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TEXAS UTILITIES GENERATING COMPANY

SKYWAY TOWER • 400 NORTH OLIVE STREET, L.B. 81 • DALLAS, TEXAS 75201

JOHN W. BECK
MANAGER-LICENSING

April 30, 1985

Director of Nuclear Reactor Regulation
Attention: Mr. Vincent S. Noonan, Director
Comanche Peak Project
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION (CPSES)
DOCKET NOS. 50-445 AND 50-446
ADDITIONAL REQUESTED CHANGES TO UNIT 1
FINAL DRAFT TECHNICAL SPECIFICATIONS

Dear Mr. Noonan:

Attached are requested changes to the CPSES Unit 1 Technical Specifications. These changes affect Final Draft Technical Specifications as transmitted by NRR letter of September 4, 1984, and later amended by NRR letter of October 19, 1984.

Sincerely,

John W. Beck

John W. Beck

RWH/grr
Attachment

B001
1/40

DESCRIPTION OF TECHNICAL SPECIFICATION CHANGES

The following items are requested changes to the Comanche Peak Unit 1 Technical Specifications (Final Draft) of September 4, 1984 as amended by NRR letter of October 19, 1984:

1. Editorial changes and typographical errors noted on the following pages and specifications: (13 marked-up pages included as Attachment 1):

Page	Specification
2-7	2.2.1
3/4 1-21	3/4.1.3.6
3/4 3-87	3/4.3.3.11
3/4 4-18	3/4.4.6.1
3/4 6-17	3/4.6.3
3/4 6-19	3/4.6.3
3/4 6-20	3/4.6.3
3/4 6-24 (Supercedes TXX-4360 of 11/15/84)	3/4.6.3
3/4 6-25	3/4.6.3
3/4 8-27	3/4.8.4
3/4 8-28	3/4.8.4
3/4 8-29	3/4.8.4
3/4 10-4	3/4.10.4

2. Table 3.3-5, pages 3/4 3-33, 3-34 and 3-35 (Supercedes TXX-4360 of 11/15/84). For containment vent isolation, the 18-inch containment pressure relief valves must close in $\leq$ 5 seconds due to pressurizer pressure low signal. No credit is taken in the accident analyses for the operation of these valves due to other signals. Also, the lower value of 6.5 seconds for steam line isolation is required due to the FSAR Chapter 6 containment analyses instead of the FSAR Chapter 15 LOCA analyses. See Attachment 2.

3. Surveillances 4.2.3.4 and 4.2.3.5, page 3/4 2-10. Indicate that measurement instrumentation used for RCS calorimetric flow measurements shall be calibrated within 90 days preceeding the calorimetric flow measurement. This is required because CPSES does not have the capability to calibrate these instruments on-site and within 7 days. See Attachment 3.

4. Table 3.3-2, page 3/4 3-7. Add asterisk to response times for Items 7 and 8 to exempt N-16 gamma detectors from time response testing. This is a calculated time and no method exists for testing these detectors. Also, revise footnote as shown on Attachment 4.

5. Specification 3.3.3.4, page 3/4 3-52. Revise to conform to wording used throughout the Technical Specifications. See Attachment 5 for details.

6. Surveillance 4.6.1.5, page 3/4 6-7. Add clarifying words to surveillance requirement and revise locations of containment air temperature monitors as shown on Attachment 6. This change is required to meet the basis for the technical specification.

7. Table 3.7-6, page 3/4 7-45 (Supercedes TXX-4360 of 11/15/84). On Item 9, Detector Well, change CPSES supplied nomenclature and value of temperature limit. Detector well temperature is measured at the detector well exhaust and the correct temperature is 150°F. Also, editorial corrections are included in this table. See Attachment 7.

8. Surveillances 4.8.1.1.2.a.4 and 4.8.1.1.2.g on pages 3/4 8-3 and 3/4 8-6 respectively. Change CPSES supplied minimum engine speed from 450 to 441 rpm to correspond to lower frequency value. See Attachment 8.

9. Basis 3/4.3.2, page B3/4 3-3. Add wording of Attachment 9 to clarify and expand the discussion of the P-12 interlock description.

10. Table 3.6-1, page 3/4 6-29. Insert the work "leak" as shown on Attachment 10 and replace the text for Note 6 with "Not Used".

11. Table 3.6-1, Note 8, page 3/4 6-30. Revise Note 8 as shown on Attachment 11. This change is required by NRR letter of 10/11/84, Staff Evaluation Findings Pertaining to Containment Isolation Items for CPSES.

12. Surveillance 4.7.7.e.4, page 3/4 7-17. Change plant specific heater kW rating from 20 to 10 as shown on Attachment 12. Also change reference of ANSI N510-1975 to ANSI N510-1980 to be consistent with the remaining specification.

