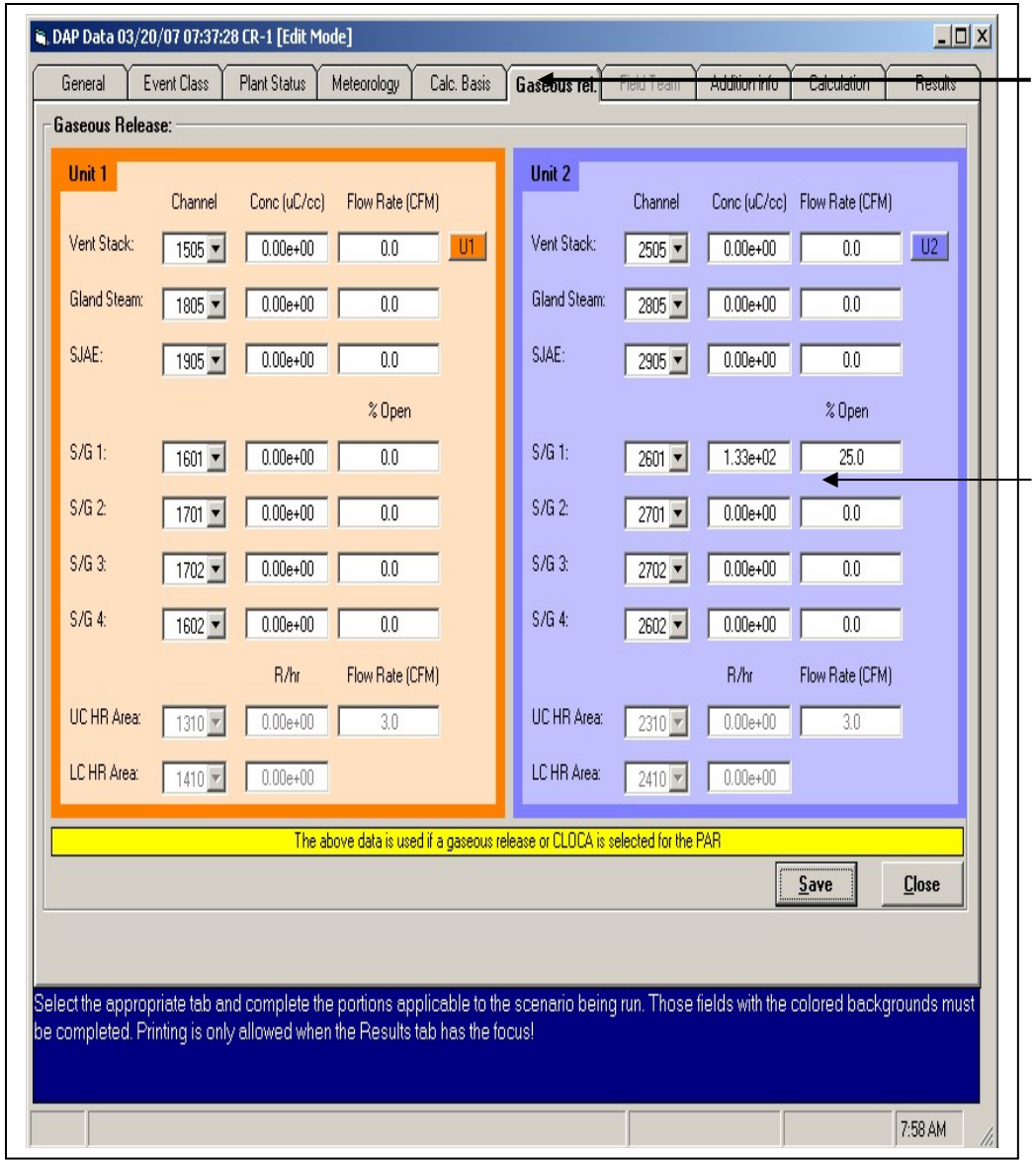
CT Enter the date and time. (per brief – 3/20/2007 06:05)

CT Complete Calculation Basis by verifying Gaseous Release – In Plant Monitor is selected. This enables the Gaseous Release tab to enter the applicable Radiation Monitor data given with the briefing. (NOTE: Gaseous Release – In Plant Monitor is the default selection.)

NOTE the Field Team tab will NOT be enabled for this JPM. Field Team Data must be selected to enable the Field Team tab.

PAR Basis section is used only to complete the EMD form(s). This section does not affect the Dose Projection Dose, Plant, Other (explained), or No Selection is Acceptable. (NOTE: No Selection is the default.)

