

Nebraska Public Power District

GENERAL OFFICE
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April 16, 1984

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

- Reference: 1) Letter from J. M. Pilant to D. G. Eisenhut dated March 1, 1984, "Response to NUREG-0737, Supplement 1 - Regulatory Guide 1.97"
- 2) BWR Owners Group, Position on NRC Regulatory Guide 1.97, Revision 2, July 1982

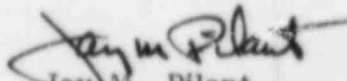
Dear Mr. Eisenhut:

Subject: NUREG-0737, Supplement 1 - Regulatory Guide 1.97

Reference 1 provided the District's status and schedule for implementation of Regulatory Guide 1.97 requirements. The purpose of this letter is to provide, on the docket, the BWR Owners Group position on Regulatory Guide 1.97, Revision 2, Reference 2. This will assist the Staff's review regarding the District's commitments for Cooper Nuclear Station. The District is also correcting some typographical errors which appeared on the enclosures to Reference 1.

In addition to a copy of the BWR Owners Group position, eight revised copies of the District's submittal are enclosed for the Staff's use. Two additional copies are being provided directly to our NRC Project Manager to expedite the review process.

Sincerely,


Jay M. Pilant
Technical Staff Manager
Nuclear Power Group

JMP:rt16/3
Enclosures

cc: J. T. Collins
U. S. Nuclear Regulatory Commission

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1/8*

8405020305 840416
PDR ADOCK 05000298
F PDR

<u>React Vessel Control</u>	<u>Need runs Flow</u>	<u>Control Rod Position</u>	<u>B-1</u>	<u>Function Detection; Accomplishment of Mitigation</u>	<u>SOP's, IPR's</u>	<u>10⁻⁶ to 12% Full Power</u>	<u>Not Qualified</u>
		Full In or Not Full In	B-1	Verification	RPT	Full In or Not Full In	N/A
		0 to 1,000 ppm	B-1	Verification	PSS	0-1000 PPM	N/A
<u>Cooling</u>							
<u>Coolant Level in Reactor</u>		Bottom of Core Support Plate to Insurer of Top of Vertical or Certification of Main Stream Line	A-1 B-1	Function Detection; Accomplishment of Mitigation; Long-Term Surveillance	NBI-A1-52A,B,C HC-A5-95, 92, 91 HC-A8-121A,B,C HC-A1-90A,B,C	0-60"	W/C HCHRSO, 49 Mild Environment Mild Environment Mild Environment
		200°F to 280°F	B-1 C-1	To Provide Diverse Indication of Water Level	NBI-A1-70 HC-A5-111 HC-A8/PB-98	0-69.5"	W/C HCHRSO, 49 Mild Environment Mild Environment
<u>Mainstreaming Reactor Coolant System Integrity</u>							
		15 psia to 1500 psig	A-1 B-1 C-1	Function Detection; Accomplishment of Mitigation; Verification	NBI-P1-6A,B PC-II-5A, 30 PC-SC-3A, 30 NBI-PB-1A, 1B	0 - 1500 psig	W/C HCHRSO, 49 Mild Environment Mild Environment Mild Environment
<u>Drywell Pressure</u>		0 to Design Pressure (D.P. ± 56 psig)	A-1 B-1	Function Detection; Accomplishment of Mitigation; Verification	PC-P1-512A,B PC-B-(PWS12-A811) PC-P1-AA1, 4B2 PC-II-3A, 30 PC-PB-2A, 2B PC-PB-1A, 1B	0 - 80 psia 0 - 250 psia	W/C HCHRSO, 49 Mild Environment W/C HCHRSO, 49 Mild Environment Mild Environment
<u>Drywell Sump Level</u>		Bottom to top	B-1	Function Detection; Accomplishment of Mitigation; Verification	None	-	
<u>Mainstreaming Containment Integrity</u>							
		10 psia to Design Pressure	B-1	Function Detection; Accomplishment of Mitigation; Verification	PC-P1-512A,B PC-B-(PWS12-A811)	0 - 80 psia	W/C HCHRSO, 49 Mild Environment
<u>Primary Containment Pressure</u>		Closed - Not Closed	B-1	Accomplishment of Isolation	PC-A0-237AV-I, 5, PC-A0-238AV-I, 5, PC-A0-243AV-I, 5,	Closed-Not Closed Closed-Not Closed Closed-Not Closed	C/W HCHRSO, 49 C/W HCHRSO, 49 C/W HCHRSO, 49

SEISMIC STATUS	2 QA STATUS	REDUNDANCY STATUS	POWER SUPPLY	CR DISPLAY	REQUIRED FOR USE	REQUIRED FOR EOP	INPUT TO PMIS	SCHEDULE	DEVIATIONS
Status A	B	R.G. 1.75	NBPP RPS	Indicators	Yes	Yes	Yes	Will install SIM alarm during 1986 refueling outage	Will implement as Category 3. Implementation includes taking exception to lower flux limit. See BWROG Position, Issue 2.
Status A	B	None	NBPP RPS	Indicators	Yes	Yes	All rods in only	Done	None
None	C	None	LPM2A	None	No	No	No	Done	None
R.G. 1.100	A	R.G. 1.75	EE-AAZ-2 EE-BB2-3 EENBPP-4	Recorders and Indicators - Both Channels	Yes	Yes	Yes	Will install Compensated Water Level System during 1986 refueling outage	None
R.G. 1.100	A	Single Channel	EENBPP-4	Recorder - Single Channel				Modifications scheduled for March 31 1985 completion	
N/A	N/A	N/A	N/A	N/A	No	No	No		Will not implement. Reference BWROG Position, Appendix A.
R.G. 1.100	A	R.G. 1.75	IE (RPS)	Indicators and Recorders Both Channels	Yes	Yes	Yes	Installed, Documentation Incomplete. March 31, 1985 completion scheduled.	None
R.G. 1.100	A	R.G. 1.75	IE	Recorder - Both Channels	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	None
R.G. 1.100	A	R.G. 1.75	IE (RPS)	Indicators and Recorders Both Channels	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	
					Yes	Yes	Yes	Will install during 1986 refueling outage	Will implement as Category 3. Reference BWROG Position, Issue 4.
R.G. 1.100	A	R.G. 1.75	EE-PNL-CCP1B(1)	Recorders - Both Channels	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	None
Status B	B	R.G. 1.75	EE-PNL-CCP1B(7)	Indicator	Yes	Yes	Yes	Done	None
Status B	B	R.G. 1.75	EE-PNL-CCP1B(7)	Lights	Yes	Yes	Yes	Done	
Status B	B	R.G. 1.75	EE-PNL-CCP1A(9)	Lights	Yes	Yes	Yes	Done	