TABLE NOTATIONS

NOTE 1: Overtemperature N-16

$$N = K_1 - K_2 \left[\frac{1+\tau_1 S}{1+\tau_2 S}\left(T_C - T_C^o\right)\right] + K_3 (P-P') - f_1(\Delta q)$$

Where:

- N = Measured N-16 concentration by ion chambers,
- T_C = Cold leg temperature, °F,
- T_C^o = 559.6°F, Reference T_C at RATED THERMAL POWER,
- K_1 = 1.078,
- K_2 = 0.00948/°F,
- $\frac{1 + \tau_1 S}{1 + \tau_2 S}$ = The function generated by the lead-lag compensator for measured T_C,
- τ_1, τ_2 = Time constants utilized in the lead-lag compensator for T_C, τ_1 = 10 s, and τ_2 = 3 s,
- K_3 = 0.000494/psig,

CONTROL ROD INSERTION LIMITS

LIMITING CONDITION FOR OPERATION

3.1.3.6 The control banks shall be limited in physical insertion as shown in Figure 3.1-1.

APPLICABILITY: MODES 1* and 2*#.

ACTION:

With the control banks inserted beyond the above insertion limits, except for surveillance testing pursuant to Specification 4.1.3.1.2:

a. Restore the control banks to within the limits within 2 hours, or

b. Reduce THERMAL POWER within 2 hours to less than or equal to that fraction of RATED THERMAL POWER which is allowed by the bank position using the above figures, or

c. Be in at least HOT STANDBY within 6 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.6 The position of each control bank shall be determined to be within the insertion limits at least once per 12 hours except during time intervals when the Rod Insertion Limit Monitor is inoperable, then verify the individual rod positions at least once per 4 hours.

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*See Special Test Exceptions Specifications 3.10.2 and 3.10.3.

#With K_{eff} greater than or equal to 1.

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TABLE 4.3-9 (Continued)

TABLE NOTATIONS

* At all times.
** During WASTE GAS HOLDUP SYSTEM operation.
\# Also prior to any release from the WASTE GAS HOLDUP SYSTEM or containment PURGING or VENTING.

(1) The ANALOG CHANNEL OPERATIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following conditions exists:

a. Instrument indicates measured levels above the Alarm/Trip Setpoint, or
b. Circuit failure, or
c. Instrument indicates a downscale failure, or
d. Instrument controls not set in operate mode.

(2) The ANALOG CHANNEL OPERATIONAL TEST shall also demonstrate that control room alarm annunication occurs if any of the following conditions exists:

a. Instrument indicates measured levels above the Alarm Setpoint, or
b. Circuit failure, or
c. Instrument indicates a downscale failure, or
d. Instrument controls not set in operate mode.

(3) The initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National bureau of Standards (NBS) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration shall be used.

(4) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

a. 1500 ppm hydrogen, balance nitrogen, and
b. ~~five~~ Eight volume percent hydrogen, balance nitrogen.

(5) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

a. 75 ppm oxygen, balance nitrogen, and
b. ~~five~~ Eight volume percent oxygen, balance nitrogen.

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3/4.4.6 REACTOR COOLANT SYSTEM LEAKAGE

LEAKAGE DETECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.6.1 The following Reactor Coolant System Leakage Detection Systems shall be OPERABLE:

a. The Containment Atmosphere Particulate Radioactivity Monitoring System,

b. The Containment Sump Level and Flow Monitoring System, and

c. Either the Containment Air Cooler Condensate Flow Rate or a Containment Atmosphere Gaseous Radioactivity Monitoring System.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With only two of the above required Leakage Detection Systems OPERABLE, operation may continue for up to 30 days provided grab samples of the containment atmosphere are obtained and analyzed at least once per 24 hours when the required Gaseous or Particulate Radioactive Monitoring System is inoperable; otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.4.6.1 The Leakage Detection Systems shall be demonstrated OPERABLE by:

a. Containment Atmosphere Gaseous and/or Particulate Monitoring System-performance of CHANNEL CHECK, CHANNEL CALIBRATION and ANALOG CHANNEL OPERATIONAL TEST at the frequencies specified in Table 4.3-3,

b. Containment Sump Level and Flow Monitoring System-performance of CHANNEL CALIBRATION at least once per 18 months, and

c. Containment Air Cooler Condensate Flow Rate Monitoring System-performance of ~~an ANALOG CHANNEL OPERATIONAL TEST~~ a CHANNEL CALIBRATION at least once per 18 months.