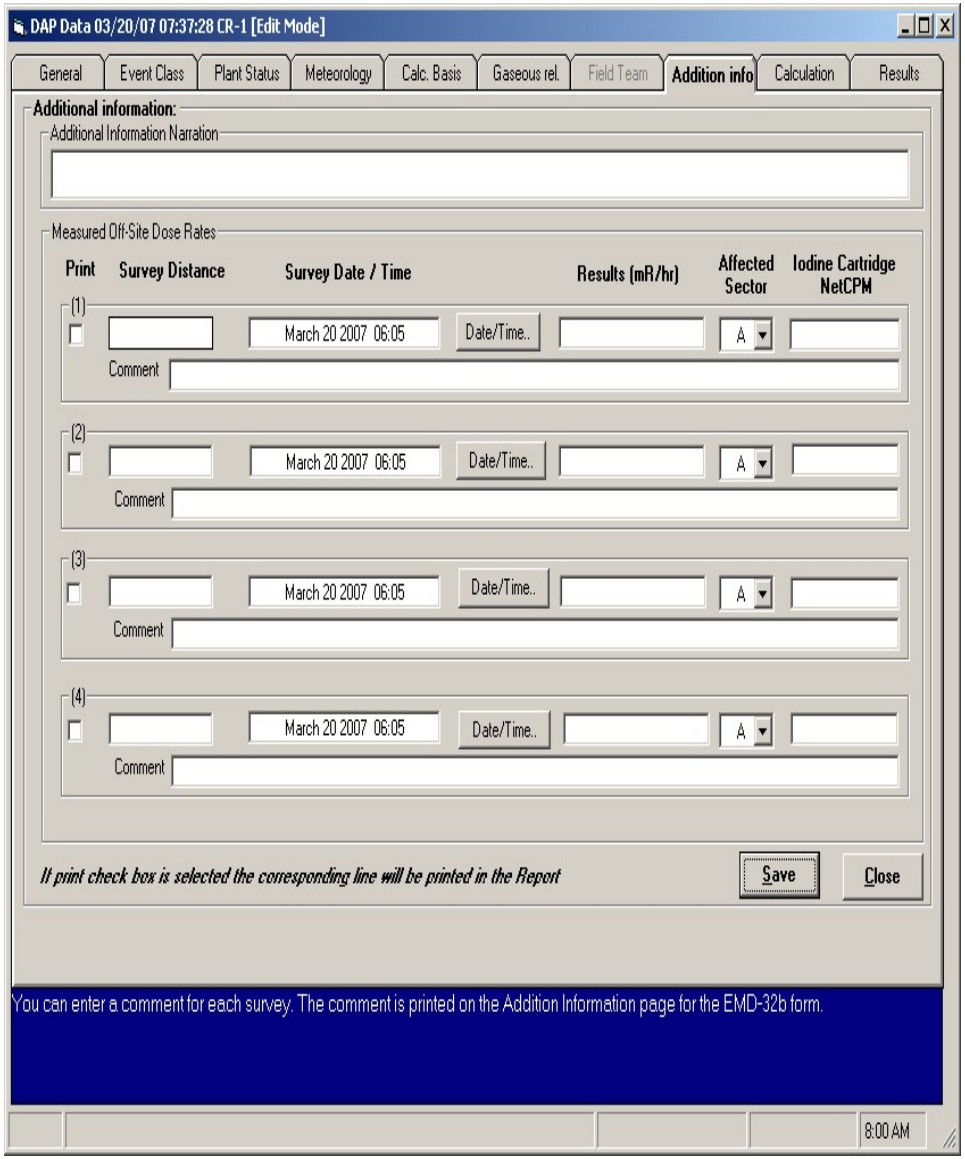
NOTE: Calculation Date and Time and Calculation Basis affect the dose assessment calculation.