VARIABLE	RANGE REQUIRED IN R.G. 1.97	TYPE - CATEGORY	PURPOSE	CORRECTOR CIC NUMBER	INSTALLED RANGE	EQ-STATUS	
Primary Containment Isolation Valve Position (Continued)				PC-A0-246AV-1, 5.	Closed - Not Closed	C/W 10CFR50.49	
				PC-A0-235AV-1, 5.	Closed - Not Closed	W/C 10CFR50.49	
				PC-A0-236AV-1, 5.	Closed - Not Closed	W/C 10CFR50.49	
				PC-M0-230HV	Closed - Not Closed	C/W 10CFR50.49	
				PC-M0-231HV	Closed - Not Closed	C/W 10CFR50.49	
				PC-M0-232HV	Closed - Not Closed	C/W 10CFR50.49	
				HW-A0-732-1, 5.	Closed - Not Closed	C/W 10CFR50.49	
				HW-A0-733-1, 5.	Closed - Not Closed	C/W 10CFR50.49	
				HW-A0-765-1, 5.	Closed - Not Closed	C/W 10CFR50.49	
				HW-A0-766-1, 5.	Closed - Not Closed	C/W 10CFR50.49	
				PC-M0-239HV	Closed - Not Closed	C/W 10CFR50.49	
				MS-A0-A070A,B,C,D-1, 5.	Closed - Not Closed	W/C 10CFR50.49	
				MS-A0-A091A,B,C,D-1, 5.	Closed - Not Closed	W/C 10CFR50.49	
				MS-M0-M074	Closed - Not Closed	C/W 10CFR50.49	
				MS-M0-M077	Closed - Not Closed	C/W 10CFR50.49	
				HPCI-M0-M015	Closed - Not Closed	C/W 10CFR50.49	
				HPCI-M0-M016	Closed - Not Closed	C/W 10CFR50.49	
				RCIC-M0-M015	Closed - Not Closed	W/C 10CFR50.49	
				RCIC-M0-M016	Closed - Not Closed	W/C 10CFR50.49	
				PC-M0-305	Closed - Not Closed	C/W 10CFR50.49	
				PC-M0-306	Closed - Not Closed	C/W 10CFR50.49	
				RWCU-M0-15	Closed - Not Closed	C/W 10CFR50.49	
				RWCU-M0-18	Closed - Not Closed	C/W 10CFR50.49	
<u>Reactor Coolant Pressure Boundary</u>							
Primary Containment Area Radiation	1 R/hr to 10 ⁵ R/hr	E-5	Detection of Breach; Verification	RMA-RE-40A,B RMA-RM-40A,B RMA-10-40A,B (RMA-RR-40 for A and B)	1R/hr to 10 ⁷ R/hr	W/C 10CFR50.49 Mild Environment Mild Environment Mild Environment	
Drywell Drain Sump Level (Identified and Unidentified Leakage)	Bottom to Top	E-1	Detection of Breach; Accomplishment of Mitigation; Verification Long-Term Surveillance	None	None		
Suppression Pool Water Level	Bottom of ECCS Suction Line to 5' Above Normal Water Level	A-1	Detection of Breach; Accomplishment of Mitigation; Verification Long-Term Surveillance	PC-L1-11	26' Normal Water Line	W/C 10CFR50.49	
		E-1		PC-R-(PR512-1R11) (Blue Pen)			
				PC-DPT-3A1, 3B2		0 - 30" (866" - 896")	W/C 10CFR50.49
				PC-IL-2A, 2B			Mild Environment
				PC-5C-1A, 1B			Mild Environment
				PC-4R-1A, 1B		Mild Environment	

