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William J. Cahill, Jr.  
 Group Vice President

January 17, 1992

U. S. Nuclear Regulatory Commission  
 Attn: Document Control Desk  
 Washington, D.C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)  
 DOCKET NOS. 50-445 AND 50-446  
 ADVANCE FSAR SUBMITTAL ACCIDENT MONITORING  
 CONTAINMENT ISOLATION VALVE POSITION INDICATION

REF: NUREG-0797, "Safety Evaluation Report," Supplement 23 (SSER 23)

Gentlemen:

Attached is an advance FSAR change regarding the CPSES Accident Monitoring Program. The change corrects the FSAR to reflect that Remote Manual Containment Isolation Valve (CIV) position indication on the Emergency Response Facility (ERF) Computer is not required. These valves do not receive an automatic containment isolation signal. The valves are event-driven and opened or closed by the operator based on the post-accident plant conditions. Note that position indication for these valves is available in the Main Control Room plus lights on the control switches and/or on the monitor light boxes.

In the referenced SSER, the Staff indicated that the CPSES CIV position indication meets the US NRC Regulatory Guide (RG) 1.97, Revision 2 Category 1 requirements. The RG 1.97, Revision 2 requirement for Category 1 accident monitoring indication is that the information be continuously displayed and at least one redundant channel be recorded. Although the remote manual CIVs are continuously displayed via MLBs and/or lights at the control switches, ERF display is not available for recording nor is it considered required for these type valves. Valves that operate automatically upon receipt of a containment isolation signal have ERF display, and meet the intent of the Regulatory Guide and the Staff's SSER regarding Category 1 criteria for containment isolation valve position indication.

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To facilitate NRC Staff review of these changes, the attachment is organized as follows:

1. A marked-up copy of the revised FSAR pages (additional pages immediately preceding and/or following the revised pages are provided if needed to understand the change).
2. A description/justification of each item involved.
3. A copy of related SER/SSER sections.

A 10CFR50.59 evaluation was performed for the above change. The evaluation revealed that no unreviewed safety question is created as a result of the position indication for the subject valves not being wired to the ERF computer. This change will be included in a future amendment to the FSAR.

If you have any questions regarding this submittal, please contact Veronica Cornell at (214) 812-8886.

Sincerely,

*William J. Cahill, Jr.*

William J. Cahill, Jr.

By: *Roger D. Walker*

Roger D. Walker  
Manager of Nuclear  
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Attachment  
VPC/vld

c - Mr. R. D. Martin, Region IV  
Resident Inspectors, CPSES (2)  
Mr. Tom Bergman (NRR)  
Mr. Mel Fields (NRR)

ATTACHMENT TO TXX-92006

- |   |                  |
|---|------------------|
| 1. Marked-up copy of revised FSAR pages | pages 1 thru 21  |
| 2. Description/justification            | pages 22 thru 24 |
| 3. Related SER/SSER sections            | pages 25 thru 28 |

CPSES/FSAR

RESPONSE TO NRC ACTION PLAN

27 | The data set available to the TSC Data System will be complete  
| enough to permit accurate assessment of an accident without  
| interference with the control room emergency operation.

68 | The data set available to the ERF Computer System includes <sup>Category 1 and</sup> ~~the~~ applicable  
| Type A, B, C and E Accident Monitoring variables (as described <sup>Category 2</sup>  
| in FSAR Section 7.5) and ~~the~~ Type D Accident Monitoring  
| variables which are also identified as Type D variables in  
| Regulatory Guide 1.97, Rev. 2, Table 2.

47 | All sensor data and calculated variables used in the data set  
| for SPDS, EOF, or for transmission to offsite locations will be  
| available for display. The accuracy of the data displayed will  
27 | be substantially the same as the accuracy of comparable data  
36 | displayed in the control room. The time resolution of data  
| acquisition will be sufficient to provide data without loss of  
| information during transient conditions where that data is  
| necessary for operator action. The time resolution of each  
| sensor signal will respond on the potential transient behavior  
| of the variable being measured.

27 | Disk and tape storage and recall capability will be provided for  
| the TSC data set. Two hours of pre-event and 12 hours of post  
| event data will be recorded.

27 | The sample frequency will be consistent with the use of the  
| data. Capacity to record two weeks of additional post event  
| data will be provided. Archival data storage will be provided  
| automatically, and retrieval will be accomplished without  
36 | interrupting the TSC data acquisition function. The ERF  
| displays (3 of which will be provided in the CPSES TSC) if used  
| for data retrieval, will not be available for real time  
| parameters, but can be returned to on-line display service very  
| quickly.

CPSES T5AA  
TABLE 037-110-1  
Sheet 7 of 11

Requested Information for Variations in  
Table 2 of Reg. Guide 1.97 Row 2

Variable	Type/ Category	Quantity Tag Numbers	Redundance and Sensor Location (1)	Instrument Range (1)	Qn and Qualification (2)	Error Supply	Location of Display		Schedule of Installation or Upgrade
							CR	Location Upgrade	
NEUTRON FLUX	B1	2 PER UNIT NE-50A NE-50B	YES Figure 7.1-3	10 <sup>-6</sup> -2x10 <sup>2</sup> APPROP- 0.1-10 <sup>5</sup> cps (NR)	EQ, SQ, QA	IE	ERFCS MEDICATION	YES	-RST
	B1, D1	1 PER CONTROL ROD (51 RODS)	N/A AT VESSEL	0 to 228 steps	NONE	MIN IE	LED DISPLAY 3 PER ROD (NOTE 5)	NO	INJT
	B1	1 PER UNIT PASS	N/A FIGURE 11.B.3-1	500 TO 6000 ppm	EQ, SQ, QA (NOTE 17)	MIN IE	NO	NO	INJT
RCS SOLUBLE BORON CONCENTRATION	A1, B1, B2	1 PER LOOP TE-411A TE-421A TE-431A TE-441A	YES FIGURE 7.1-3	0-100ppm	EQ, SQ, QA	IE	ERFCS REDUHER FALL INDICATOR (LOOPS 1 & 2)	YES	ENBT

CPSES/FSAR  
TABLE 032.110-1  
(Sheet 2)