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TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NO.	FSAR TABLE REFERENCE NO.*	LINE OR SERVICE	ISOLATION TIME (Seconds)	TYPE LEVEL TESTING
1. Phase "A" Isolation Valves (Continued)				
1-8871	83	Accumulator Test and Fill	10	C Note 9
1-8888	83	Accumulator Test and Fill	10	C Note 9
1-8964	83	Accumulator Test and Fill	10	C Note 9
1HV-5556	84	Containment Air PASS Return	5	C
1HV-5557	84	Containment Air PASS Return	5	C
1HV-5544	94	Radiation Monitoring Sample	5	C
1HV-5545	94	Radiation Monitoring Sample	5	C
1HV-5558	97	Containment Air PASS Inlet	5	C
1HV-5559	97	Containment Air PASS Inlet	5	C
1HV-5560	100	Containment Air PASS Inlet	5	C
1HV-5561	100	Containment Air PASS Inlet	5	C
1HV-5546	102	Radiation Monitoring Sample Return	5	C
1HV-5547	102	Radiation Monitoring Sample Return	5	C
1-8880	104	N_2 Supply to Accumulators	10	C Note 9
1-7126	105	H_2 Supply to RC Drain Tank	10	C

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TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NO.	FSAR TABLE REFERENCE NO.*	LINE OR SERVICE	ISOLATION TIME (Seconds)	TYPE LEVEL TESTING
2. Phase "B" Isolation Valves				
1HV-4708	117	CC Return From RCP's Motors	10	C
1HV-4701	117	CC Return From RCP's Motors	10	C
1HV-4700	118	CC Return From RCP's Motors	10	C
1HV-4709	119	CC Return From RCP's Thermal Barrier	10	C
1HV-4696	119	CC Return From RCP's Thermal Barrier	10	C
3. Containment Ventilation Isolation Valves				
1HV-5542	58	Hydrogen Purge Supply	10	C Note 9
1HV-5543	58	Hydrogen Purge Supply	10	C Note 9
1HV-5563	58	Hydrogen Purge Supply	10	C Note 9
1HV-5540	59	Hydrogen Purge ~~Supply~~ Exhaust	10	C Note 9
1HV-5541	59	Hydrogen Purge ~~Supply~~ Exhaust	10	C Note 9
1HV-5562	59	Hydrogen Purge Exhaust	10	C Note 9
1HV-5536	109	Containment Purge Air Supply	5	C Note 9
1HV-5537	109	Containment Purge Air Supply	5	C Note 9
1HV-5538	110	Containment Purge Air Exhaust	5	C Note 9

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TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NO.	FSAR TABLE REFERENCE NO.*	LINE OR SERVICE	ISOLATION TIME (Seconds)	TYPE LEVEL TESTING
3. Containment Ventilation Isolation Valves (Continued)				
1HV-5539	110	Containment Purge Air Exhaust	5	C Note 9
1HV-5548	122	Containment Pressure Relief	5	C
1HV-5549	122	Containment Pressure Relief	5	C
4. Manual Valves				
1FW-158	20b	Feedwater Bypass Header Drain ~~Chemical Feed to Steam~~ Generator #1	N.A.	Note 1
1FW-106	20c	N_2 Supply to Steam Generator #1	N.A.	Note 1
1FW-157	22b	Feedwater Bypass Header Drain ~~Chemical Feed to Steam~~ Generator #2	N.A.	Note 1
1FW-104	22c	N_2 Supply to Steam Generator #2	N.A.	Note 1
1FW-156	24b	Feedwater Bypass Header Drain ~~Chemical Feed to Steam~~ Generator #3	N.A.	Note 1
1FW-102	24c	N_2 Supply to Steam Generator #3	N.A.	Note 1
1FW-159	26b	Feedwater Bypass Header Drain ~~Chemical Feed to Steam~~ Generator #4	N.A.	Note 1
1FW-108	26c	N_2 Supply to Steam Generator #4	N.A.	Note 1
1-8708B	33	RHR From Hot Leg Loop #4 (Relief)	N.A.	Note 5
1-8708A	34	RHR From Hot Leg Loop #1 (Relief)	N.A.	Note 5
1-7135	52	RCDT Heat Exchanger to Waste Holdup Tank	N.A.	C