SATISFACTION	QUALIFICATION	REQUIREMENTS	POLICY	COR	RE QUALIFIED FOR TSC	RE QUALIFIED FOR EOE	IMPULSE TO PMS	STATUS	DEFINITIONS
Station B	B	R.G., 1-75	EE-PNL-CCTB(7)	Indicator Light A	Yes	None	None	None	None
Station B	B	R.G., 1-75	EE-PNL-CCTA(9)	Indicator Light A	Yes	None	None	None	None
Station B	B	R.G., 1-75	EE-PNL-CCTA(9)	Indicator Light A	Yes	None	None	None	None
Operator Qualified to G's	B	R.G., 1-75	EE-AEC-AB(28)	Indicator Light A	Yes	None	None	None	None
Operator Qualified to G's	B	R.G., 1-75	EE-AEC-AB(20)	Indicator Light A	Yes	None	None	None	None
Operator Qualified to G's	B	R.G., 1-75	EE-AEC-AB(20)	Indicator Light A	Yes	None	None	None	None
Station A	A	R.G., 1-75	EE-PNL-RPSPPA(5)	Indicator Light A	Yes	None	None	None	None
Station A	A	R.G., 1-75	EE-PNL-RPSPPA(5)	Indicator Light A	Yes	None	None	None	None
Station A	A	R.G., 1-75	EE-PNL-RPSPPA(5)	Indicator Light A	Yes	None	None	None	None
Operator Qualified to G's	B	R.G., 1-75	EE-AEC-AB(20)	Indicator Light A	Yes	None	None	None	None
Station A	A	R.G., 1-75	EE-ABZ(15)	Indicator Light A	Yes	None	None	None	None
Station A	A	R.G., 1-75	EE-ABZ(15)	Indicator Light A	Yes	None	None	None	None
Operator Qualified to G's	B	R.G., 1-75	EE-AEC-AB(4C)	Indicator Light A	Yes	None	None	None	None
Operator Qualified to G's	B	R.G., 1-75	EE-AEC-AB(56)	Indicator Light A	Yes	None	None	None	None
Operator Qualified to G's	B	R.G., 1-75	EE-AEC-AB(56)	Indicator Light A	Yes	None	None	None	None
Operator Qualified to G's	B	R.G., 1-75	EE-125WDCSIR HPCL	Indicator Light A	Yes	None	None	None	None
Operator Qualified to G's	B	R.G., 1-75	EE-AEC-FI(108)	Indicator Light A	Yes	None	None	None	None
Operator Qualified to G's	B	R.G., 1-75	EE-125WDCSIR MCIC	Indicator Light A	Yes	None	None	None	None
Operator Qualified to G's	B	R.G., 1-75	EE-AEC-AB(4C)	Indicator Light A	Yes	None	None	None	None
Operator Qualified to G's	B	R.G., 1-75	EE-AEC-AB(56)	Indicator Light A	Yes	None	None	None	None
Operator Qualified to G's	B	R.G., 1-75	MCC-B(NC)	Indicator Light A	Yes	None	None	None	None
Operator Qualified to G's	B	R.G., 1-75	EE-125WDCSIR [958"]	Indicator Light A	Yes	None	None	None	None
R.G., 1-100	A	Single Channel	EE-PNL-CCTB(19) 9-2 Both Trains	Recorder - Both Channels	Yes	None	None	Modification scheduled for March 31, 1985 completion	None
R.G., 1-100	A B	Single Channel	EE-PNL-CCTB(1)	Data Channel - Recorder	Yes	None	Yes	Will install during 1986 refueling outage.	Will implement as Category 3. See BRUC Position, Issue 4.
R.G., 1-100	A	R.G., 1-75	IE (RPS)	Recorder and Indicator - Both Channels	Yes	None	Yes	Modification scheduled for March 31, 1985 completion	None

VARIABLE	RANGE REQUIRED IN R.G. 1.97	TYPE - CATEGORY	PURPOSE	COOPER CIC NUMBER	INSTALLED RANGE	EQ-STATUS
<u>Containment</u>						
Primary Containment Pressure	10 psia to 4 Times Design Pressure D.P. = 56 psig	C-1	Detection of Potential for or Actual Breach; Accomplishment of Mitigation	PC-P1-431,4BZ PC-II-5A, 8B PC-SC-2A, 2B PC-PW-1A, 1B	0 - 250 psia	W/C 10CFRS0.49 Mild Environment Mild Environment Mild Environment
Effluent Radioactivity-Noble Gases	10^{-6} Ci/cc to 10^2 Ci/cc	C-2	Indication of Breach	ERP Hi-range Effluent Monitor	5×10^{-7} Ci/cc to 1×10^5 Ci/cc	Mild Environment
Radiation Exposure Rate	10^{-1} R/hr to 10^4 R/hr	C-2	Indication of Breach	Fuel Pool Area - RMA-RM-AU1 RMA-AM-1 & RMA-RA-1 HPCI RM- RMA-RM-AU10 RRR SW QUAD- RMA-RM-AU11 RMA-AM-11 & RMA-RA-11 RRR SW QUAD- RMA-RM-AU12 RMA-AM-12 & RMA-RA-12 RCIE RM- RMA-RM-AU13 RMA-AM-AU13 RMA-RA-AU13 CS SE QUAD RMA-RM-AU14 RMA-AM-14 & RMA-RA-14	10^{-1} R/hr to 10^3 R/hr 10^{-5} R/hr to 10^{-1} R/hr 10^{-5} R/hr to 10^{-1} R/hr 10^{-5} R/hr to 10^{-1} R/hr 10^{-5} R/hr to 10^{-1} R/hr	Not Qualified Not Qualified Not Qualified Not Qualified
Containment and Drywell Hydrogen Concentration	0 - % (Capability of Operating from 12 psia to design pressure)	C-1	Detection of Potential for Breach; Accomplishment of Mitigation	PC-AN-(H2IA-315GB) PC-AN-(H2IA-315GA)	0 - 5% Berdix 0 - 10% Beckman 0 - 20%	Mild Environment Mild Environment Mild Environment
Containment and Drywell Oxygen Concentration (for Inerted Containment Plants)	0 - 10% (Capability of Operating from 12 psia to design pressure)	C-1	Detection of Potential for Breach; Accomplishment of Mitigation	PC-AN-(O2A-512) PC-R-(O2A-512)	0 - 5% 0 - 10% 0 - 25%	Mild Environment Mild Environment Mild Environment
<u>Condensate and Feedwater System</u>						
Main feedwater Flow	0 - 110% Design Flow (D.F.=9.52 x 10^6 lb/hr)	D-3	Detection of Operation; Analysis of Cooling	HFC-FI-50A,B HFC-ES-93 HFC-SQRT-110A,B HFC-FI-B9A,B	0-7.0 x 10^6 lb/hr Per Pump	Mild Environment
Condensate Storage Tank level	Bottom to top	D-3	Indication of Available Water for Cooling	CM-LT-5 Computer PT F001 ES-LS-1 CM-LIC-5	0 - 100% (0 - 40')	Mild Environment Mild Environment Mild Environment Mild Environment
Emergency Storage Tank Level	Bottom to Top	D-3	Indication of Available Water for Cooling	CM-LT-68TA,B CM-LI-68TA,B CM-ES-6	0 - 100% (0 - 16')	Mild Environment Mild Environment Mild Environment