Requested Information for Variables in  
Table 2 of Reg. Guide 1.97, Rev 2

Variable	Type/Category	Quantity Tag	Reference and Sensor Location (15)	Instrument	Unit	Units	Location of Display (26)	Schedule of Installation or Upgrade
T (COLD)	A1, B1, B2	1 PER LOOP	YES	0-700°F	EQ, SQ, QA	IR	YES	YES
PCS (WR)	TE-4130		FIGURE 7.1-3				REACTOR	YES
	TE-4230						(ALL)	YES
	TE-4330						INDICATION	YES
	TE-4430						(LOOP 1 & 2)	YES
PCS PRESSURE (WR)	A1, B1, B2, C1, C2	3 PER UNIT	YES	0-3000 psig	EQ, SQ, QA	IR	REACTOR	YES
	PT-403		FIGURE 7.1-3				REACTOR	YES
	PT-3414						INDICATION	YES
	PT-437							YES
COSE EXIT TEMPERATURE	A1, B1, C1	25 PER TRAH	YES	0-2300°F	EQ, SQ, QA	IR	REACTOR	YES
	TE-001 to TE-050		FIGURE 7.1-3				INDICATION	YES
							(1 PER TRAH)	YES
							(9 TRAH)	YES
							(TEMP.)	YES
REACTOR VESSEL WATER LEVEL	B1, C2	2 PROBES PER UNIT	YES	UPPER CORE PLATE TO TOP OF REACTOR VESSEL	EQ, SQ, QA	IR	REACTOR	YES
	TE-3413A		FIGURE 7.1-3				INDICATION	YES
	TE-3413B						INDICATION	YES
PCS SUBCOOLING	A1, B1	2 PER UNIT	YES	-300 to 3000°F	EQ, SQ, QA	IR	REACTOR	YES
	TY-3411		FIGURE 7.1-3				INDICATION	YES
	TY-3412							YES

PSES/FSAR  
TABLE 6-2.110-1  
(Sheet 3)

Requested Information for Variables in  
Table 2 of Reg. Guide 1.97, Rev 2

Variable	Type/ Category	Quantity Tag Numbers	Redundance and Sensor Location (15)	Instrument Range (1)	QA and Qualification (25)	Power Supply	Location of Display		Schedule of Installation or Upgrade	
							CE Displays	(26) TSC/EOF Location		
CONTAINMENT WATER LEVEL	A1, B1 B2, C1, D2	2 PER UNIT LT-4779 LT-4781	YES	808" to 817"-6" FIGURE 7.1-3	EQ, SQ, QA	IE	ERPCS, INDICATION	YES	INST	66 66 66
CONTAINMENT PRESSURE (1H)	A1, B1 C2, D2	4 per unit PT-911 TO 912	YES	-5 to 60 psig FIGURE 7.1-3	EQ, SQ, QA	IE	ERPCS, INDICATION	YES	INST	69 70
CONTAINMENT ISOLATION VALVE STATUS	C2	1 PER VALVE (NOTE 19)	N/A AT VALVES	CLOSED/NOT CLOSED TABLE 6.2.4-1 AND ?	EQ, SQ, QA	IE	ERPCS, INDICATION (NOTE 27)	YES	INST	66 66 66 66
RADIATION LEVEL IN PRIMARY COOLANT	C3	1 PER UNIT PASS	N/A	10 uCi/ml to FIGURE 11.8.3-1	NONE EQ, SQ, QA (NOTE 17)	NON IE	NO	NO	INST	66 66 66

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CPSS/FSAR  
TABLE 032.110-1  
(Sheet 4)

Requested Information for Variables in  
Table 2 of Reg. Guide 1.97, Rev 2

Variable	Type/ Category	Quantity Tag Units	Redundancy and Sensor Location (15)	Instrument Range (1)	QA and Qualification (2)	Power Supply	Location of Display (3) Location Upgrade	Schedule of Installation or Upgrade	
ACCIDENT	C-3 PRIMARY 1 PER UNIT	M/A	N/A	10 uCi/ml to	EQ, SQ, QA	NON 18	NO	INBT	66
SAMPLING	COOLANT	PASS	FIGURE II B 3-1	10 CI/ml	(NOTE 17)	NON 18	NO	INBT	66
	E3 PRIMARY GROSS ACTIVITY			10uCi/ml to 10 CI/ml					66
	COOLANT AND GAMA SPECTRUM			ISOTOPIC ANALYSIS					66
	SIBON CONTENT			500 TO 6000 ppm					66
	CELORING CONTENT			25 ppb TO 3 ppm					66
CONTAINMENT	DISSOLVED HYDROGEN			0.5 TO 2000 cc/kg (STD)					66
	OR TOTAL GAS			0.1 TO 20 ppm					66
RAD LEVEL	DISSOLVED OXYGEN			0 20 14					69
	PH								70
	CONTAINMENT NITROGEN CONTENT			0.1 TO 10%					66
(SEE RANGES)	AIR	OXYGEN CONTENT		0.1 TO 20%					66
		GAMA SPECTRUM		ISOTOPIC ANALYSIS					69
	E2, C2, E1 2 PER UNIT	YES	FIGURE 7.1-3	1-10 <sup>7</sup> B/hr.	EQ, SQ, QA	18	YES	INBT	70
	PH-6790 A&B								66
									66
									66



CPSES FSMP

TABLE 01: 110-1

Sheet 5a

Requested Information for Variables in  
Table 1 of Reg. Guide 3.47, Rev. 2

Variable	Type/Category	Quantity Tag	Radius/Area and Sensor Location (15)	Instrument Range (1)	QR and (Qual. Fraction (2)) Supply	Power	Location of Display	Schedule of Installation or
		Number					Location	
COMPRESSOR	B1, C1	1 PER UNIT	N/A	10-5 TO	NONE	NONE	ERFCS, AND MONITOR CONSOLE	INST
52F-GAS RADIATION		RE-2959	FIGURE 7.1-3	10 <sup>-1</sup> uCi/cc	(NOTE 3)			
CONTAINMENT RETROGEN CONCENTRATION	B1, C1	4 PER UNIT AE-5505A THRU D	YES FIGURE 7.1-3	0-10A	EQ, SQ, QA	1E	ERFCS, INDICATOR (1 PER TRAIN)	INST
CONTAINMENT PRESSURE (WP)	C1, D2	2 PER UNIT PT-910 PT-919	YES FIGURE 7.1-3	0-150 psig	EQ, SQ, QA	1E	ERFCS, INDICATOR	INST
PLANT VENT EFFLUENT	C2, E2	1 PER UNIT STACK B-RE-5520 A & B	N/A FIGURE 7.1-3	10 <sup>-6</sup> - 10 <sup>5</sup> uCi/cc	NONE (NOTE 4)	NONE	ERFCS, AND MONITOR CONSOLE	INST
RADIACTIVITY AND FLUX				0-100,000 cfm				
AREA RAD. LEVELS	C1	13 PER UNIT RE-6259 A&B RE-6291 A&B RE-6292 THRU RE-6299 RE-5637 7 (SHARED)	N/A FIGURE 7.1-3	10 <sup>-1</sup> - 10 <sup>4</sup> R/hr	NONE	NONE	ERFCS, AND MONITOR CONSOLE	INST
ADJACENT CONTAINMENT				10 <sup>-4</sup> -10 <sup>0</sup> Ci/cc				
		ISE-6273 ISE-6275		10 <sup>-1</sup> -10 <sup>4</sup> uR/hr				