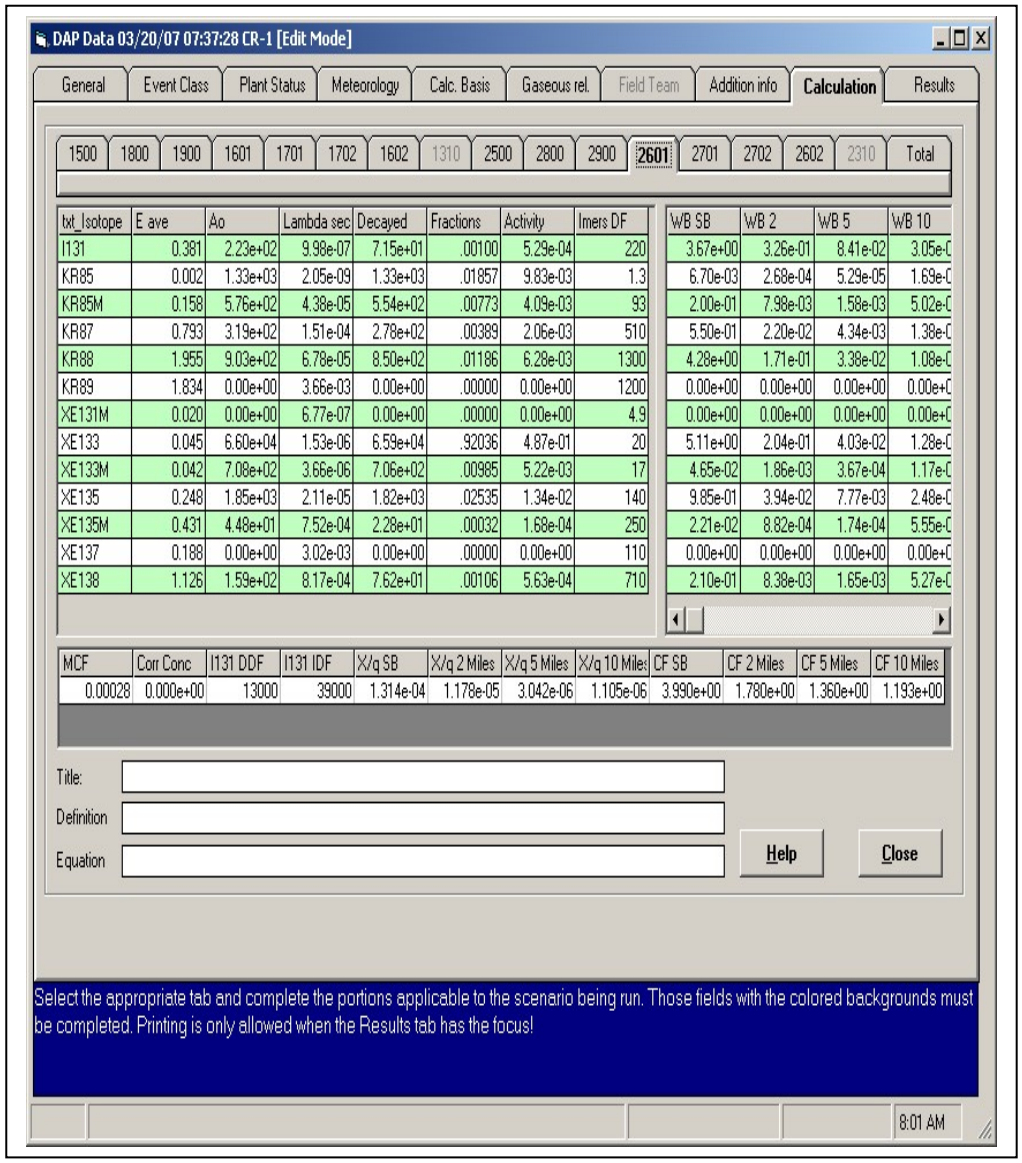
Under the Gaseous rel. tab, the student should

CT Complete the Gaseous Release information by entering the Concentration and Flow Rate (percent open) for the affected radiation monitor(s). Radiological information is provided with the briefing. (NOTE: ONLY the reading of the affected monitor(s) is required to be entered.)

NOTE: Gaseous Release affects the dose assessment calculation.



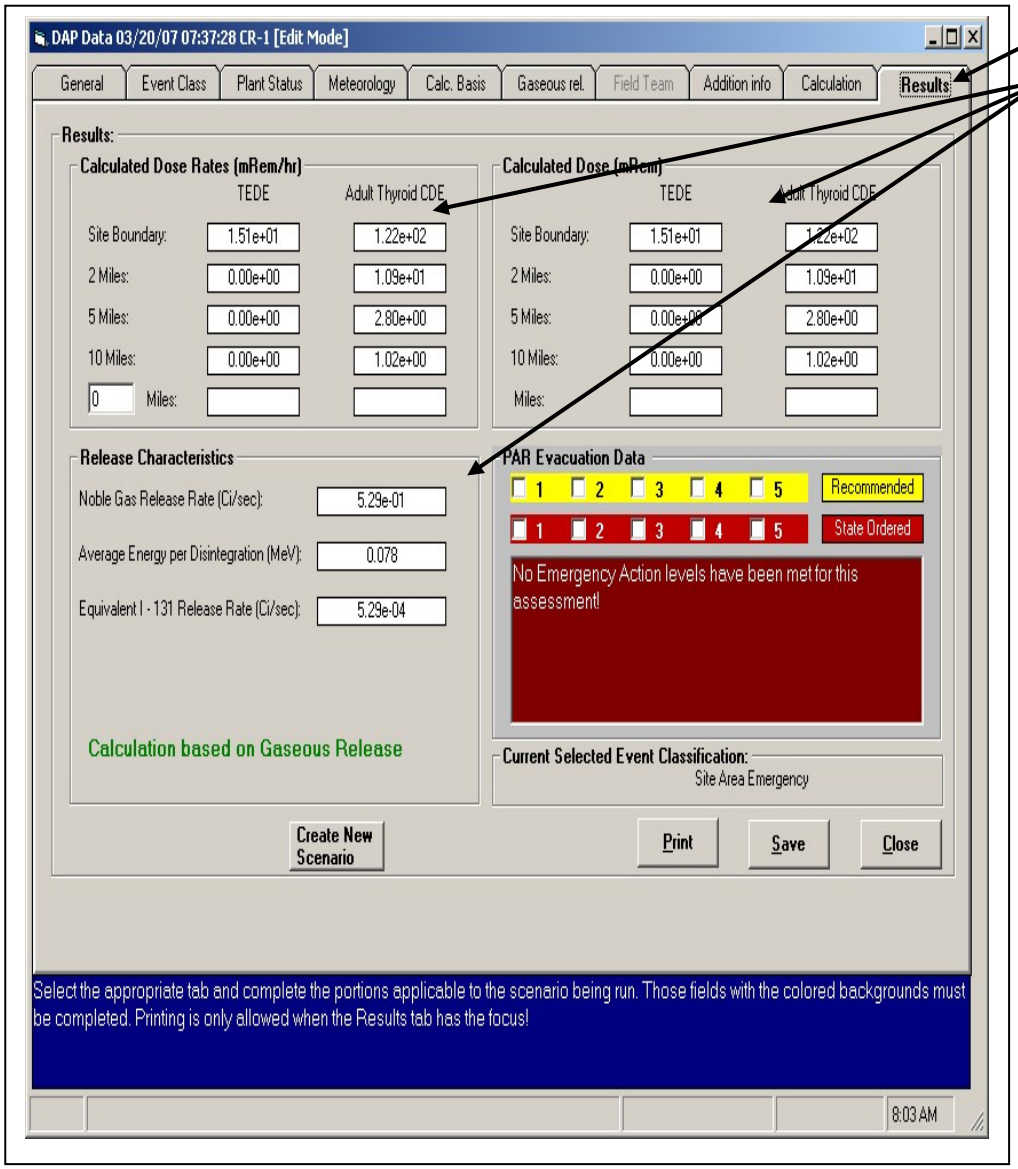
NO additional information is required under the Additional info tab. This information is used when needed to complete the EMD-32 forms. The student may leave these blank.