SEISMIC ₁ STATUS	2 QA STATUS	REDUNDANCY STATUS	POWER SUPPLY	CR DISPLAY	REQUIRED FOR FSC	REQUIRED FOR EGF	INPUT TO PMIS	SCHEDULE	DEVIATIONS
R.G. 1,100	A	R.G. 1,75		Recorder and Indicator - Both Channels	Yes	Yes	Yes	Modifications to be completed by March 31, 1985	None
None	C	Single Channel		Recorder and Indicator - Single Channel	Yes	Yes	Yes	No Action Necessary	None
A	B	Single Channel	EE-PNL-LPRW(7)	Indicator - Single Channel	Yes	Yes	Yes	No Action Necessary	Will not implement as Reg. Guide 1.97 variable. See BWROG Position, Issue 6.
A	B	Single Channel	EE-PNL-LPRIG(29)	Indicator - Single Channel	Yes	Yes	Yes	No Action Necessary	Will not implement as Reg. Guide 1.97 variable. See BWROG Position, Issue 6.
A	B	Single Channel	EE-PNL-LPRIG(12)	Indicator - Single Channel	Yes	Yes	Yes	No Action Necessary	Will not implement as Reg. Guide 1.97 variable. See BWROG Position, Issue 6.
A	B	Single Channel	EE-PNL-LPRIG(29)	Indicator - Single Channel	Yes	Yes	Yes	No Action Necessary	Will not implement as Reg. Guide 1.97 variable. See BWROG Position, Issue 6.
A	B	Single Channel	EE-PNL-LPRIG(29)	Indicator - Single Channel	Yes	Yes	Yes	No Action Necessary	Will not implement as Reg. Guide 1.97 variable. See BWROG Position, Issue 6.
B	B	Single Channel		Recorder - Both Channels	Yes	Yes	Yes	No Action Necessary	Will not implement as Reg. Guide 1.97 variable. Ref. BWROG Position re. NUREG-0757 Tech. Spec.'s for inerted confinements.
B	B	Single Channel	EE-PNL-CCPIA(9)	Recorder - Both Channels	Yes	Yes	Yes	No Action Necessary	Will implement as Category 2.
None	C	Single Channel	EE-PNL-NBPP(4) EE-PNL-AA2(2)	Computer PF	Yes	Yes	Yes	No Action Necessary	None
None	C	Single Channel	EE-PNL-CCPIA(16)	Indicator - Single Channel	Yes	Yes	Yes	No Action Necessary	None
None	C	Single Channel	EE-PNL-CCPIB(12)	Indicator - Both Channels	Yes	Yes	Yes	No Action Necessary	None

VARIABLE	RANGE REQUIRED IN R.C. 1-97	TYPE - CATEGORY	PURPOSE	CHPT. R CIC NUMBER	INSTALLED RANGE	EQ-STATUS
<u>Fuel Cladding</u>						
Radioactivity Concentration or Radiation Level in Circulating Primary Coolant	1/2 Tech Spec Limit to 100 Times Tech Spec Limit R/hr	C-1	Detection or Breach	Post-Accident Sample System	Sample	N/A
<u>Ventilation Systems</u>						
Emergency Ventilation Damper Position	Open - Closed Status	D-2	To Monitor Operation	HW-257AV HW-272MV HW-AV259 HW-4V258 HW-4V260 HW-AV261	Open-Closed Open-Closed Open-Closed Open-Closed Open-Closed Open-Closed	W/C 10CFR50.49 W/C 10CFR50.49 W/C 10CFR50.49 W/C 10CFR50.49 W/C 10CFR50.49 W/C 10CFR50.49
<u>Power Supplies</u>						
Status of Standby Power and Other Energy Sources Important to Safety	Voltage, Current	D-2	To Monitor System Status	DC-A1-AM11, AM12 DC-FQ1, FM2, FM3 DC-VAR1-VARMB, VARMP DC-VI-VM11, VM12 DC-WI-WM1-WM2 1A-PT-606 ES-ES-1 1A-PT-606	0 - 1200 Amps 55 - 65 CPS 0 - 7 MVAR 0 - 5250 VAC 0 - 7 M WATTS 0 - 120 psig	Mild Environment Mild Environment Mild Environment Mild Environment Mild Environment Mild Environment Mild Environment
<u>Primary Containment - Related Systems</u>						
Suppression Chamber Spray Flow	0 - 110% Design Flow	D-2	To Monitor Operation	None	N/A	N/A
Drywell Pressure	12 psia to 3 psig	D-2	To Monitor Operation	PC-PF-513 PC-R-(RPR-513)	-5.0 - +5.0 psig	W/C 10CFR50.49 Mild Environment
	0 - 110% Design Pressure			PC-PF-20 PC-PH-20 PC-PF-512A, B PC-R-(PH512-LR11)	-5.0 - +5.0 psig 0 - 80 psig	W/C 10CFR50.49 Mild Environment W/C 10CFR50.49 Mild Environment
Suppression Pool Water Level	Top of Vent to Top of Weir Wall	D-2	To Monitor Operation	PC-PF-4A1, 4B2 PC-IE-1A, 1B PC-SC-2A, 2B PC-PH-1A, 1B PC-DPT-1A1, 1B2 PC-IE-2A, 2B PC-SC-1A, 1B PC-LP-1A, 1B	0 - 250 psig 0 - 30" (866'-896")	W/C 10CFR50.49 Mild Environment Mild Environment Mild Environment W/C 10CFR50.49 Mild Environment Mild Environment Mild Environment
Suppression Pool Water Temperature	30°F to 230°F	A-1 D-2	To Monitor Operation	PC-IE-1A, B, C, D, E, F, G, H 2A, B, C, D, E, F, G, H	0 - 300°F	W/C 10CFR50.49
Drywell Atmospheric Temperature	40°F to 440°F	D-2	To Monitor Operation	PC-IE-505A-E	50° - 350°F	W/C 10CFR50.49