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CWSS/TEAM  
TABLE 032 110-1  
(Sheet 6)

Requested Information for Variables in  
Table 2 of Reg Guide 1.97, Rev 2

Variable	Type/ Category	Quantity Tag	Reference and Sensor Location [15]	Instrument Range [2]	rd and Qualification [25]	Power Supply	Location of Display CR Displays	Location of Display (25) Location Upgrade	Schedule of Installation or Upgrade
REFLENT	C2, E2	1 PER VENT STACK	N/A FIGURE 7.3-3	10-6 - 105 mCi/hr	NONE (NOTE 4)	NONE IS USED	YES	YES	INST
RADIOACTIVITY AND FLOW MABLE GASES AREAS		K HE-5570 A 4 B		0-140,000 cfm					
ADJUNCT									
COMPLIMENT									
PAW FLOW	D2	1 PER TANKIN PT-618 PT-619	N/A FIGURE 7.3-3	0-5500 gpm	EQ, QA (NOTE 7 AND 26)	NONE IS USED	YES	YES	INST
PAW WEST	D2	1 PER TANKIN	N/A	50-4000Y	EQ, QA	NONE IS USED	YES	YES	INST
RECHARGER		TE 604	FIGURE 7.3-3		(NOTE 7 AND 26)	RECORDED			
DIS-CHARGE		TE 605							
TEMPERATURE									
SI ACCUMULATOR TANK LEVEL	D3	2 PER TANK LT-950 TO 957	N/A FIGURE 7.3-3	6	NONE (NOTE 7 AND 8)	NONE IS USED	YES	YES	INST
SI ACCUMULATOR TANK PRESSURE	D2	2 PER TANK PT-960 TO 967	N/A FIGURE 7.3-3	0-700 psig	EQ, QA (NOTE 7 AND 26)	NONE IS USED	YES	YES	INST

CPALS-75MR  
 TABLE 311-120-1  
 Sheet 2

Requested Information for Variables in  
 Table 2 of Reg. Guide 3.97, Rev. 2

Variable	Type/ Category	Quantity Tag Numbers	Redundance and Sensor Location (15)	Instrument Range (1)	QA and Qualification (2) Supply	Power	Location of Display or Display	Schedule of Installation of Upgrade
SI ACCUMULATOR ISOLATION VALVE STATUS	D2	1 PER VALVE BOUSA, B, C, AND D	N/A AT VALVE	OPEN/CUT OPEN	EQ, SQ, QA	1E	ERRCS, INDICATION	YES INST
BORIC ACID CHARGING PUMP (NOTE 14)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CENTRIFUGAL CHARGING PUMP INJECTION FLOW (NOTE 14)	D2	1 PER UNIT FT-917	N/A FIGURE 7.1-1	0-1000 GPM	EQ, QA (NOTE 7 AND 26)	MIN 1E	ERRCS, INDICATION	YES INST
SAFETY INJECTION PUMP FLOW (REFI SYSTEM) (NOTE 14)	D2	1 PER PUMP FT-919 FT-922	N/A FIGURE 7.1-1	0-800 GPM	EQ, QA (NOTE 7 AND 26)	MIN 1E	ERRCS, INDICATION	YES INST
RWR FLOW (LFI SYSTEM) (NOTE 14)	D2	1 PER TRAIN FT-619 FT-619	N/A FIGURE 7.1-1	0-5500 GPM	EQ, QA (NOTE 7 AND 26)	MIN 1E	ERRCS, INDICATION	YES INST
RWMT LEVEL	A1, D2	4 PER UNIT LI-910 TO 913	YES FIGURE 7.1-1	0-100A	EQ, SQ, QA	1E	ERRCS, INDICATION	YES INST

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CPRES/FSAR  
 TABLE 932.110-1  
 (Sheet 8)

Requested Information for Variables in  
 Table 2 of Reg. Guide 1.97, Rev 2

Variable	Type/ Category	Quantity Tag Numbers	Redundancy and Sensor Location (15)	Instrument Range (1)	QA and Qualification (25) Supply	Location of Display		Schedule of Installation or Location Upgrade	
						CR Display	YES/ NO		
REACTOR COOLANT PUMP STATUS (NEUTRON CURRENT)	D2	1 PER NEUTRON 1PCF21 1PCF22 1PCF23 1PCF24	M/A AT SWITCHBOARD	0-800 amp	NON-IE	YES	YES	INST	66 66 66 66 66
PRESSURIZER POWY STATUS	D2	1 PER VALVE PCV-455A PCV-456	M/A AT VALVE	CLOSED/NOT CLOSED	IE	YES	YES	INST	66 66 66
PRESSURIZER SAFETY VALVE STATUS	D2	1 PER VALVE S010A S010B S010C	M/A AT VALVE	CLOSED/NOT CLOSED	IE	YES	YES	INST	66 66 66 66
PRESSURIZER LEVEL	A1, B1, D2	3 PER ONLY LT-459 LT-460 LT-461	YES FIGURE 7.1-3	0-100%	IE	YES	YES	INST	66 66 66 66
PRESSURIZER HEATER CURRENT	D2	1 PER HEATER NAME PCF2 PCF21 PCF22 PCF23	M/A AT SWITCHBOARD	0-100% AT SWITCHBOARD	IE	YES	YES	INST	76 66 66 66 66 66

CYSES/FSAP  
 TABLE 032 110 1  
 (Sheet 9)

Requested Information for Variables in  
 Table 2 of Reg Guide 1.97 Rev 2

Variable	Type/ Category	Quantity Tag Number	Reference and Sensor Location (15)	Instrument Range (1)	ON and Qualification (23)	Power Supply	Location of Display (26) Location Upgrade	Schedule of Installation or Upgrade
PRESSURIZER	D3	1 PER UNIT	N/A	0-100A	NONE	NON IS	YES	INST
RELIEF TANK		LT-470	FIGURE 7.1-3					
LEVEL (DRENCH TANK)								
PRESSURIZER	D3	1 PER UNIT	N/A	50-500% FIGURE 7.1-3	NONE	NON IS	YES	INST
RELIEF TANK		1X-468	FIGURE 7.1-3					
TEMPERATURE (DRENCH TANK)								
PRESSURIZER	D3	1 PER UNIT	N/A	0-100 psig	NONE	NON IS	YES	INST
RELIEF TANK		PT-459	FIGURE 7.1-3					
PRESSURE (DRENCH TANK)								
STEAM GENERATOR	B1, D2	1 PER STEAM GENERATOR	N/A	0-100A	EQ, EQ, QA	IS	YES	INST
WATER LEVEL (WR)		LT-501	FIGURE 7.1-3					
		LT-502						
		LT-503						
		LT-504						

