

ATTACHMENT B

Zion Station Units 1 and 2  
Proposed Change to Facility Operating  
License Nos. DPR-39 and DPR-48

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REACTOR  
CHANNEL DESCRIPTION

DEVICE DESIGNATION

1. Manual Reactor Trip	NA
2. Power Range Neutron Flux (Low setpoint, high setpoint, high rate and negative rate)	NC-41, NC-42, NC-43, NC-44
3. Source Range Nuclear Flux	NC-31, NC-32
4. Intermediate Range Flux	NC-35, NC-36
5. $\Delta T$ (overpower and overtemperature)	a. Temperature: TE-411A, TE-411B, TE-421A, TE-421B, TE-431A, TE-431B, TE-441A, TE-441B b. Pressure: PT-455, PT-456, PT-457, PT-458 c. Flux: NC-41, NC-42, NC-43, NC-44
6. Pressurizer Pressure (high and low)	PT-455, PT-456, PT-457, PT-458
7. Pressurizer High Level	LT-459, LT-460, LT-461
8. Primary Coolant Flow	FT-414, FT-415, FT-416, FT-424, FT-425, FT-426, FT-434, FT-435, FT-436, FT-444, FT-445, FT-446
9. RCP Undervoltage	UNIT I 447(KP)/142, 447(KP)/143, 447(KP)/144, 447(KP)/145 UNIT II 447(KP)/242, 447(KP)/243, 447(KP)/244, 447(KP)/245
10. RCP Underfrequency	UNIT I 81x142, 81x143, 81x144, 81x145 UNIT II 81x242, 81x243, 81x244, 81x245

TABLE 3.1.2

Reactor Protection System Instrument Numbers

	<u>Reactor Trip Channel Description</u>	<u>Channel Check</u>	<u>Channel Calibration</u>	<u>Channel Functional Test</u>	<u>Remarks</u>
1.	Manual	-	-	S/U <sup>1</sup>	<sup>1</sup> If not done in previous week.
2.	Power Range Neutron Flux (Low Setpoint)	S	D <sup>3</sup> , Q <sup>4</sup> EFPM <sup>5</sup>	S/U <sup>2</sup>	<sup>2</sup> Once per month when in-service. Not required if performed within the previous 7 days.
3.	Power Range Neutron Flux	S	D <sup>3</sup> , Q <sup>4</sup> EFPM <sup>5</sup>	Q	<sup>3</sup> Heat Balance Calibration <sup>4</sup> Recalibrate
4.	Power Range Positive Flux Rate	NA	D <sup>3</sup> , Q <sup>4</sup> EFPM <sup>5</sup>	Q	<sup>3</sup> Compare incore to excore axial imbalance. Recalibrate as per specification 3.2.2.C if difference >1%.
5.	Power Range Negative Flux Rate	NA	D <sup>3</sup> , Q <sup>4</sup> EFPM <sup>5</sup>	Q	
6.	Source Range Neutron Flux	S <sup>6</sup>	NA	S/U <sup>7</sup>	<sup>6</sup> Once/Shift when in-service.
7.	Intermediate Range Neutron	S <sup>6</sup>	NA	S/U <sup>7</sup>	<sup>7</sup> Not required if performed within the previous 7 days.
8.	Overtemperature ΔT	S	R	Q	
9.	Overpower ΔT	S	R	Q	
10.	Pressurizer Low Pressure	S	R	Q	
11.	Pressurizer High Pressure	S	R	Q	
12.	Pressurizer High Level	S	R	Q	
13.	Low Primary Coolant Flow	S	R	Q	
14.	RCP Bus Undervoltage	NA	R	R	
15.	RCP Bus Underfrequency	NA	R	R	
16.	RCP Breaker Trip	NA	NA	R	

TABLE 4.1-1

Reactor Protection System Testing and Calibration Requirements\*

<u>Reactor Trip Channel Description</u>	<u>Channel Check</u>	<u>Channel Calibration</u>	<u>Channel Functional Test</u>	<u>Remarks</u>
17. Low Steam Generator Level in Coincidence with Feed Flow Steam Flow Mismatch	S	R	Q	
18. Low-Low Steam Generator Level	S	R	Q	
19. Safety Injection	NA	NA	Q <sup>9</sup>	<sup>9</sup> Manual SI function check at R only
20. Turbine Trip	NA	NA	Q	
21. Automatic Reactor Trip Logic	NA	NA	M <sup>9</sup>	<sup>9</sup> Including Reactor Trip Breaker Opening
<u>PERMISSIVES</u>				
22. P-6	NA	NA	S/U <sup>10</sup>	<sup>10</sup> Not required if performed within the previous seven days
23. P-7	NA	NA	M	
24. P-8	NA	NA	M	
25. P-10	NA	NA	M	

NOTE: Specified intervals may be adjusted per Definition N, page 6.