SEISMIC STATUS	2 QA STATUS	REDUNDANCY STATUS	POWER SUPPLY	CR DISPLAY	REQUIRED FOR PSC	REQUIRED FOR LOR	INPUT TO PMIS	SCHEDULE	DEVIATIONS
None	C	Single Channel	LPRW-2A	None	No	No	No	No Action Necessary	Implemented as Category 3. See BMRG Position, Issue 5.
B	B	R.G. 1.75	EE-PNL-CCP1B(16)	Indicator Lights				Documentation Incomplete.	None
B	B	R.G. 1.75	EE-MCC-RA	Indicator Lights				Will be qualified by March 31, 1985	
B	B	R.G. 1.75	EE-PNL-CCP1B(16)	Indicator Lights					
B	B	R.G. 1.75	EE-PNL-RA	Indicator Lights					
B	B	R.G. 1.75	EE-PNL-RA	Indicator Lights					
B	B	R.G. 1.75	EE-PNL-CCP1B(16)	Indicator Lights					
B	B	R.G. 1.75		Indicators - Both Channels	Yes	Yes	Yes	No Action Necessary	None
N/A	N/A	N/A	N/A	N/A	No	No	No	No Action Necessary	Will not implement. Reference BMRG Position, Issue 7.
R.G. 1.100	A	Single Channel	EE-PNL-CCP1A(9)	Recorders - Single Channel	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	None
R.G. 1.100	A	Single Channel	EE-PNL-CCP(14)	Recorders - Single Channel	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	None
B	B	Single Channel							
R.G. 1.100	A	R.G. 1.75	EE-PNL-CCP1B(1)	Recorders - Single Channel	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	None
B	B	R.G. 1.75	Same						
R.G. 1.100	A	R.G. 1.75	1E (RPS)	Recorders -	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	None
R.G. 1.100	A	R.G. 1.75	1E (RPS)	Recorders - Both Channels	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	None
R.G. 1.100	A	R.G. 1.75	1E (RPS)	Recorder - Both Channels	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	None
None	A	Single Channel	EE-PNL-CCP1A(16)	Indicator - Single Channel	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	None

VARIABLE	RANGE REQUIRED IN R.G. 1.97	TYPE - CATEGORY	PURPOSE	COOPER CIC NUMBER	INSTALLED RANGE	EQ-STATUS
Drywell Atmospheric Temperature (Continued)				PC-TE-510A-E PC-R1-510A-E PC-TR-510(1)&(2)	50° - 350°F	W/C 10CFR50.49 Mild Environment Mild Environment
Drywell Spray Flow	0 to 110% Design Flow	D-2	To Monitor Operation	None		
<u>Main Steam System</u>						
Main Steamline Isolation Valves Leakage Control System Pressure	0 to 15" of Water 0 to 5 psid	D-2	To Provide Indication of Pressure Boundary Maintenance	N/A to RWR 4		
Primary System Safety Relief Valve Positions, Including ADS or Pressure in Valve Lines	Closed - Not Closed or 0 - 50 psig	D-2	Detection of Accident; Boundary Integrity Indication	MS-PS-300A-H (SRV) MS-TE-112A,B,C (SV) MS-TE-114A,B,C (SV) Computer PI M186(A) Computer PI M187(B) Computer PI M188(C) MS-TR-166	27.5 psi (0-30 psi) 0 - 600°F 0 - 600°F	C/W 10CFR50.49 W/C 10CFR50.49 W/C 10CFR50.49 Mild Environment Mild Environment Mild Environment Mild Environment
Isolation Condenser System Shell- side Water Level	Top to Bottom	D-2	To Monitor Operation	N/A to CNS		
Isolation Condenser System Valve Position	Open or Closed	D-2	To Monitor Status	N/A to CNS		
RCIC Flow	0 - 110% Design Flow (D.F. = 416 GPM)	D-2	To Monitor Operation	RCIC-FI-58 RCIC-FIC-91 RCIC-SQRT-99	0 - 500 GPM	W/C 10CFR50.49 Mild Environment Mild Environment
HPCI Flow	0 - 110% Design Flow (D.F. = 4250 GPM)	D-2	To Monitor Operation	HPCI-FI-82 HPCI-FIC-108 HPCI-IVTR-119 HPCI-SQRT-118	0 - 5000 GPM	W/C 10CFR50.49 Mild Environment Mild Environment Mild Environment
Core Spray System Flow	0 - 110% Design Flow (D.F. = 4720 GPM)	D-2	To Monitor Operation	CS-FI-40A,B CS-ES-52AAB CS-FI-50AAB	0 - 6000 GPM	W/C 10CFR50.49 Mild Environment Mild Environment
LPCI Flow	0 - 110% Design Flow (D.F. = 15,000 GPM)	D-2	To Monitor Operation	RHR-FI-109A,B RHR-ES-145AAB RHR-SQRT-134AAB RHR-FI-133AAB	0 - 20,000 GPM	W/C 10CFR50.49 Mild Environment Mild Environment Mild Environment
SLCS Flow	0 - 110% Design Flow	D-2	To Monitor Operation	None		
SLCS Storage Tank Level	Bottom to Top	D-2	To Monitor Operation	SLC-LI-45 SLC-LI-66 SLC-ES-69	0 - 100% level	Mild Environment Mild Environment Mild Environment
<u>Residual Heat Removal Systems</u>						
RHR System Flow	0 - 110% Design Flow (D.F. = 15,000 GPM)	D-2	To Monitor Operation	RHR-FI-109A,B RHR-ES-145AAB RHR-SQRT-134AAB RHR-FI-133AAB	0 - 20,000 GPM	W/C 10CFR50.49 Mild Environment Mild Environment Mild Environment