CPSES/PJAB  
 TABLE 311' (11-1)  
 (Sheet 10)

Requested Information for Variables in  
 Table 1 of Reg Guide 1.9, Rev 2

Variable	Type/ Category	Quantity Tag Numbers	Redundancy and Sensor Location (15)	Isolation/ Range (11)	QA and Qualification (75) Supply	Location of Display		Schedule of Installation or Upgrade
						CR Display	TSC/DOF (2) Location Upgrade	
STEAM GENERATOR WATER LEVEL (MR)	A1, B1, D1	4 PER STEAM GENERATOR LT-517 TO 519 LT-527 TO 529 LT-537 TO 539 LT-547 TO 549 LT-551 TO 554	YES FIGURE 7.1-3	G-100% G-100%	EQ, SQ, QA 1E	ERFCS, INDICATION	YES	INST
MAIN STEAMLINE PRESSURE (S.C. PRESSURE)	A1, B1, D1	3 PER LOOP PT-514 TO 516 PT-524 TO 526 PT-534 TO 536 PT-544 TO 546	YES FIGURE 7.1-3	0-1300 psig	EQ, SQ, QA 1E	ERFCS, INDICATION	YES	INST
STEAM GENERATOR SAFETY VALVE STATUS	D1, E1	1 PER VALVE PV-2444R TO E PV-2445R TO E PV-2446R TO E PV-2447R TO E	N/A AT VALVE	CLOSED/WRT CLOSED	EQ, QA (INCL. 6 AND 76)	ERFCS	YES	INST

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TABLE F-306  
 TABLE F-311  
 (Sheet 11)

Requested Information for Variables in  
 Table of Requested Variables, Rev. 2

Variable	Type	Quantity	Redundancy	Instrument	QA and	From	Location of	Substrate of
	Category	Units	Location (on -15)	Range (1)	Qualification (2)	Supply	Displays	Installation
	DC, EI				EQ, SQ, QA	FE	(26) Location Upgrade	
STEAM GENERATOR	DC, EI	1 PER VALUE	H/A	CLOSED/NOT	EQ, SQ, QA	FE	ERRCS,	INST
PUMP STATUS		PT-2175 THRU	RT URINE	CLOSED			INDICATION	
		PV-1178		OPEN/NOT OPEN			(NOTE 20)	
MAIN FEEDWATER	DC	1 PER STEAM	H/A	0 TO 511.6	None	None	ERRCS,	INST
FLUM		VAL WITH	FIGURE 7 1-1	11-30			INDICATION,	
		FT-511					DEFINER	
		FT-511						
		FT-511						
		FT-511						
NO. 1 STEAM	AI, BI, DC	2 PER STEAM	YES	0-550 gpm	EQ, SQ, QA	IE	ERRCS,	INST
FEEDWATER PUMP		GENERATOR	FIGURE 7 1-1				INDICATION	
		FT-2163 A&B						
		FT-2164 A&B						
		FT-2155 A&B						
		FT-2156 A&B						
CUT WATER LEVEL	AI, BI	1 PER UNIT	YES	0-100%	EQ, SQ, QA	IE	ERRCS,	INST
		LT-1478	FIGURE 7 1-1				INDICATION	
		LT-1479						
CURRENT	DC	1 PER PUMP	N/A	0-1000 gpm	EQ, SQ, QA	IE	ERRCS,	INST
STRAY FLOW		FT-4171-1&2	FIGURE 7 1-1				INDICATION	
		FT-4173-1&2						

CFSES FSAR  
TABLE 032.110-1  
(Sheet 12)

Requested Information for Variables in  
Table 2 of Reg. Guide 1.97, Rev 2

Variable	Type/ Category	Quantity	Redundance	Instrument	QA and	Power	Location of Display		Schedule of	
		Tag	and Sensor				OR	ES/EOF		Installation or
		Numbers	Location (15)	Range (1)	Qualification (25)	Supply	Displays	(28) Location	Upgrade	
HEAT REMOVAL BY CONTAINMENT FAB HEAT REMOVAL SYSTEM (NOTE 10)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1 60 1 60 1 60 1 60 1 60
CONTAINMENT ATMOSPHERE TEMPERATURE	O2	4 PER UNIT TE-5400 TO TE-5403	N/A FIGURE 7.1-3	0 TO 360°F	EQ, SQ, QA	1E	ERFCS, INDICATION FOR AVERAGE TEMPERATURE	YES	INST	1 60 1 60 1 60 1 60
CONTAINMENT SUMP WATER TEMPERATURE (NOTE 11)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1 60 1 60 1 60
CVCS CHARGING SYSTEM MAKEUP FLOW	O2	1 PER UNIT FT-121	N/A FIGURE 7.1-3	0-200 gpm	NONE (NOTE 7 AND 22)	NONE 1E	ERFCS, INDICATION	YES	INST	1 60 1 76 1 60
CVCS LETDOWN FLOW	O2	1 PER UNIT FT-112	N/A FIGURE 7.1-3	0-200 gpm	NONE (NOTE 7 AND 22)	NONE 1E	ERFCS, INDICATION	YES	INST	1 60 1 76
VOLUME CONTROL TANK LEVEL	O2	1 PER UNIT LT-112	N/A FIGURE 7.1-3	0-100%	NONE (NOTE 7 AND 22)	NONE 1E	ERFCS, INDICATION	YES	INST	1 60 1 76



CPSES/TSMP  
 TABLE 032.110-1  
 (Sheet 13)