NO entries are made under the Calculation tab. This tab provides information only.

When the tab for the affected radiation monitor(s) is selected, information on the different isotopes involved in the release and their contribution to the dose rate / dose is provided.

Atmospheric dispersion factors are also provided.



Under the Results tab, the student will find

The Calculated Dose Rates, Calculated Dose, and Release Characteristics based on the information entered under the preceding tabs.

The calculated dose rate and dose is used in conjunction with PMP-2080-EPP-101, Emergency Classification to determine Emergency Plan Classification and Protective Action Recommendations.

When required, the operator may recommend evacuation by selecting the affected areas.

The Dose Assessment Program will automatically generate Recommended PAR Evacuation Data when the PAR Basis - Dose Calculation is selected under the Cal Basis tab AND the dose assessment calculation indicates action is necessary. Recommendations generated by the Dose Assessment Program can NOT be changed by the operator.

The EMD-32a and/or EMD-32b forms may be printed as required. (NOT required for this JPM)

CT TEDE SB dose rate = 1.51e+01 mRem/hr
(1.28e+01 to 1.8e+01 mRem/hr is acceptable)
thyroid CDE SB dose rate = 1.22e+02 mRem/hr
(1.08e+02 to 1.4e+02 mRem/hr is acceptable)

Evaluator: "JPM IS COMPLETE"

Task Briefing

You are an extra RO

The following conditions exist:

- At 05:50 Unit 2 tripped due to a large Steam Generator tube rupture on the Loop 1 Steam Generator.
- The break flow is estimated at 175 gpm.
- Due to problems immediately following the trip, all MSIV's were closed.
- At 05:55 the BOP operator reported that the PORV on the ruptured steam generator is 25% open and can not be closed.
- Steam Generator Loop 1 PORV (MRA-2601) Discharge has a High Alarm.
- At 06:00 the Shift Manager assumes the role of Site Emergency Coordinator.
- At 06:00 the Shift Manager declares a Site Area Emergency based on Degraded Fission Product Barrier ICs - 2.2P and 3.3L.
- Current plant conditions are stable.

At 06:05 you are directed to perform an initial offsite dose assessment using the provided print out of the current PPC Dose Assessment Information screen (attached).

Once you have completed the initial offsite dose assessment, report the calculated TEDE and Adult thyroid CDE Site Boundary dose rates to the SEC/SM (examiner).