SEISMIC STATUS	2 QA STATUS	REDUNDANCY STATUS	POWER SUPPLY	CR DISPLAY	REQUIRED FOR ISC	REQUIRED FOR EOP	INPUT TO PMIS	SCHEDULE	DEVIATIONS
None	A	Single Channel	EE-PNL-CCPIA(16)	Indicator - Single Channel	Yes	Yes	Yes	Will install extended range instru- ment during 1986 refueling outage	None
								No Action Necessary	Will not implement. Reference BWROG Position, Issue 7.
								No Action Necessary	Not applicable to CNS.
None	A	R.G. 1.75	EE-PNL-AA2(6)	Indicator Lights	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	None
None	A	R.G. 1.75	EE-PNL-BB2(8)	Computer Pt.	Yes	Yes	Yes		
								No Action Necessary	Not applicable to CNS.
								No Action Necessary	Not applicable to CNS.
R.G. 1.100	A	Single Channel	EE-PNL-NBPP(19)	Indicator -	Yes	Yes	Yes	Modifications scheduled for completion during 1986 r - fueling outage.	None
A	B	Single Channel	9-4(13A-F14)	Single Channel					
A	B	Single Channel							
R.G. 1.100	A	Single Channel	EE-PNL-BB2(18)	Indicator -	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	None
A	B	Single Channel	9-3(23A-F25 & 23A-F26)	Single Channel					
A	B	Single Channel							
R.G. 1.100	A	R.G. 1.75	EE-PNL-CC1A(3)	Indicators -	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	None
A	B	R.G. 1.75	9-19(14-F52AV)	Double Channel					
A	B	R.G. 1.75	EE-PNL-CPP(9)						
	B	R.G. 1.75	9-18(14A-F3)						
R.G. 1.100	A	R.G. 1.75	EE-PNL-CCPIA(3)	Indicator -	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	None
A	B	R.G. 1.75	9-18(14A-F16A)	Single Channel					
A	B	R.G. 1.75	EE-PNL-CCPIB(3)						
A	B	R.G. 1.75	9-18(10A-F16B)					Will install during 1986 refueling outage	Will implement as Category 3.*
A	B	Single Channel	EE-PNL-CPP(9)	Indicator -	Yes	Yes	Yes	No Action Necessary	Will implement as Category 3. Reference BWROG Position, Issue 10*.
A	B	Single Channel	(11A-F2)	Single Channel					
A	B	Single Channel							
R.G. 1.100	A	R.G. 1.75	EE-PNL-CCPIA(3)	Indicators -	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	None
A	B	R.G. 1.75	EE-PNL-CCPIB(3)	Both Channels					
A	B								
A	B							*Final ATWS rule may require re-evaluation.	

VAR1481E	STATUS IN Q1010D IN R.G. 1, 97	TYPE - CALL CODE	PURPOSE	COMP. R. C. NUMBER	INSTALLED RANGE	EQ-STATUS
RHR Heat Exchanger Outlet Temperature	32°F to 350°F	D-2	To Monitor Operation	RHR-1E-94C, D	0 - 600°F	W/C 100°FSD, 49 Mild Environment
				RHR-1R-131 (For Both)		
Cooling Water System	32°F to 200°F	D-2	To Monitor Operation	SW-1E-94A, B	0 - 600°F	W/C 100°FSD, 49 Mild Environment
				RHR-1R-131 (For Both)		
Cooling Water Temperature to CSF System Components	32°F to 200°F	D-2	To Monitor Operation	SW-1E-1000A, B (REC Hs. Inlet)	40°F - 100°F	W/C 100°FSD, 49 Mild Environment
				Computer PT M139 (A) Computer PT M140 (B)		
Cooling Water Flow to CSF System Components	0 - 110% Design Flow	D-2	To Monitor Operation	SW-1E-1000A, B (REC Hs. Inlet)	30°F - 100°F	W/C 100°FSD, 49 Mild Environment
				Computer PT M137 (A) Computer PT M138 (B)		
High Radioactivity Liquid Tank Level	Top to Bottom	D-3	To Monitor Operation	SW-1E-97A, B (000 Hs.) RHR-ES-145A, B	0 - 10,000 GPM	W/C 100°FSD, 49 Mild Environment
				SW-5QF1-132A, B SW-1E-132A, B		
Primary Containment Area Radiation High Range	1 R/hr to 10 ⁷ R/hr	E-1	Detection of Significant Release; Release Assessment; Long-Term Surveillance Emergency Plan Activation	SW-1E-107A, B (REC Hs.) SW-5QF1-107A, B	0 - 8000 GPM	W/C 100°FSD, 49 Mild Environment
				SW-1E-107A, B REC-4S-10(A) REC-4S-9(B)		
Primary Containment Area Radiation High Range	10 ⁻¹ R/hr to 10 ⁶ R/hr for Mark I Containment	E-2	Detection of Significant Release; Release Assessment; Long-Term Surveillance	SW-1E-420 (FIR 000 CIRL 1K)	0 - 100%	Mild Environment
				SW-1E-369 (00051E CIRL 1K)	0 - 100%	Mild Environment
Fuel Pool Area	10 ⁻¹ R/hr to 10 ⁵ R/hr	E-2	Detection of Significant Release; Release Assessment; Long-Term Surveillance	RHR-4E-400A, B RHR-4E-400A, B	1 R/hr to 10 ⁷ R/hr	W/C 100°FSD, 49 Mild Environment
				RHR-4E-400 RHR-4E-400		
MPCV Room	10 ⁻⁵ R/hr to 10 ⁻¹ R/hr	E-2	Detection of Significant Release; Release Assessment; Long-Term Surveillance	RHR-4E-1 RHR-4E-1	10 ⁻¹ R/hr to 10 ⁵ R/hr	Not Qualified
				RHR-4E-10 RHR-4E-10		Not Qualified

SE FORMIC 1 STATUS	2 QA STATUS	REDUNDANCY STATUS	POWER SUPPLY	CR DISPLAY	REQUIRED FOR ISC	REQUIRED FOR IOR	IMPACT IO PMS	SCHEDULE	DEVIATIONS
R.G. 1, 100 B	A B	R.G. 1, 75 R.G. 1, 75	EE-PNL-CCP(4)	1 Recorder For Both Channels	Yes	Yes	No	Modifications scheduled for completion during 1986 refueling outage	None
R.G. 1, 100 B	A B	R.G. 1, 75 R.G. 1, 75	EE-PNL-CCP(4)	1 Recorder For Both Channels	Yes	Yes	No	Modifications scheduled for completion during 1986 refueling outage	None
R.G. 1, 100	A	Single Channel		Computer PLS	Yes	Yes	Yes	Will install extended range instruments during 1986 refueling outage	None
R.G. 1, 100	B B B	Single Channel Single Channel Single Channel		Computer PLS	Yes	Yes	Yes	Will install extended range instruments during 1986 refueling outage	None
R.G. 1, 100	A	Single Channel		Computer PLS	Yes	Yes	Yes	Will install extended range instruments during 1986 refueling outage	None
R.G. 1, 100 A A A A	A B B B	R.G. 1, 75 R.G. 1, 75 R.G. 1, 75 R.G. 1, 75	EE-PNL-CCP1A(3) EE-PNL-CCP1B(3)		Yes	Yes	No	Modifications scheduled for March 31, 1985 completion	None
R.G. 1, 100 B B B B	A B B B	R.G. 1, 75 R.G. 1, 75 R.G. 1, 75 R.G. 1, 75	EE-PNL-CCP1A(20) EE-PNL-CCP1B(17)		Yes	Yes	No	Modifications scheduled for March 31, 1985 completion	None
None	None	Single Channel	EE-PNL-ABPP(5) 25-17-(20A-41) EE-PNL-ABPP(5) 25-17-(20A-41)	Radiation C.R. Only	No	No	No	No Action Necessary	No direct indication in Control Room. Monitored every two hours by Operational Personnel.
R.G. 1, 100	A	Single Channel	EE-PNL-APSP1A EE-PNL-APSP1B EE-PNL-ABPP	Recorders - Both Channels	Yes	Yes	Yes	Modifications scheduled for March 31, 1985 completion	
A A A		EE-PNL-CCP(5) EE-PNL-APSP(7) EE-PNL-CCP(5)		Indicator - Single Channel	Yes	Yes	Yes	No Action Required	Will not implement as a Reg. Guide 1.97 parameter. Reference BWRSG Position, Issue 12.
A A		EE-PNL-CCP(5) EE-PNL-CCP(5)		Indicator - Single Channel	Yes	Yes	Yes	No Action Required	