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TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NO.	FSAR TABLE REFERENCE NO.*	LINE OR SERVICE	ISOLATION TIME (Seconds)	TYPE LEVEL TESTING
5. Power-Operated Isolation Valves (Continued)				
1HV-4782	127	Containment Recirc. to Spray Pumps (Train A)	N.A.	C
1HV-4783	128	Containment Recirc. to Spray Pumps (Train B)	N.A.	C
6. Check Valves				
1-8818A	35	RHR to Cold Leg Loops #1 and #2	N.A.	Note 2
1-8818B	35	RHR to Cold Leg Loops #1 and #2	N.A.	Note 2
1-8818C	36	RHR to Cold Leg Loops #3 and #4	N.A.	Note 2
1-8818D	36	RHR to Cold Leg Loops #3 and #4	N.A.	Note 2
1-8046	41	Reactor Makeup Water to Pressurizer Relief Tank and RC Pump Stand Pipe	N.A.	C
1-8815	42	Safety Injection to Cold Leg Loops #1, #2, #3, and #4	N.A.	Note 2
1SI-8905B	43	SI to RC System Hot Leg Loops #2 and #3	N.A.	Note 2
1SI-8905C	43	SI to RC System Hot Leg Loops ~~#1~~ 2 and ~~#4~~ 3	N.A.	Note 2
1SI-8905D	44	SI to RC System Hot Leg Loops #1 and #4	N.A.	Note 2
1SI-~~8819A~~ 8	45	SI to RC System Cold Leg Loops #1, #2, #3, & #4	N.A.	Note 2
1SI-8905A	44	SI to RC System Hot Leg Loops #1 and #4	N.A.	Note 2

SUBMITTED 4/30/85

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

VALVE NO.	FSAR TABLE REFERENCE NO.*	LINE OR SERVICE	ISOLATION TIME (Seconds)	TYPE LEVEL TESTING
6. Check Valves (Continued)				
1SI-8819B	45	SI to RC System Cold Leg Loops #1, #2, #3, & #4	N.A.	Note 2
1SI-8819C	45	SI to RC System Cold Leg Loops #1, #2, #3, & #4	N.A.	Note 2
1SI-8819D	45	SI to RC System Cold Leg Loops #1, #2, #3, & #4	N.A.	Note 2
1-8381	46	Charging Line to Regenerative Heat Exchanger	N.A.	C
1CS-8368A	47	Seal Injection to RC Pump (Loop #1)	N.A.	C
1CS-8368B	48	Seal Injection to RC Pump (Loop #2)	N.A.	C
1CS-8368C	49	Seal Injection to RC Pump (Loop #3)	N.A.	C
1CS-8368D	50	Seal Injection to RC Pump (Loop #4)	N.A.	C
1CS-8180	51	Seal Water Return and Excess Letdown	N.A.	C
1CT-145	54	Containment Spray to Spray Header (Tr. B)	N.A.	Note 3
1CT-142	55	Containment Spray to Spray Header (Tr. A)	N.A.	Note 3
1CI-030	62	Instrument Air to Containment	N.A.	C
1-8841A	63	RHR to Hot Leg Loops #2 and #3	N.A.	Note 2

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR
OVERCURRENT PROTECTIVE DEVICES

DEVICE NUMBER AND LOCATION	SYSTEM POWERED
4. 480VAC From Panelboards For Pressurizer Heaters	Pressurizer Heaters

a. Primary Breakers - General Electric Type TJJ Thermal Magnetic breaker.

Breaker No. & Location - Ckt. Nos. 2 thru 4 of Panelboards 1EB1-1, 1EB1-2, 1EB2-2, 1EB3-2, 1EB4-1, 1EB4-2 and Ckt. Nos. 2 thru 5 of Panelboards 1EB2-1 and 1EB3-1.

b. Backup Breakers - General Electric Type THJS with longtime and insts solid state trip device with 400 Amp. sensor.

Breaker No. & Location - Ckt. No. 1 of Panelboards 1EB1-1, 1EB1-2, 1EB2-1, 1EB2-2, 1EB3-1, 1EB3-2, 1EB4-1 and 1EB4-2.

5. ~~DC~~ Power From Rod Control Power Cabinets — Rod control

Fuse Location - Rod control power Cabinets 1AC, 1BD, 2AC, 2BD and SCDE.

a. Primary Fuses

FUSE LOCATION & NUMBER	SYSTEM POWERED
FU13 to FU20	Stationary Gripper Coils
FU21 to FU24	Moving Gripper Coils
FU25 to FU32	Stationary Gripper Coils
FU33 to FU36	Moving Gripper Coils
FU37 to FU44	Stationary Gripper Coils
FU45 to FU52	Moving Gripper Coils
A51/FU1 & FU2 to A58/FU1 & FU2	Lift Coils

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR
OVERCURRENT PROTECTIVE DEVICES