Requested Information for Variables in  
 Table 2 of Reg. Guide 1.97, Part 2

Variable	Type/ Category	Quantity Tag	Redundancy and Sensor Location (15)	Instrument Range (1)	QA and Qualification (25)	Power Supply	Location of Display		Schedule of Installation or Upgrade	
							CR Display	TCU/EUF (26) Location Upgrade		
COW HEADER TEMPERATURE	D2	1 PER HEADER	N/A	30-150°F	EQ, SQ, QA	1E	ERFCS, INDICATION	YES	INMT	66
		TE-4530	FIGURE 7.1-3							66
		TE-4534								66
COW FLOW	D2	1 PER TRAIN	N/A	0-20,000 gpm	EQ, SQ, QA	1E	ERFCS, INDICATION, RECORDER	YES	INMT	66
		FT-4536A	FIGURE 7.1-3							66
		FT-4537A								66
SERVICE WATER HEADER FLOW	D2	1 PER TRAIN	N/A	0-20,000 gpm	EQ, SQ, QA	1E	ERFCS, INDICATION, RECORDER	YES	INMT	66
		FT-4258	FIGURE 7.1-3							66
		FT-4259								66
MICH LEVEL RADIOACTIVE LIQUID TANK LEVEL (NOTE 12)	D3	1 PER TANK	N/A	0-100%	NONE	NONE 1E	NO	NO	INMT	69
		LT-1003	FIGURE 7.1-3							69
		X-LT-1001								69
RADIOACTIVE GAS WOLFF TANK PRESSURE (NOTE 12)	D3	1 PER TANK	N/A	0-150 psig	NONE	NONE 1E	NO	NO	INMT	66
		X-PT-1038	FIGURE 7.1-3							66
		TO 1039								66
	X-PT-1052								66	
	TO 1057								66	

CP&L/F&P  
 TABLE C32.110-1  
 (Sheet 14)

Requested Information for Variables in  
 Table 2 of Reg. Guide 1.97, Rev 2

Variable	Type/ Category	Quantity Tag Name	Redundancy and Sensor Location in W/A	Instrument Range CLOSE/OPEN	QA and Qualification EQ, SQ, QA	Power Supply IR	Location of Display CR Displays BIFCS, INDICATION	TIC/BOF (28) Location YES INST	Schedule of Installation or Upgrade
CR VENT DAMPER POSITION	D2	1 PER DAMPER X-HV-5826, 5829,	AT DAMPER	CLOSED					66
EMERGENCY VENTILATION DAMPER POSITION)		5825 ASB 5828 ASB 5857, 5858, 5883, X-PV-5855, X-FV-5856							65 66 66 66 66 66 66 66
		X HV-5831 5834, 5837 5838, 5839 5840, 5847 5848, 5851 5853		OPEN/NOT OPEN					66 66 66 66 66 66
VITAL BUS VOLTAGE AVAILABILITY	D2	1 PER BUS 1EA1, 1EA2 1ED1, 1ED2 1ED3, 1ED4 1EB1, 1EB2 1EB3, 1EB4 1 PER PANEL 1FC1, 1FC2 1FC3, 1FC4 1EC1, 1EC3 1EC2, 1EC4 1EC5, 1EC6	N/A AT SWITCH-GEAR	0-9000 VDC 100-150 VDC 0-600 VDC 0-150 VDC	EQ, SQ, QA	IR	BIFCS, INDICATION  BIFCS	YES INST	69 79 79 69 79  79 79 69 69 69 69

CPERS/FSAR  
TABLE 032.110-1  
(Sheet 15)

Requested Information for Variables in  
Table 2 of Reg. Guide 1.97, Rev 2

Variable	Type/ Category	Quantity	Redundance	Instrument Range (1)	GA and Qualification (25)	Power Supply	Location of Display		Schedule of Installation or Upgrade	
		Tag Numbers	and Sensor Location (15)				CR Displays	YSC/SC (28) Location		
CR AREA RADIATION	E3	2 PER FLIGHT IRE-6281 IRE-6282	N/A	10 <sup>-1</sup> - 10 <sup>4</sup> mR/hr	NONE	NON IE	ERFCS, RAD MONITOR CONSOLE	YES	INST	78 66 66
REAR PUMP ROOM AREA RADIATION	E3	1 PER ROOM RE-6260R RE-6260R	N/A	10 <sup>-1</sup> - 10 <sup>4</sup> R/hr (NOTE 21)	NONE	NON IE	ERFCS, RAD MONITOR CONSOLE	YES	INST	76 76 66
PASS ROOM AREA RADIATION	E3	1 PER ROOM RE-6261	N/A	10 <sup>-1</sup> - 10 <sup>4</sup> mR/hr	NONE	NON IE	ERFCS, RAD MONITOR CONSOLE	YES	INST	76 66 66
FLIGHT VENT STACK SAMPLE AREA RADIATION	E3	2 PER SITE 1-RE-6259 2-RE-6259	N/A	10 <sup>-1</sup> - 10 <sup>4</sup> mR/hr	NONE	NON IE	ERFCS, RAD MONITOR CONSOLE	YES	INST	76 66 66
LAB AREA RADIATION	E3	1 PER SITE 1-RE-6283	N/A	10 <sup>-1</sup> - 10 <sup>4</sup> mR/hr	NONE	NON IE	ERFCS, RAD MONITOR CONSOLE	YES	INST	76 66 66

Requested Information for Variables in  
Table 2 of Reg. Guide 1.97, Rev 2

Variable	Type/ Category	Quantity Tag Numbers	Redundance and Sensor Location (15)	Instrument Range (1)	QA and Qualification (25)	Power Supply	Location of Display		Schedule of Installation or Upgrades	
							CR Displays	TSC/DOF (28) Location		
COMMON PLANT VENT INCLUDING CONTAINMENT PURGE, AUXILIARY BUILDING AND OTHER AREAS NOBLE GASES, VENT FLOW, PARTICULATES, AND HALOGENS	C2, E2	1 PER VENT STACK X-RE-5570 A&B	N/A FIGURE 7.1-3	10 <sup>-6</sup> - 10 <sup>5</sup> µCi/cc 0-140,000 cfm	NONE (NOTE 4)	NONE N/A	ERFCS, RAD MONITOR CONSOLE	YES	INST	76 76 86 86 86 86 86
REACTOR SHIELD BUILDING AIRBILLS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	86 86
MAIN STEAMLINE RADIATION	E2	1 PER STEAMLINE RE-2325 RE-2326 RE-2327 RE-2329	N/A FIGURE 7.1-3	10 <sup>-3</sup> - 10 <sup>3</sup> µCi/cc	NONE (NOTE 3)	NONE N/A	ERFCS, RAD MONITOR CONSOLE	YES	INST	76 76 86 86 86 86
RADIATION EXPOSURE METERS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	86 86
ENVIRONS RADIATION	E1	AS REQUIRED (PORTABLE)	N/A	10 <sup>-3</sup> - 10 <sup>4</sup> R/HR FOR PHOTONS 10 <sup>-3</sup> - 10 <sup>4</sup> RADS/HR FOR BETA AND LOWER ENERGY PHOTONS	NONE	SELF CONTAINED BATTERY	NO	NO	N/A	76 76 76 76 76 76