Unit 1 is at 100% power

DOSE ASSESSMENT INFORMATION
MONITOR READINGS

TAG	ID	DATA DESCRIPTION	VALUE	UNITS
ERS-2305	RMS052	LOWER CONTNT LOW RNG NGAS - TR A	3.685E-06	µCI/CC
ERS-2307	RMS054	LOWER CONTNT MED RNG NGAS – TR A	1.050E-03	µCI/CC
ERS-2309	RMS055	LOWER CONTNT HI RNG NGAS – TR A	2.300E-03	µCI/CC
VRA-2310	RMS056	UPPER CONTNT HI RNG AREA – TR A	1.0003E+00	R/H
VRA-2410	RMS064	UPPER CONTNT HI RNG AREA – TR B	1.0003E+00	R/H
VRS-2505	RMS068	UNIT VENT EFFLUENT LOW RNG NGAS	2.331E-07	µCI/CC
VRS-2507	RMS070	UNIT VENT EFFLUENT MED RNG NGAS	7.600E-04	µCI/CC
VRS-2509	RMS071	UNIT VENT EFFLUENT HI RNG NGAS	1.100E-01	µCI/CC
VFR-2510	RMS072	UNIT VENT EFFLUENT FLOWRATE	8.327E+04	CFM
MRA-2601	RMS073	STM GEN LOOP 1 PORV DISCHARGE	1.330E+02	µCI/CC
MRA-2602	RMS074	STM GEN LOOP 4 PORV DISCHARGE	8.500E-01	µCI/CC
MRA-2701	RMS075	STM GEN LOOP 2 PORV DISCHARGE	1.300E+00	µCI/CC
MRA-2702	RMS076	STM GEN LOOP 3 PORV DISCHARGE	8.200E-01	µCI/CC
SRA-2805	RMS077	GLAND STM VENT EFFL LOW RNG NGAS	3.352E-06	µCI/CC
SRA-2807	RMS079	GLAND STM VENT EFFL MED RNG NGAS	1.090E-03	µCI/CC
SRA-2809	RMS080	GLAND STM VENT EFFL HI RNG NGAS	1.220E-01	µCI/CC
SFR-2810	RMS081	GLAND STM VENT EFFL FLOWRATE	9.969E+02	CFM
SRA-2905	RMS082	STM JET AIR EJE EFFL LO RNG NGAS	3.750E-05	µCI/CC
SRA-2907	RMS084	STM JET AIR EJE EFFL MED RNG NGAS	1.120E-03	µCI/CC
SRA-2909	RMS085	STM JET AIR EJE EFFL HI RNG NGAS	1.520E-01	µCI/CC
SFR-2910	RMS082	STM JET AIR EJE EFFL FLOWRATE	4.011E+00	CFM
ETQ-403	U0802	DELTA TEMPERATURE - MAIN TOWER	-1.0	DEGF
EFR-412	U0803	WIND DIRECTION 10M - MAIN TOWER	275.0	DEG/FROM
EFR-402	U0804	WIND SPEED 10M -MAIN TOWER	4.0	MPH
ELR-400	U0805	PRECIPITATION - MAIN TOWER	NO RAIN	NONE
EFR-413	U0806	WIND DIRECTION 10M - BACKUP TOWER	278.0	DEG/FROM
EFR-403	U0807	WIND SPEED 10M - BACKUP TOWER	3.6	MPH
EFR-410	U0808	WIND DIRECTION 60M - MAIN TOWER	280.0	DEG/FROM
EFR-400	U0809	WIND SPEED 60M - MAIN TOWER	5.0	MPH
NONE	U0810	STANDARD DEVIATION 10M - MAIN	0.0	DEGREES
NONE	U0811	STANDARD DEVIATION 10M - BACKUP	0.0	DEGREES
NONE	U0812	STANDARD DEVIATION 60M - MAIN	0.0	DEGREES

DOSE ASSESSMENT INFORMATION
MIDAS Summary

TAG	- ID	- DATA DESCRIPTION	VALUE	UNITS
ETQ-403	- U0802	- DELTA TEMPERATURE - MAIN TOWER	-1.0	DEGF
EFR-412	- U0803	- WIND DIRECTION 10M - MAIN TOWER	275.0	DEG/FROM
EFR-402	- U0804	- WIND SPEED 10M -MAIN TOWER	4.0	MPH
ELR-400	- U0805	- PRECIPITATION - MAIN TOWER	NO RAIN	NONE
EFR-413	- U0806	- WIND DIRECTION 10M - BACKUP TOWER	278.0	DEG/FROM
EFR-403	- U0807	- WIND SPEED 10M - BACKUP TOWER	3.6	MPH
EFR-410	- U0808	- WIND DIRECTION 60M - MAIN TOWER	280.0	DEG/FROM
EFR-400	- U0809	- WIND SPEED 60M - MAIN TOWER	5.0	MPH
NONE	- U0810	- STANDARD DEVIATION 10M - MAIN	0.0	DEGREES
NONE	- U0811	- STANDARD DEVIATION 10M - BACKUP	0.0	DEGREES
NONE	- U0812	- STANDARD DEVIATION 60M - MAIN	0.0	DEGREES
NONE	- U0816	- PASQUILL CATEGORY - NOT APPLICABLE	D	NONE
ETR-400	- U0813	- OUTSIDE TEMPERATURE - 10M - MAIN	0.0	DEGREES
NONE	- U0814	- LAKE BREEZE EFFECT - NOT APPLICABLE	NO	NONE

NRC2007-A7

TITLE	**Emergency Plan Classification**	**REVISION**	**0**
PROGRAM	**Initial Licensed Operator (ILT)**	**TIME**	**25 Minutes**

SCOPE OF REVISION:

Derived from SR-O-E008, Emergency Plan Classification

			DATE:
AUTHOR	**Name:**	J T Conrad	
	Signature:		
FACILITY REVIEWER	**Name:**		
	Signature:		
		Facility Supervisor / Manager	

REFERENCES

Procedure:

PMP-2080-EPP-101, Emergency Classification

Task: EPP0020703, Classify an Emergency Condition

K/A Number: 2.4.41, Knowledge of the emergency action level thresholds and classifications

K/A Importance: SRO 4.1 RO 2.3

Procedure:

PMP-2080-EPP-100, Emergency Response

Task: EPP0120703 Develop a Protective Action Recommendation

K/A Number: 2.4.44 Knowledge of the emergency plan protective action recommendations

K/A Importance: SRO 4.0 RO 2.1

EVALUATION SETTINGS[1]

Classroom or office

HANDOUTS

Task Briefing

ATTACHMENTS

None

SIMULATOR SETUP[2]

None

[1] Evaluation settings are listed in the preferred order.
[2] Simulator setup can be stored in a temporary IC to expedite the evaluation process.

TASK OBJECTIVES/STANDARDS

In accordance with procedures when an emergency event has occurred or changed, the operator will be able to:

1. Classify an Emergency Condition
2. Develop a Protective Action Recommendation

Task Briefing

THIS JPM IS TIME CRITICAL **Record Start Time** _____

You are the Shift Manager.

You are to determine the Emergency Plan Classification of this event and any applicable Protective Action Recommendations.

Unit 1 was at 100% power with the West CCP on clearance for pump overhaul when a Small Break LOCA event occurs and the Unit automatically trips. Both SI pumps trip on over current and CTS actuates automatically with RCPs secured by the RO shortly thereafter.

The crew had transitioned to OHP-4023-E-1, Loss of Reactor or Secondary Coolant, and was working their way through the procedure, when the STA reports a RED CSFST indication on Core Cooling with containment Radiation levels at ~250 R/hr.

The crew then transitioned to OHP-4023-FR-C.1, Response to Inadequate Core Cooling, which has been implemented for 20 minutes without restoring core cooling.

The following plant conditions exist:

- CETC readings of the five highest temperatures indicate 860 °F and rising
- RCS pressure is ~750 psig
- Containment pressure is 2 psig and slowly lowering
- Containment radiation is 250 R/hr and slowly rising
- Narrow range RVLIS indicates 44% and slowly lowering

The MET data indicates no precipitation with the wind from 220° at 8 mph and NO offsite release is occurring.

Note: Simulator Indications are NOT applicable to this JPM.

FISSION PRODUCT BARRIER MATRIX – Mode 1- 4

GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
Loss of TWO Fission Product Barriers AND Potential Loss of Third Barrier.	Any TWO of the Following: 1. Loss or Potential Loss of Fuel Clad. 2. Loss or Potential Loss of RCS. 3. Loss of Containment Barrier.	Loss or Potential Loss of Either Fuel Clad or RCS Barrier.	Loss or Potential Loss of Containment Barrier.

1. FUEL CLAD BARRIER	LOSS (L)	POTENTIAL LOSS (P)
.1 Core Cooling CSFST	Core Cooling CSFST - RED	Core Exit Thermocouples > 752° **OR** RVLIS Level < 46% (Narrow Range) **OR** Heat Sink CSFST – RED
.2 Containment Radiation	> 200 R/hr.	None
.3 Primary Coolant Activity	>300 uCi/cc I-131 dose equivalent **OR** Core Damage > 5.0% clad failure	None

Candidate determines LOSS of Fuel Clad Barrier based upon 1.1 and/or 1.2

2. RCS BARRIER	LOSS (L)	POTENTIAL LOSS (P)
.1 RCS Leak Rate (unisolable)	> available makeup capacity as indicated by complete loss of RCS subcooling.	> capacity of one centrifugal charging pump in normal charging line up.
.2 Steam Generator Leakage	Entry into OHP 4023.E-3, SGTR. **AND** Non-isolable secondary line break results in a Prolonged (>30 minutes) radioactive release to the environment from the affected SG. [1]	Ruptured SG with leak > capacity of one charging pump in normal charging line up.
.3 Containment Radiation	> 10 R/hr	None
.4 RCS Integrity CSFST	None	RCS Integrity CSFST - RED
.5 Heat Sink CSFST	None	Heat Sink CSFST - RED

Candidate determines LOSS of RCS Barrier based upon 2.1 and/or 2.3

[1] Does not include a release through the condenser air ejectors or the gland steam condenser vents for the purpose of declaration of a SITE AREA EMERGENCY.

The trainee should refer to PMP-2080-EPP-101, Emergency Plan Classification, Attachment 1. (This page and next)

FISSION PRODUCT BARRIER MATRIX – Mode 1 -4

GENERAL EMERGENCY	SITE AREA EMERGENCY	ALERT	UNUSUAL EVENT
Loss of TWO Fission Product Barriers AND Potential Loss of Third Barrier.	Any TWO of the Following: 1. Loss or Potential Loss of Fuel Clad. 2. Loss or Potential Loss of RCS. 3. Loss of Containment Barrier.	Loss or Potential Loss of Either Fuel Clad or RCS Barrier.	Loss or Potential Loss of Containment Barrier.