S - Once Per Shift

D - Once Per Day

M - Once Per Month

R - Once Per Refueling Shutdown

EFPM - Once per Effective Full Power Month

Q - Once Per Quarter

S/U - Prior to Startup

- calibration of these instruments may be done as much as six months prior to the start of refueling outage and still satisfy this requirement. The time between surveillances shall not exceed 20 months.

NA - Not Applicable

TABLE 4.1-1 (Sheet 2 of 2)

Reactor Protection System Testing and Calibration Requirements\*

\*Applies to Unit 1 and Unit 2

<u>Channel Description</u>	<u>Device Description</u>
V. <u>AUXILIARY FEEDWATER</u>	
1. Manual	NA
2. Automatic	NA
3. Steam Generator Water Level Low-low	LC-517B, LC-527B, LC-537B, LC-547B LC-518B, LC-528B, LC-538B, LC-548B LC-519B, LC-529B, LC-539B, LC-549B
4. Undervoltage - RCP Busses Start Turbine Driven Pump	Unit I 447-142, 447-143, 447-144, 447-145 Unit II 447-242, 447-243, 447-244, 447-245
5. SI Start Motor and Turbine Driven Pumps	See Section I of this Table.
6. Station Blackout Start Motor and Turbine Driven Pumps	Unit I 427-142, 427-143, 427-144 Unit II 427-242, 427-243, 427-244

PERMISSIVES

P-11	Pressurizer pressure - PT-455, PT-456, PT-457
P-12	Temperature - TE-411A, TE-411B, TE-421A, TE-421B, TE-431A, TE-431B, TE-441A, TE-441B

ENGINEERED SAFEGUARDS SYSTEM INSTRUMENT NUMBERS

TABLE 3.4-2 (Continued)

	<u>ACTUATION CHANNEL DESCRIPTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTION TEST</u>
I.	<u>SAFETY INJECTION</u>			
	1. Manual Actuation	N.A.	N.A.	R
	2. Automatic Actuation	N.A.	N.A.	M
	3. Low Pressurizer Pressure	S	R	Q
	4. High Steam Line Differential Pressure	S	R	Q
	5. High Steam Line Flow in Coincidence with Low-Low Tavg or Low Steam Line Pressure	S S	R R	Q Q
	6. High Containment Pressure	S	R	Q
II.	<u>CONTAINMENT SPRAY</u>			
	1. Manual Actuation	N.A.	N.A.	R
	2. Automatic Actuation	N.A.	N.A.	M
	3. High-High Containment Pressure	S	R	Q
III.	<u>CONTAINMENT ISOLATION</u>			
	A) <u>PHASE A</u>			
	1. Manual Actuation	N.A.	N.A.	R
	2. Safety Injection	See Item I Above		
	B) <u>PHASE B</u>			
	1. Manual Actuation	N.A.	N.A.	R
	2. Automatic Actuation	N.A.	N.A.	M
	3. High-High Containment Pressure	See Item II Above		

ENGINEERED SAFEGUARDS SYSTEM TESTING AND CALIBRATION REQUIREMENTS

TABLE 4.4-1

	<u>ACTUATION CHANNEL DESCRIPTION</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTION TEST</u>
IV.	<u>STEAMLINE ISOLATION</u>			
	1. Manual Actuation	N.A.	N.A.	R
	2. Automatic Actuation	N.A.	N.A.	M
	3. High-High Containment Pressure		See Item II Above	
	4. High Steam Line Flow in Coincidence with Low-Low Tavg or Low Steam Pressure		See Item I Above	

V. AUXILIARY FEEDWATER

	1. Manual	N.A.	N.A.	R
	2. Automatic	N.A.	N.A.	M
	3. Steam Generator Water Level Low-Low	S	R	Q
	4. Undervoltage - RCP Busses	N.A.	R	R
	5. Safety Injection		See Item I on Page 134	
	6. Station Blackout	N.A.	R	R

PERMISSIVES

	1. P-11	N.A.	N.A.	Q
	2. P-12	N.A.	N.A.	Q

NOTE: Specified intervals may be adjusted  $\pm 25\%$  to accommodate test schedules

S - Once per shift

M - Once per month

N.A. - Not applicable

R - Once per refueling shutdown - calibration of these instruments may be done as much as six months prior to the start of refueling outage and still satisfy this requirement.

ENGINEERED SAFEGUARDS SYSTEM TESTING AND CALIBRATION REQUIREMENTS

TABLE 4.4-1 - (Continued)