CPSES/FSAR  
TABLE 032.110-1  
(Sheet 17)

Requested Information for Variables in  
Table 2 of Reg. Guide 1.97, Rev 2

Variable	Type/ Category	Quantity	Redundance	Instrument	QA and	Power	Location of Display		Schedule of	
		Type	and Sensor				CR	TSC/NOF		
		Numbers	Location (15)	Range (1)	Qualification (25)	Supply	Displays	(28) Locat: Upgrade		
WIND DIRECTION	E3	3 PER SITE	N/A	0-540	NONE	NOM 1E	ERFCS,	YES	INST	69
		X-SE-4115	METEOROLOGICAL	DEGREES			RAD MONITOR			69
		X-SE-4116	TOWERS				CONSOLE,			69
		X-SE-4126					RECORDER			69
WIND SPEED	E3	3 PER SITE	N/A	0-100 mph	NONE	NOM 1E	ERFCS,	YES	INST	66
		X-SE-4117	METEOROLOGICAL				RAD MONITOR			69
		X-SE-4118	TOWERS				CONSOLE,			69
		X-SE-4128					RECORDER			69
ATMOSPHERIC STABILITY	E3	2 PER SITE	N/A	-5 TO +15°F	NONE	NOM 1E	ERFCS,	YES	INST	78
		X-TY-4119	METEOROLOGICAL				RAD MONITOR			66
		X-TY-4120	TOWERS				CONSOLE, RECORDER			66 66

CPSRS/FSAR  
TABLE 032.110-1  
(Sheet 18)

Requested Information for Variables in  
Table 2 of Reg. Guide 1.97, Rev 2

Variable	Type/ Category	Quantity	Redundance	Instrument	QA and	Power	Location of Display		Schedule of	
		Tag	and Sensor				CR	TSC/SOF		
		Numbers	Location (15)	Range (1)	Qualification (25)	Supply	Displays	(X) Location	Upgrade	
POST ACCIDENT SAMPLING SYSTEM	R3	1 PER UNIT	N/A	10 uCi/ml to	EQ, SQ, QA	NON IE	NO	NO	INST	66
		PASS	FIGURE 11.8.3-1	10 Ci/ml	(NOTE 17)					66
										66
	PRIMARY	GROSS ACTIVITY		10 uCi/ml to 10 Ci/ml						66
	COOLANT AND CONDENSER	GAMMA SPECTRUM		ISOTOPIC ANALYSIS						66
	AND SUPP	BORON CONTENT		500 TO 6000 ppm						66
		CHLORIDE CONTENT		25 ppb to 5 ppm						66
		DISSOLVED HYDROGEN		0.5 TO 2000 cc/kg(STP)						66
		OR TOTAL GAS								66
		DISSOLVED OXYGEN		0.5 TO 20 ppm						69
		pH		0 TO 14						78
	CONTAINMENT AIR	HYDROGEN CONTENT		0.1 TO 10%						66
		OXYGEN CONTENT		0.1 TO 30%						66
		GAMMA SPECTRUM		ISOTOPIC ANALYSIS						69

CPSES/FSAR

TABLE 032.110-3

Notes for Table 032.110-1 and 032-110-2  
(Sheet 3)

Instrumentation Summary Data

- |     |   |    |
|-----|---|----|
| 18. | "*Various" for Range means that different positions are monitored for different valves including open/not open and/or closed/not closed and/or intermediate positions.  | 66 |
| 19. | All valves listed in FSAR Table 6.2.4-2 except <sup>local</sup> manual, check, relief and safety valves.  | 66 |
| 20. | ERFCS displays the valve position requirements (e.g. Closed/Not Closed) of Reg. 1.97, Rev. 2 Table 2.   | 66 |
| 21. | Deleted.  | 76 |
| 22. | These parameters are D2 variables as they monitor other systems normally employed for safe shutdown but are not required during or following an accident (per section 7.5.1.1.1). When required, these instruments are in a mild environment and therefore do not require environmental qualification.  | 66 |
| 23. | Only CR Ventilation dampers are listed on Table 032.110-1 because we understand that the intent of the variable "Emergency Ventilation Dampers" in Table 2 of Regulatory Guide 1.97, Rev. 2, was limited to the dampers required to realign the Control Room Ventilation System for its post-accident emergency ventilation modes. At CPSES, we have included additional ESF ventilation parameters as accident monitoring variables (See Table 032.110-2). | 66 |
| 24. | Table 032.110-2 does not identify which variables are displayed in the Control Room, on the ERF Control Console, in the TSC or in the EOF as these displays are not required by Reg. Guide 1.97, Rev. 2, Table 2.   | 66 |

Instrumentation Summary Data

25. For Category 2 and 3 non-IE instrumentation, environmental qualification, seismic qualification and quality assurance requirements are not listed if not required by the accident monitoring program. | 66
26. QA is provided as necessary to support Environmental Qualification. | 66
27. <sup>POSITION 11/20/91</sup> ~~POSITIVE~~ INDICATION IS NOT REQUIRED IN THE ERF COMPUTER FOR REMOTE MANUAL VALVES.
28. SEE RESPONSE TO THE NRC ACTION PLAN DEVELOPED AS A RESULT OF THE TMI-2 ACCIDENT, SECTION III.A.1.2.



FSAR Page  
(as amended)

Group Description

- |                     |   |  |
|---------------------|---|--|
| TMI III.A-12        | 2 | Accident monitoring position indication for containment isolation valves<br>Correction:<br>Revised FSAR to clarify the accident monitoring instrumentation data set which is available on the ERF computer. The data set includes Category 1 and applicable Category 2 Type A, B, C, and E accident monitoring variables and Type D accident monitoring variables as identified in Table 2 of RG 1.97 Revision 2. A specific listing of each accident monitoring parameter available on the ERF computer is identified in the existing FSAR accident monitoring tables.<br>FSAR Change Request Number: 91-179.6<br>Related SSER Section: SSER23 7.5.2<br>SER/SSER Impact: No |
| Q&R Table 032.110-1 | 2 | See Sheet No(s):01 thru 18<br>Accident monitoring position indication for containment isolation valves<br>Correction:<br>Adds Note 28 to clarify the requirements for accident monitoring instrumentation displays for the TSC and EOF.<br>FSAR Change Request Number: 91-179.1<br>Related SSER Section: SSER23 7.5.2<br>SER/SSER Impact: No   |
| Q&R Table 032.110-1 | 2 | See Sheet No(s):03<br>Accident monitoring position indication for containment isolation valves<br>Correction:<br>Added "Note 27" to containment isolation valve accident monitoring control room displays to reflect that remote manual valves do not have ERF displays.<br>FSAR Change Request Number: 91-179.2<br>Related SSER Section: SSER23 7.5.2<br>SER/SSER Impact: Yes<br>SSER 23 section 7.5.2 indicates that containment isolation valve position indication instrumentation meets the RG 1.97 Category 1 criteria.  |
| Q&R Table 032.110-3 | 3 | See Sheet No(s):03<br>Accident monitoring position indication for containment isolation valves<br>Correction:<br>Revised Note 19 to clarify that "local" manual versus "remote" manual valves are excluded from the containment isolation valves listed in FSAR Table  |

FSAR Page  
(as amended)Group Description

6.2.4-2.