DEVICE NUMBER AND LOCATION	SYSTEM POWERED
5. ~~DC~~ Power From Rod Control Power Cabinets (Continued)	
b. Backup Fuses	
FUSE LOCATION AND NUMBER	SYSTEM POWERED
FU1 to FU9	Stationary Gripper Coils
Movable Bus-Duct Plug-in Unit A102-FU1 to FU3	Moving Gripper Coils
Lift Bus-Duct Plug-in Unit A101-FU1 to FU3	Lift Coils
6. 120V Space Heater Circuits from 480V Switchgears	Containment Recirc. Fan and CRDM Vent. Fan Motor Space Heaters
a. Primary Breakers	
BKR. LOCATION & NUMBER	WESTINGHOUSE BKR. TYPE
Swgr. 1EB1, Cubicle 3A CP1-VAFNAV-01 Space Heater Bkr.	EB1010
Swgr. 1EB2, Cubicle 3A CP1-VAFNAV-02 Space Heater Bkr.	EB1010
Swgr. 1EB3, Cubicle 9A CP1-VAFNAV-03 Space Heater Bkr.	EB1010
Swgr. 1EB4, Cubicle 9A CP1-VAFNAV-04 Space Heater Bkr.	EB1010
Swgr. 1EB3, Cubicle 8A, CP1-VAFNCB-01 Space Heater Bkr.	EB1010

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR
OVERCURRENT PROTECTIVE DEVICES

DEVICE NUMBER AND LOCATION		
6.	120V Space Heater Circuits from 480V Switchgears (Continued)	
	BKR. LOCATION & NUMBER	WESTINGHOUSE BKR. TYPE
	Swgr. 1EB4, Cubicle 8A CP1-VAFNAV-02 Space Heater Bkr.	EB1010
	b. Backup Breakers	
	Panel 1EC3-2 Ckt. No. 3	TED
	Panel 1EC3-2 Ckt. No. 4	TED
	Panel 1EC4-2 Ckt. No. 3	TED
	Panel 1EC4-2 Ckt. No. 4	TED
7.	120V Space Heater Circuits From 480V MCC's	
	a. Primary Fuses	
	Location - Each MCC Starter Compartment MCC's 1EB1-2, 1EB2-2, 1EB3-2 and 1EB4-2.	
	b. Backup Fuses	
	FUSE LOCATION AND NUMBER	SYSTEM POWERED
	MCC 1EB1-2 Compt. 12E, 1FU	Space Heater Circuits from MCC1EB1-2
	MCC 1EB2-2 Compt. 12F, 1FU	Space Heater Circuits from MCC 1EB2-2
	MCC 1EB3-2 Compt. 7C, 1FU	Space Heater Circuits from MCC 1EB3-2

Space

SPECIAL TEST EXCEPTIONS

3/4.10.4 REACTOR COOLANT LOOPS

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LIMITING CONDITION FOR OPERATION

3.10.4 The limitations of the following requirements may be suspended:

a. Specification ~~3.4.1.1~~ 3.4.1.1 - During the performance of STARTUP and PHYSICS TESTS in MODE 1 or 2 provided:

1) The THERMAL POWER does not exceed the P-7 Interlock Setpoint, and

2) The Reactor Trip Setpoints on the OPERABLE Intermediate and Power Range channels are set less than or equal to 25% of RATED THERMAL POWER.

b. Specification 3.4.1.2 - During the performance of natural circulation tests in MODE 3 provided at least three reactor coolant loops as listed in Specification 3.4.1.2 are OPERABLE.

APPLICABILITY: During operation below the P-7 Interlock Setpoint or performance of natural circulation tests.

ACTION:

a. With the THERMAL POWER greater than the P-7 Interlock Setpoint during the performance of STARTUP and PHYSICS TESTS, immediately open the Reactor trip breakers.

b. With less than the above required reactor coolant loops OPERABLE during the performance of the natural circulation tests, immediately place two reactor coolant loops in operation.

SURVEILLANCE REQUIREMENTS

4.10.4.1 The THERMAL POWER shall be determined to be less than P-7 Interlock Setpoint at least once per hour during STARTUP and PHYSICS TESTS.

4.10.4.2 Each Intermediate and Power Range channel, and P-7 Interlock shall be subjected to an ANALOG CHANNEL OPERATIONAL TEST within 12 hours prior to initiating STARTUP and PHYSICS TESTS.

4.10.4.3 At least the above required reactor coolant loops shall be determined OPERABLE within 4 hours prior to the initiation of the natural circulation tests and at least once per 4 hours during the natural circulation tests by verifying correct breaker alignments and indicated power availability.