VARIABLE	RANGE REQUIRED IN R.G. 1.97	TYPE - CATEGORY	PURPOSE	COOPER CIC NUMBER	INSTALLED RANGE	EQ-STATUS
Primary Containment Area Radiation						
High Range (Continued)						
				RHR SW QUAD RMA-RE-11 RMA-RM-A011 RMA-RA-11	10^{-5} R/hr to 10^{-1} R/hr	Not Qualified
				RHR NW QUAD RMA-RE-12 RMA-RM-A012 RMA-RA-12 RCIC RM RMA-RE-13 RMA-RA-13	10^{-5} R/hr to 10^{-1} R/hr	Not Qualified
				CS SE RM RMA-RE-14 RMA-RM-A014 RMA-RA-14	10^{-5} R/hr to 10^{-1} R/hr	Not Qualified
Area Radiation						
Radiation Exposure Rate	10^{-1} R/hr to 10^4 R/hr	E-2	Detection of Significant Releases; Release Assessment; Long-term Surveillance	Same list as Above	Same list as Above	Same list as Above
Airborne Radioactive Materials Released From Plant						
Noble Gases and Vent Flow Rate Drywell Purge, Standby Gas Treatment System Purge	10^{-6} Ci/cc to 10^5 Ci/cc 0 - 110% Vent Design Flow (DF = 6035 cfm)	E-2 C-3	Detection of Significant Releases, Release Assessment	ERP Hi-range Effluent Monitor OG-F11-4001	5×10^{-3} Ci/cc to 1×10^5 Ci/cc 0-10,000 cfm	Mild Environment Mild Environment
Auxiliary Building	10^{-6} Ci/cc to 10^3 Ci/cc 0 - 110% Vent Design Flow	E-2 C-3	Detection of Significant Releases, Release Assessment	I-G Hi-range Effluent Monitor	5×10^{-7} Ci/cc to 1×10^5 Ci/cc	Mild Environment
Auxiliary Building	10^{-6} Ci/cc to 10^3 Ci/cc 0 - 110% Vent Design Flow	E-2 C-3	Detection of Significant Releases, Release Assessment	RM Hi-range Effluent Monitor	5×10^{-7} Ci/cc to 1×10^5 Ci/cc	Mild Environment
Common Plant Vent	10^{-6} Ci/cc to 10^3 Ci/cc 0 - 110% Design Flow	E-2 C-3	Detection of Significant Releases, Release Assessment	ERP Hi-range Effluent Monitor	5×10^{-7} Ci/cc to 1×10^5 Ci/cc	Mild Environment
Particulates and Halogens Common Plant Vent	10^{-3} Ci/cc to 10^2 Ci/cc 0 - 110% Design Flow	E-3 ¹²	Detection of Significant Releases; Release Assessment; Long-term Surveillance	ERP Hi-range Effluent Monitor	10^{-4} Ci/cc to 10^2 Ci/cc	Mild Environment
Auxiliary Building	10^{-3} Ci/cc to 10^2 Ci/cc 0 - 110% Design Flow	E-3 ¹²	Detection of Significant Releases; Release Assessment; Long-term Surveillance	I-G Hi-range Effluent Monitor	10^{-4} Ci/cc to 10^2 Ci/cc	Mild Environment
Auxiliary Building	10^{-3} Ci/cc to 10^2 Ci/cc 0 - 110% Design Flow	E-3 ¹²	Detection of Significant Releases; Release Assessment; Long-term	RM Hi-range Effluent Monitor	10^{-4} Ci/cc to 10^2 Ci/cc	Mild Environment

Will not implement as Req. Guide 1.97
parameter. Reference 88000 Position,
Issue 12.

A	EE-PNL-CPP(5)	Yes	Yes	Yes	No Action Required	See Above
A	EE-PNL-LP8IG(29)					
A	EE-PNL-CPP(5)					
A	EE-PNL-CPP(5)	Yes	Yes	Yes	No Action Required	See Above
A	EE-PNL-LP8IG(12)					
A	EE-PNL-CPP(5)					
A	EE-PNL-CPP(5)	Yes	Yes	Yes	No Action Required	See Above
A	EE-PNL-CPP(5)					
A	EE-PNL-CPP(5)	Yes	Yes	Yes	No Action Required	See Above
A	EE-PNL-CPP(5)					
A	EE-PNL-CPP(5)	Yes	Yes	Yes	No Action Required	See Above
A	EE-PNL-LP8IG(29)					
A	EE-PNL-CPP(5)					