FSAR Change Request Number: 91-179.3

Related SSER Section: SSER23 7.5.2

SER/SSER Impact: Yes

SSER 23 Section 7.5.2 references manually operated containment isolation valves, but does not specifically differentiate between "local" and "remote" manual valves.

Q&amp;R Table 032.110-3

2

See Sheet No(s):03

Accident monitoring position indication for containment isolation valves

Correction:

Added Note 27 to reflect that position indication on the ERF computer for remote manual containment isolation valves (CIVs) is not required. The remote manual CIVs do not receive an automatic containment isolation signal. These valves are event-driven and controlled by the operator based on the post accident conditions. The RG 1.97 requirement for Category 1 accident monitoring indication is that the information be continuously displayed and at least one redundant channel be recorded. Although these valves are continuously displayed via MLBs and/or status lights at the control switches, ERF display is not available for recording nor is it considered required. Containment isolation valves which operate automatically upon receipt of a containment isolation signal have ERF displays in the control room, TSC and EOF. For remote manual CIVs, direct and immediate trend or transient information is considered not essential for operator information or action short-term. Long term the operator maintains awareness of the valve position via control board displays. The TSC and EOF staffs are only concerned with the affect of valve position on the respective system performance. The TSC and EOF staffs would be aware of manipulations of the remote manual CIVs via the control room interface required as part of the Emergency Response organization. Thus, ERF computer position indication for the remote manual CIVs is not required for essential functions of the TSC or EOF.

FSAR Change Request Number: 91-179.4

Related SSER Section: SSER23 7.5.2

SER/SSER Impact: Yes

SSER 23 section 7.5.2 indicates that containment isolation valve position indication instrumentation meets the RG 1.97 Category 1 criteria.

Q&amp;R Table 032.110-3

2

See Sheet No(s):04

Accident monitoring position indication for containment isolation valves

FSAR Page  
(as amended)

Group Description

Correction:

Adds Note 28 to clarify the accident monitoring instrumentation display requirements for the TSC and EOF. Note 28 cross references TMI Section III.A.1.2 which provides the basis for the accident monitoring instrumentation data available to the TSC and EOF staffs, which includes Category 1 and applicable Category 2, Type A, B, C and E accident monitoring variables and Type D accident monitoring variables that are identified as such in RG 1.97, Revision 2, Table 2.

FSAR Change Request Number: 91-179.5

Related SSER Section: SSER23 7.5.2

SER/SSER Impact: No

has a range of 50°F to 700°F. Revision 3 of RG 1.97 recommends a range of 50°F to 700°F for this instrumentation. Therefore, the range supplied by the applicant for this instrumentation is acceptable.

#### Reactor Coolant System Hot-Leg Water Temperature

RG 1.97 recommends a control room display with a range from 50°F to 750°F for this variable. The instrumentation provided by the applicant for this variable has a range of 50°F to 700°F. Revision 3 of RG 1.97 recommends a range of 50°F to 700°F for this instrumentation. Therefore, the range supplied by the applicant for this instrumentation is acceptable.

#### Reactor Coolant Level

RG 1.97 recommends reactor coolant level instrumentation with a range from the bottom of the core to the top of the reactor vessel. The instrumentation provided by the applicant has a range covering from the upper core plate to the top of the reactor vessel. Revision 3 of RG 1.97 recommends a range from the bottom of the hot leg to the top of the reactor vessel for this instrumentation. The instrumentation provided by the applicant meets this range. Therefore, the range supplied by the applicant for this instrumentation is acceptable.

#### Containment Sump Water Level

RG 1.97 recommends both narrow-range and wide-range (up to 600,000 gal) instrumentation for containment sump water level. The applicant has provided wide-range instrumentation that has indication from 808 ft to 817 ft 6 in. There is no separate narrow-range instrumentation for this variable. The applicant stated that the wide-range instrumentation displays the entire range of expected postaccident levels in the containment and includes the information that the recommended narrow-range instruments would display. Because the wide-range instruments are inclusive of the narrow-range recommendations, the staff finds the instrumentation supplied for this variable acceptable.

#### Containment Isolation Valve Position

The applicant identified an exception to RG 1.97 for this variable in that the manually operated containment isolation valves do not have the recommended valve position-indication instrumentation. Those containment isolation valves that are operated automatically have the recommended position-indication instrumentation for each valve. The applicant provided documentation which states that all manually operated containment isolation valves are administratively controlled and locked in the closed position. Thus, the operator is aware of the position of these valves in a postaccident situation. Because the operator is aware that these valves are locked closed and has indication for the automatically operated isolation valves, the staff finds the instrumentation provided for containment isolation valve position acceptable.

Additionally, the applicant's containment isolation valve position-indication instrumentation deviates from a strict interpretation of the Category 1 recommendation for redundant instrumentation. There is one open/closed limit switch per automatic valve with indication at the control switch and at monitor light boxes. Since redundant isolation valves are provided, the staff finds that the regulatory guide does not intend redundant indication per valve. There is redundant indication of the isolation function. The containment isolation valve

position-indication instrumentation meets the Category 1 criteria. Therefore, the staff finds that the instrumentation provided is acceptable.

#### Residual Heat Removal Exchanger Outlet Temperature

RG 1.97 recommends instrumentation with a range from 32°F to 350°F for this variable. The instrumentation provided by the applicant for this variable has a range of 50°F to 400°F, an 18° deviation in the lower limit of the range. The applicant provided documentation which states that the 50°F-to-400°F range covers the anticipated requirements for normal operation, anticipated operational occurrences, and accident conditions. On the basis of this statement, the staff finds the provided range acceptable.