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TABLE 3.3-5

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
1. Manual Initiation	
a. Safety Injection (ECCS)	N.A.
b. Containment Spray	N.A.
c. Phase "A" Isolation	N.A.
d. Phase "B" Isolation	N.A.
e. Containment Vent Isolation	N.A.
f. Steam Line Isolation	N.A.
g. Feedwater Isolation	N.A.
h Auxiliary Feedwater	N.A.
i Station Service Water	N.A.
j. Component Cooling Water	N.A.
k. Control Room Emergency Recirculation	N.A.
l. Reactor Trip	N.A.
m. Emergency Diesel Generator Operation	N.A.
n. Safety Chilled Water	N.A.
o. Turbine Trip	N.A.
P. UPS Ventilation	N.A.
2. Containment Pressure-High - 1	
a. Safety Injection (ECCS)(5)	$\leq 27^{(1)}/12^{(4)}$
b. ~~(1)~~ Reactor Trip	≤ 2
c. ~~(2)~~ Feedwater Isolation	$\leq$ ~~7~~ 6.5
d. ~~(3)~~ Phase "A" Isolation	$\leq 17^{(2)}/27^{(1)}$
e. ~~(4)~~ Containment Vent Isolation	$\leq$ ~~$25^{(1)}/10^{(2)}$~~ N.A.
f. ~~(5)~~ Auxiliary Feedwater(6)	≤ 60
g. ~~(6)~~ Station Service Water	$\leq$ ~~$47^{(1)}/37^{(2)}$~~ N.A.
h. ~~(7)~~ Component Cooling Water	N.A.
i. ~~(8)~~ Safety Chilled Water	N.A.
j. ~~(9)~~ Emergency Diesel Generator Operation	$\leq$ ~~10~~ 12
k. ~~(10)~~ Turbine Trip	N.A.
l. ~~(11)~~ Control Room Emergency Recirculation	N.A.
m. UPS Ventilation	

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TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
3. Pressurizer Pressure-Low	
a. Safety Injection (ECCS)(5)	≤ 27(1)/12(4)
b. ~~(1)~~ Reactor Trip	≤ 2
c. ~~(2)~~ Feedwater Isolation	≤ 7
d. ~~(3)~~ Phase "A" Isolation	≤ 17(2)/27(1)
e. ~~(4)~~ Containment Vent Isolation	≤ ~~25(1)/10(2)~~ 5(9)
f. ~~(5)~~ Auxiliary Feedwater(6)	≤ 60
g. ~~(6)~~ Station Service Water	≤ ~~47(1)/37(2)~~ N.A.
h. ~~(7)~~ Component Cooling Water	N.A
i. ~~(8)~~ Safety Chilled Water	N.A.
j. ~~(9)~~ Emergency Diesel Generator Operation	≤ ~~10~~ 12
k. ~~(10)~~ Turbine Trip	N.A.
l. ~~(11)~~ Control Room Emergency Recirculation	N.A.
m. UPS Ventilation	N.A.
4. Steam Line Pressure-Low	
a. Safety Injection (ECCS)(5)	≤ 22(3)/12(4)
b. ~~(1)~~ Reactor Trip	≤ 2
c. ~~(2)~~ Feedwater Isolation	≤ ~~7~~ 6.5
d. ~~(3)~~ Phase "A" Isolation	≤ 17(2)/27(1)
e. ~~(4)~~ Containment Vent Isolation	≤ ~~25(1)/10(2)~~ N.A.
f. ~~(5)~~ Auxiliary Feedwater(6)	≤ 60
g. ~~(6)~~ Station Service Water	≤ ~~47(1)/37(2)~~ N.A.
h. ~~(7)~~ Component Cooling Water	N.A.
i. ~~(8)~~ Safety Chilled Water	N.A.
j. ~~(9)~~ Emergency Diesel Generator Operation	≤ ~~10~~ 12
k. ~~(10)~~ Turbine Trip	N.A.
l. ~~(11)~~ Control Room Emergency Recirculation	N.A.
m. UPS Ventilation	N.A.
n. ~~b.~~ Steam Line Isolation	≤ ~~7~~ 6.5
5. Containment Pressure-High-3	
a. Containment Spray Pump	≤ ~~45(2)/57(1)~~ 22(7)
b. Phase "B" Isolation	≤ ~~65(1)/75(2)~~ N.A.

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TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION	RESPONSE TIME IN SECONDS
6. Containment Pressure--High-2	
Steam Line Isolation	≤ ~~7~~ 6.5
7. Steam Line Pressure-Negative Rate-High	
Steam Line Isolation	≤ 7
8. Steam Generator Water Level-High-High	
a. Turbine Trip	≤ ~~2.5~~ N.A.
b. Feedwater Isolation	≤ 11
9. Steam Generator Water Level - Low-Low	
a. Motor-Drive Auxiliary Feedwater Pumps	≤ 60
b. Turbine-Driven Auxiliary Feedwater Pump (8)	≤ 60
10. Loss-of-Offsite Power	
a. Auxiliary Feedwater	N.A.
b. Safety Chilled Water	N.A.
c. Control Room Emergency Recirculation	N.A.
11. Trip of All Main Feedwater Pumps	
All Auxiliary Feedwater Pumps	N.A.
12. RWST Level-Low-Low Coincident With Safety Injection	
Automatic Initiation of ECCS Switchover to Containment Sump	≤ 30
13. Loss of Power (6.9 kV Safeguards System Undervoltage)	
a. ~~Preferred Offsite Source Undervoltage~~ Degraded Voltage-Emergency DG. Operation	≤ 70
b. ~~Bus Undervoltage~~ Loss of Voltage - Emergency D.G. Operation	≤ 10