3. CONTAINMENT BARRIER	LOSS (L)	POTENTIAL LOSS (P)
.1 Containment Radiation	None	>1000 R/hr. **OR** Core damage > 20% clad failure.
.2 Containment Integrity	Unisolable breach of containment. **OR** Rapid unexplained containment pressure or sump level drop following pressure rise caused by a LOCA. **OR** Containment pressure/sump level NOT performing as expected for conditions. **OR** Entry into ECA-1.2, LOCA Outside Containment.	None
.3 SG Secondary Side Release	Primary to secondary leakage rate greater than technical specification limit. **AND** Release of secondary coolant from the associated steam generator to the environment is occurring.[1]	None
.4 Containment CSFST	None	Containment CSFST - RED
.5 Containment Hydrogen	None	>4.0% **OR** Containment Hydrogen >0.5% AND any Hydrogen Control equipment inoperable.
.6 Containment Pressure Control	None	BOTH CTS trains OR BOTH containment air recirc fans inoperable OR fail to auto start on their containment pressure setpoint OR containment pressure > 12 psig.
.7 Core Exit Thermocouples	None	Core Cooling CSFST – RED **AND** Restoration procedures not effective within 15 minutes.

[1] Does not include a release through the condenser air ejectors or the gland steam condenser vents for the purpose of declaration of a SITE AREA EMERGENCY.

CT: The classification for this event is "General Emergency"

Record Classification Time _____ (</= 15 minutes from Start)

Candidate determines a potential LOSS of containment Barrier based upon 3.7.

Reference	PMP-2080-EPP-100	Rev. 7	Page 8 of 40
Emergency Response			
Attachment 1	Protective Action Recommendations		Pages: 8 - 11

NOTE: DO NOT revise protective actions such that protection is reduced for areas already addressed in previously issued PARs. For example, if evacuation was recommended for Area 1 in a previous PAR, do not revise this recommendation to sheltering for Area 1 in any subsequent PAR.

1 PAR Development

1.1 Proceed through the flowchart on page 10 to develop a PAR.

1.1.1 In selecting a PAR, consider what method (evacuation or sheltering) would have the greatest dose-saving benefit to the public. Conditions to consider include:

- Dangerous travel conditions (i.e., snow squalls, thunderstorms, major traffic accident on a main evacuation route, etc.).
- A forecast of changing weather conditions (i.e., changing wind direction and/or speed, precipitation, etc.).
- Radiological release characteristic (continuous release due to the event, that can not be controlled, vice a short-term "puff" release that can be controlled/stopped – e.g., containment pressure relief).
- Evacuation times (Refer to table on page 11).

2 Issuing a PAR

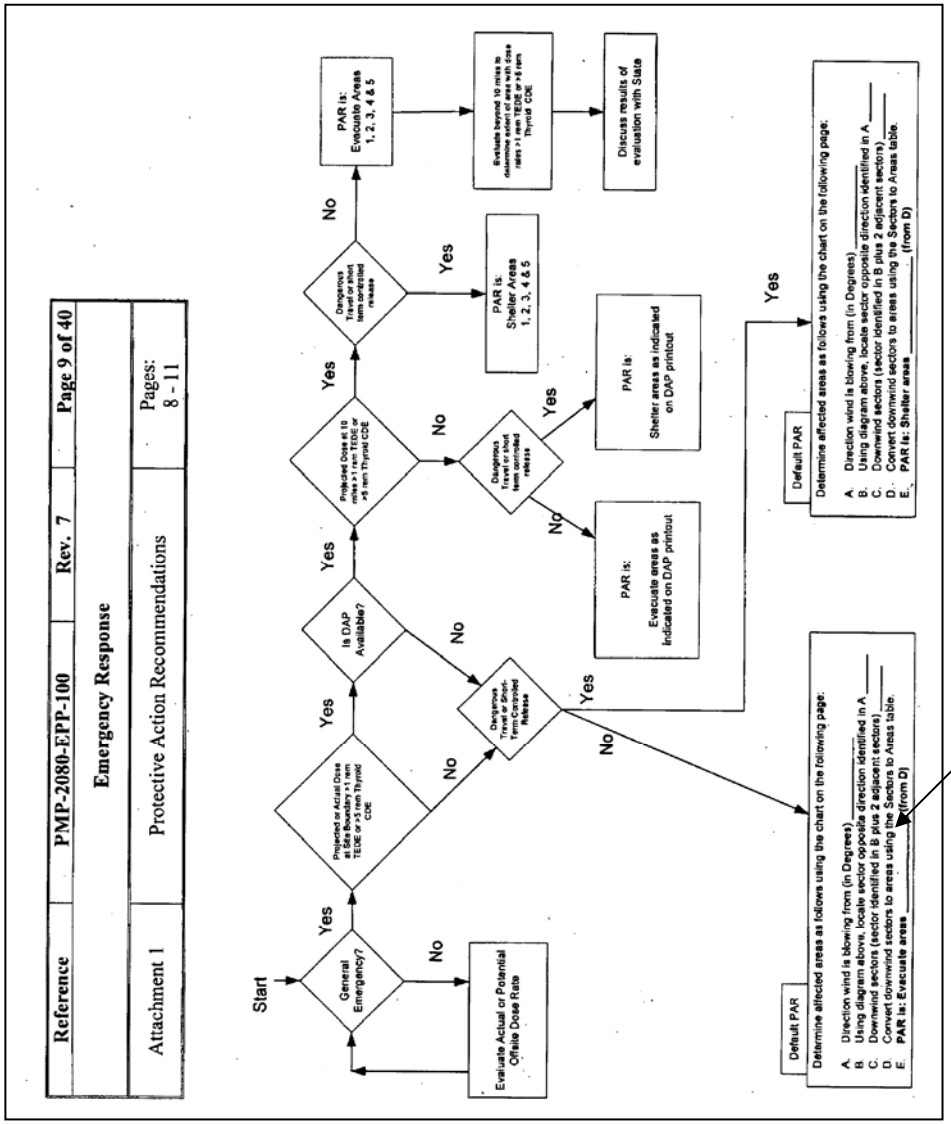
2.1 After a PAR is developed, SEC judgment should be applied as necessary in altering the PAR from that determined by use of the flowchart.