#### Accumulator Tank Level and Pressure

RG 1.97 recommends instrumentation with ranges from 10 percent to 90 percent of the accumulator tank volume for level and from zero to 750 psig for the accumulator tank pressure. The applicant has designated pressure as the key instrumentation for this variable and has supplied Category 2 pressure instrumentation. Category 3 level instrumentation is acceptable as backup instrumentation to the Category 2 pressure instrumentation. The supplied instrumentation has ranges from zero to 100 percent (level) and zero to 700 psig (pressure). The applicant provided documentation which states that both ranges cover the anticipated requirements for normal operation, anticipated operational occurrences, and accident conditions. On the basis of this statement, the staff finds the provided ranges acceptable.

#### Flow in Low-Pressure Injection System

RG 1.97 recommends Category 2 instrumentation for this variable. Section 7.5 of the FSAR does not address this variable; however, from previously submitted material for the CPJES design, low-pressure injection is a residual heat removal (RHR) system function. The RHR flow is monitored by Category 2 instrumentation in accordance with RG Guide 1.97. Therefore, the staff finds the instrumentation provided for this safety-injection function acceptable.

#### Boric Acid Charging Flow

RG 1.97 recommends Category 2 instrumentation for this variable to monitor safety-injection flow. Section 7.5 of the FSAR states that in the CPSES design, this safety-injection flow is established by the centrifugal charging pump. The centrifugal charging pump flow is monitored by Category 2 instrumentation in accordance with RG 1.97. Therefore, the staff finds the instrumentation provided for this safety-injection function acceptable.

#### Quench Tank Temperature

RG 1.97 recommends instrumentation with a range from 50°F to 750°F for this variable. The instrumentation provided by the applicant for this variable has a range from 50°F to 350°F. The applicant provided documentation which states that the 50°F-to-350°F range covers the anticipated requirements for normal operation, anticipated operational occurrences, and accident conditions. This is related to the design pressure (100 psig) of the tank and the corresponding saturated steam temperature at this pressure. On the basis of this statement, the staff finds the provided range acceptable.

Accident Sampling (Primary Coolant, Containment Air, and Sump)

The postaccident sampling system provided by the applicant includes sampling and analysis as recommended by RG 1.97 except for the following deviations:

- (1) Boron content--The minimum observable concentration is 500 ppm.
- (2) Chloride content--The minimum observable concentration is 25 ppm.  
--The maximum observable concentration is 5 ppm.
- (3) Dissolved hydrogen--The minimum observable concentration is 0.5 cc/kg.
- (4) Dissolved oxygen--The minimum observable concentration is 0.1 ppm.
- (5) Hydrogen content--The minimum observable concentration is 0.1 percent.
- (6) Oxygen content--The minimum observable concentration is 0.1 percent.

Additionally, there is no display in the control room.

The applicant deviates from RG 1.97 with respect to postaccident sampling capability. The staff addressed this deviation in its review of NUREG-0737, Item II.B.3, and finds it acceptable.

Environmental Qualification, Indication, and Recording

Table 7.5.-1 of the FSAK states that environmental qualification will be provided "as appropriate" for Category 2 variables. The applicant provided clarifying documentation which indicated that the instrumentation supplied for Category 2 variables is either environmentally qualified (per 10 CFR 50.49) or is located in a mild environment for the length of time that the instrumentation was designed to function. The applicant also indicated that Category 2 instruments are either environmentally qualified or located in a mild environment in accordance with the recommendations of RG 1.97. This is in accordance with RG 1.97 and is acceptable.

Table 7.5.1 of the FSAR states that the indication for Category 1 variables is "immediately accessible." RG 1.97 recommends continuous indication for Category 1 variables. The applicant provided documentation stating that as a minimum, all Category 1 variables are continuously displayed or are available for display on demand. The applicant also provided documentation stating that each channel of Category 1 instrumentation has a dedicated indicator, recorder, or display device satisfying this recommendation. With this clarification, the staff finds the Category 1 indicators, recorders, and display devices acceptable.

Table 7.5-1 and Section 7.5.1.3.1.4 of the FSAR state that the emergency response facility (ERF) computer is the device used for recording the Category 1 variables. The applicant provided documentation describing this capability. Instrumentation/computer isolation is provided by qualified Class 1E optical isolation devices for Class 1E equipment. The ERF computer was designed to meet the requirements of Supplement 1 of NUREG-0737. On the basis of this description of the recording capability of the ERF computer and the described isolation between Category 1 and Category 2 instrumentation and the ERF computer, the staff finds the recording capability provided acceptable.

The CIV status indication is provided by unique monitor light boxes located on the main control board and by indicator lights that are part of each CIV control switch assembly. Pattern recognition (all monitor light boxes lit or unlit) quickly alerts the operator to the valve position. The CIV control switches are already color coded in accordance with the associated safety train and power source. Additional color coding is deemed by the applicant to be potentially confusing. On the basis of this justification, the staff finds the identified deviations in instrument identification acceptable.

#### Isolation of Category 2 Instrumentation

The applicant provided documentation stating that those Category 2 instrument loops that are powered by Class 1E power and feed signals to other systems have approved isolation devices. Those Category 2 instrument loops that are powered by other Category 2 (but not Class 1E) power sources either do not feed signals to other systems or have similar isolation devices. On the basis of the described isolation devices where signals cross from Category 2 instrumentation to other systems, the staff finds the isolation provided for these Category 2 instrument channels acceptable.

#### Containment Atmosphere Temperature

RG 1.97 recommends instrumentation for this variable with a range from 40°F to 400°F. The instrumentation provided by the applicant has a range from zero to 360°F. The applicant provided documentation stating that the peak postaccident containment temperature is 345°F. On this basis, the staff finds the provided zero to 360°F range acceptable.

#### Containment Pressure

RG 1.97 recommends instrumentation for this variable with a range of 10 psig to 3 times the design pressure of 50 psig. The applicant provided documentation stating that this range is covered by two sets of instruments--the intermediate-range instruments that have a range of -5 to 60 psig and the wide-range instruments that have a range of zero to 150 psig. With the use of these two sets of instruments, the staff finds the ranges provided for this variable acceptable.

#### Radiation Level in Circulating Primary Coolant

The applicant stated in its March 31, 1989 letter that radiation level measurements to indicate fuel cladding failure are provided by the postaccident sampling system, which has been reviewed by the NRC as part of the staff's review of NUREG-0737, Item II.B.3. The staff finds this alternative instrumentation acceptable for meeting the recommendations of RG 1.97.

#### 7.5.4 Conclusions

On the basis of its review of the submittals provided by the applicant, the staff concludes that the CPSES Units 1 and 2 design is acceptable with respect to conformance to RG 1.97, Revision 2. Outstanding Issue 2 in SSER 22 is, therefore, resolved.