None	480 VAC from PP0B1	Yes	Yes	Yes	No Action Required	None
None	120 VAC from LP0B1					
None	EE-PNL-NEPP(15)	No	No	No	No Action Required	None
None	480 VAC from MCC-DG1	Yes	Yes	Yes	No Action Required	None
None	120 VAC from CCP2B					
None	480 VAC from MCC-M	Yes	Yes	Yes	No Action Required	None
None	120 VAC from LP0B3					
None	480 VAC from PP0B1	Yes	Yes	Yes	No Action Required	None
None	120 VAC from LP0B1					
None	480 VAC from PP0B1	Yes	Yes	Yes	No Action Required	None
None	120 VAC from LP0B1					
None	480 VAC from MCC-DG1	Yes	Yes	Yes	No Action Required	None
None	120 VAC from CCP2B					
None	480 VAC from MCC-M	Yes	Yes	Yes	No Action Required	None
None	120 VAC from LP0B3					

VARIABLE	RANGE REQUIRED IN R.G. 1.92	TYPE - CATEGORY	PURPOSE	COOPER CIC NUMBER	INSTALLED RANGE	EQ-STATUS
<u>Envirom Radiation and Radio-activity</u>						
Airborne Radiohalogens and Particulates (portable sampling with onsite analysis capability)	10^{-9} μ Ci/cc to 10^{-3} μ Ci/cc	E-3	Release assessment; analysis	HP-1	10^{-9} μ Ci/cc to 10^{-3} μ Ci/cc	
Plant and Envirom Radiation (portable instrumentation)	10^{-3} R/hr to 10^4 R/hr, photons	E-3	Release assessment; analysis	HP-2	10^{-3} R/hr to 10^3 R/hr Gamma	
	10^{-3} rads/hr to 10^4 rads/hr, beta radiations and low-energy photons	E-3		HP-3	10^{-3} rads/hr to 200 rads/hr Beta	
Plant and Envirom Radioactivity (portable instrumentation)	(Isotopic Analysis)	E-3	Release assessment; analysis	HP-4	Iodine Analysis	
<u>Meteorology</u>						
Wind Direction	0 to 360° ($\pm 5^\circ$ accuracy with a deflection of 10°). Starting speed less than 0.4 mps (1.0 mph). Damping ratio greater than or equal to 0.4, delay distance less than or equal to 2 meters.	E-3	Release assessment	Met-1	0-360° $\pm 3^\circ$ threshold 0.58 mph damping 0.4 at 1.13 meters	Mild Environment
Wind Speed	0 to 22 mps (50 mph). ± 2 mps (0.5) mph accuracy for speeds less than 2 mps (5 mph), 10% for speeds in excess of 2 mps (5 mph), with a starting threshold of less than 0.4 mps (1.0 mph) and a distance constant not to exceed 2 meters.	E-3	Release assessment	Met-2	0-100 mph acc. ± 0.15 mph or 1% threshold 0.6 mph, dist. const. equals 1.5 meters	Mild Environment
Estimation of Atmospheric Stability	Based on vertical temperature difference from primary meteorological system, 5°C to 10°C (-9°F to 18°F) and $\pm 0.15^\circ\text{C}$ accuracy per 50-meter intervals ($\pm 0.3^\circ\text{F}$ accuracy per 164-foot intervals) or analogous range for alternative stability estimates.	E-3	Release assessment	Met-3	-30 to $+50^\circ\text{C}$ $\pm 5\%$ $\Delta 1$ not to exceed 0.15°C	Mild Environment
<u>Accident Sampling Capability (Analysis Capability On Site)</u>						
Primary Coolant and Sump	Grab Sample	E-3	Release assessment; verification; analysis	PASS		Not required EQ per NUREG 0737.
Gross Activity	1 μ Ci/ml to 10 Ci/ml				1 μ Ci/ml to 10 Ci/ml	
Gamma Spectrum	(Isotopic Analysis)				Isotopic Analysis	
Boron Content	0 to 1000 ppm				0 to 15 ppm (dilutable)	
Chloride Content	0 to 20 ppm				10 ppb to 10 ppm	
Dissolved Hydrogen or Total Gas ²⁰	0 to 2000 cc(SIP)/kg				Not available-calculated	
Dissolved Oxygen ²⁰	0 to 20 ppm				10 ppb to 1 ppm	
pH	1 to 13				1 to 14 (online)	

SEISMIC STATUS	2 QA STATUS	REDUNDANCY STATUS	POWER SUPPLY	CR DISPLAY	REQUIRED FOR ISC	REQUIRED FOR EOP	INPUT TO PNIS	SCHEDULE	DEVIATIONS
Not Applicable	High Quality	Not Applicable	Portable-N/A	No	No	No	No	No Action Required	None
Not Applicable	High Quality	Not Applicable	Portable-N/A	No	No	No	No	No Action Required	Existing equipment range is satisfactory.
Not Applicable	High Quality	Not Applicable	Portable-N/A	No	No	No	No	No Action Required	None
Not Applicable	High Quality	2 towers	Normal-Offsite Emergency-MCC-L	SPDS	Yes	Yes	Yes	Installed	None
Not Applicable	High Quality	2 towers	Normal-Offsite- Emergency-MCC-L	SPDS	Yes	Yes	Yes	Installed	None
Not Applicable	High Quality	2 towers	Normal-Offsite Emergency-MCC-L	SPDS	Yes	Yes	Yes	Installed	None
Not Applicable	High Quality	Not Applicable	EE-PNL-LPRW2	No	No	No	No	Installed	Implement as Category 3 for primary coolant sampling only. Sump sample not implemented. Reference BWRDG Position, Issue 14, Post Accident Sampling System (PASS) approved as per NUREG-0757 item 11, B3.

PARTIALS RANGE RE QUALIFIED IN W.G. 1-97 TYPE CATEGORY PURPOSE CDRP R CTE NUMBER INC-FAILED RANGE EQ-51A105

Conductance, A.I. E-3 Helium measurement ; verification analysis PASS Not required IQ per NUREG 0737.

Gamma Spectrum (Isotopic analysis)

Isotopic Analysis

SAL 175000000
SIA 4100000002
ON SLIDES

CONTENTS

STUDENTS
RECEIVED

4000
4000

REQUIREMENTS	REQUIREMENTS	INPUTS	OUTPUTS
FOR 15°C	FOR 15°C	FOR 15°C	FOR 15°C

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