2.2 Ensure that the appropriate PAR boxes are checked on the EMD-32a form, before approving the form.

2.3 Ensure that the GE and PAR are verbally transmitted to the State, and that the EMD-32a (and EMD-32b, if GE is due to dose considerations) is/are transmitted to offsite agencies per Attachment 8, within 15 minutes of the GE/PAR declaration, or PAR change.

Candidate determines PAR recommendations:

NOTE: A General Emergency requires a protective action recommendation be made to the state.



Wind direction and speed is given in briefing:

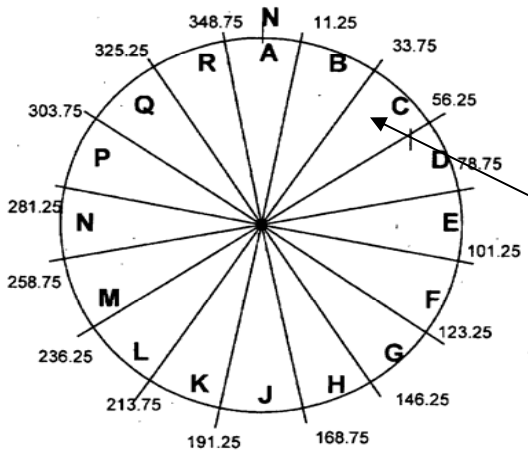
Wind is from 220° at 8 mph.

Per briefing, NO offsite release is occurring.

CT: Even though there is no offsite release occurring, a protective action recommendation is still required based on the General Emergency classification.

CT: Item A = 220
CT: Item B = C
Item C = B , C & D
CT: Item E = 1, 2, & 3

Reference	PMP-2080-EPP-100	Rev. 7	Page 10 of 40
Emergency Response			
Attachment 1	Protective Action Recommendations		Pages: 8 - 11



Sectors	Areas
A, B & C to 5 miles	1 and 2
B, C & D to 5 miles	1, 2 and 3
C, D & E to 5 miles	1, 2 and 3
D, E, & F to 5 miles	1, 2 and 3
E, F & G to 5 miles	1, 2 and 3
F, G & H to 5 miles	1 and 3
G, H & J to 5 miles	1 and 3
H, J & K to 5 miles	1 and 3
J, K & L to 5 miles	1 and 3
K, L & M to 5 miles	1 and 3
L, M & N to 5 miles	1
M, N & P to 5 miles	1
N, P & Q to 5 miles	1
P, Q & R to 5 miles	1
Q, R & A to 5 miles	1
R, A & B to 5 miles	1 and 2

Affected Areas	Longest Estimated Evacuation Time in Minutes	
	Fair Weather	Poor Weather
1	180	200
1 and 2	200	230
1 and 3	180	200
1, 2 and 3	220	240
1, 2, 3 and 4	450	480
1, 2, 3 and 5	230	250
1, 2, 3, 4 and 5	460	480

Record PARS Time _____ (</= 15 minutes from Classification Time)

CT: Protective Action Recommendation is to evacuate areas **1**, **2** and **3**.

Wind is from 220°. Downwind sector is **C** and adjacent sectors are sectors **B** and **D**.

Student informs examiner that this event is classified as a **General Emergency** with a Protective Action Recommendation to **evacuate areas 1, 2 and 3.**
JPM IS COMPLETE

Task Briefing

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NOTE
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