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POWER DISTRIBUTION LIMITS

LIMITING CONDITION FOR OPERATION

ACTION (Continued)

b. Within 24 hours of initially being outside the above limits, verify through incore flux mapping and RCS total flow rate comparison that the combination of R and RCS total flow rate are restored to within the above limits, or reduce THERMAL POWER to less than 5% of RATED THERMAL POWER within the next 2 hours.

c. Identify and correct the cause of the out-of-limit condition prior to increasing THERMAL POWER above the reduced THERMAL POWER limit required by ACTION a.2. and/or b., above; subsequent POWER OPERATION may proceed provided that the combination of R and indicated RCS total flow rate are demonstrated, through incore flux mapping and RCS total flow rate comparison, to be within the region of acceptable operation shown on Figure 3.2-3 prior to exceeding the following THERMAL POWER levels:

1. A nominal 50% of RATED THERMAL POWER,

2. A nominal 75% of RATED THERMAL POWER, and

3. Within 24 hours of attaining greater than or equal to 95% of RATED THERMAL POWER.

SURVEILLANCE REQUIREMENTS

4.2.3.1 The provisions of Specification 4.0.4 are not applicable.

4.2.3.2 The combination of indicated RCS total flow rate and R shall be determined to be within the region of acceptable operation of Figure 3.2-3:

a. Prior to operation above 75% of RATED THERMAL POWER after each fuel loading, and

b. At least once per 31 Effective Full Power Days.

4.2.3.3 The indicated RCS total flow rate shall be verified to be within the region of acceptable operation of Figure 3.2-3 at least once per 12 hours when the most recently obtained value of R, obtained per Specification 4.2.3.2, are assumed to exist.

4.2.3.4 The RCS total flow rate indicators shall be subjected to a CHANNEL CALIBRATION at least once per 18 months. ~~The measurement instrumentation shall be calibrated within 7 days prior to the performance of the calorimetric flow measurement.~~

4.2.3.5 The RCS total flow rate shall be determined by precision heat balance measurement at least once per 18 months. The Feedwater Pressure and Temperature, the Main Steam Pressure, and the Feedwater Flow Differential Pressure Instruments shall be calibrated within 90 days of the performance of the calorimetric flow measurement.

TABLE 3.3-2

REACTOR TRIP SYSTEM INSTRUMENTATION RESPONSE TIMES

FUNCTIONAL UNIT		RESPONSE TIME
1.	Manual Reactor Trip	N.A.
2.	Power Range, Neutron Flux	≤ 0.5 second*
3.	Power Range, Neutron Flux, High Positive Rate	N.A.
4.	Power Range, Neutron Flux, High Negative Rate	≤ 0.5 second*
5.	Intermediate Range, Neutron Flux	N.A.
6.	Source Range, Neutron Flux	N.A.
7.	Overtemperature, N-16	≤ 7 seconds#*
8.	Overpower, N-16	≤ 7 seconds*
9.	Pressurizer Pressure--Low	≤ 2 seconds
10.	Pressurizer Pressure--High	≤ 2 seconds
11.	Pressurizer Water Level--High	N.A.

/gamma

*Neutron detectors are exempt from response time testing. Response time of the neutron /gamma flux signal portion of the channel shall be measured from detector output or input of first electronic component in channel.

#Response time includes the thermal well response time.

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INSTRUMENTATION

METEOROLOGICAL INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.4 The meteorological monitoring instrumentation channels shown in Table 3.3-8 shall be OPERABLE.

APPLICABILITY: At all times.

ACTION: the number of OPERABLE channels less than the minimum channels OPERABLE requirement

a. With ~~one or more required meteorological monitoring channels inoperable~~ for more than 7 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the channel(s) to OPERABLE status.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.4 Each of the above meteorological monitoring instrumentation channels shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK and CHANNEL CALIBRATION at the frequencies shown in Table 4.3-5.

CONTAINMENT SYSTEMS

AIR TEMPERATURE

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LIMITING CONDITION FOR OPERATION

3.6.1.5 Primary containment average air temperature shall not exceed 120°F.

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

ACTION:

With the containment average air temperature greater than 120°F, reduce the average air temperature to within the limit within 8 hours, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.5 The primary containment average air temperature shall be the arithmetical average of the temperatures at the following locations and shall be determined at least once per 24 hours:

Location

a. ~~Containment, El. 911'-9"~~ Dome, El. 1000'-6"

b. ~~Containment, El. 866'-0"~~ Floor, El. 905'-9"

c. ~~Containment, El. 814'-0"~~ Floor, El. 860'-0"

d. Floor, El. 860'-0"

e. Floor, El. 808'-0"

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TABLE 3.7-6

AREA TEMPERATURE MONITORING

	AREA	TEMPERATURE LIMIT (°F)
1.	Control Room	80
2.	Fuel Handling Building (Normal access areas)	104
3.	Safeguards Building (Normal access areas)	104
4.	Auxiliary Building (Normal access areas)	104
5.	Electrical & Control Building (Normal access areas)	104
6.	Diesel Generator Building	122
7.	Service Water Intake Structure	122
8.	Turbine Building - Switchgear Area	115
9.	Containment ~~(Outside missile shield)~~ Outside Missile Barrier	~~120~~ 120
	CRDM Shroud	163
	Detector Well & Reactor Cavity Exhaust	~~135~~ 150
	Inside Missile ~~Shield~~ Barrier	140
10.	RHR Pump Rooms	122
11.	SI Pump Rooms	122
12.	CCW Pump Rooms	122
13.	Centrifugal Charging Pump Rooms	122
14.	UPS/Battery Room Areas	104
15.	Spent Fuel Pool Cooling & Cleanup Pump and Heat Exchanger Rooms	122
16.	AFW Pump Rooms	122
17.	~~CCS~~ Containment Spray Pump Rooms	122

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2) Verifying the fuel level in the fuel storage tank,

3) Verifying the fuel transfer pump starts and transfers fuel from the storage system to the day tank,

4) Verifying the diesel starts from ambient condition and accelerates to at least 441 ~~450~~ rpm in less than or equal to 10 seconds.* The generator voltage and frequency shall be 6900 ± 690 volts and 60 ± 1.2 Hz within 10 seconds* after the start signal. The diesel generator shall be started for this test by using one of the following signals:

a) Manual, or

b) Startup transformer secondary winding undervoltage, or

c) Simulated loss of preferred offsite power by itself, or

d) Simulated safeguards bus undervoltage, or

e) Safety Injection Actuation Test signal in conjunction with loss of preferred offsite power, or

f) Safety Injection Actuation test signal by itself.

5) Verifying the generator is synchronized, loaded to between 5800 and 5980 kW in less than or equal to 60 seconds,* and operates with a load between 5800 and 5980 kW for at least 60 minutes, and

6) Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.

b. At least once per 31 days and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from the day tank;

c. At least once per 92 days by checking for and removing accumulated water from the fuel oil storage tanks;

d. By sampling new fuel oil in accordance with ASTM-D4057 prior to addition to storage tanks and:

*These diesel generator starts from ambient conditions shall be performed only once per 184 days in these surveillance tests and all other engine starts for the purpose of this surveillance testing shall be preceded by an engine pre-lube period and/or other warmup procedures recommended by the manufacturer so that the mechanical stress and wear on the diesel engine is minimized.

after the start signal; the steady-state generator voltage and frequency shall be maintained within these limits during this test. Within 5 minutes after completing this 24-hour test, perform Specification 4.8.1.1.2e.6)b);*

8) Verifying that the auto-connected loads to each diesel generator do not exceed the continuous rating of 7000 kW;

9) Verifying the diesel generator's capability to:

   a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,

   b) Transfer its loads to the offsite power source, and

   c) Be restored to its standby status.

10) Verifying that with the diesel generator operating in a test mode, connected to its bus, a simulated Safety Injection signal overrides the test mode by: (1) returning the diesel generator to standby operation, and (2) automatically energizing the emergency loads with offsite power;

11) Verifying that the fuel transfer pump transfers fuel from the fuel storage tank to the day tank of its associated diesel via the installed lines;

12) Verifying that the automatic load sequence timers are OPERABLE with the interval between each load block within ± 10% of its design interval;

13) Verifying that the following diesel generator lockout features prevent diesel generator starting by an SI signal:

   a) Barring device engaged (PS-13B closed), or
   b) Maintenance lock out mode.

g. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting both diesel generators simultaneously, during shutdown, and verifying that both diesel generators accelerate to at least ~~450~~ 441 rpm in less than or equal to 10 seconds; and

*If Specification 4.8.1.1.2f.6)b) is not satisfactorily completed, it is not necessary to repeat the preceding 24-hour test. Instead, the diesel generator may be operated between 5800 and 5980 kW for 1 hour or until operating temperature has stabilized.

REACTOR TRIP SYSTEM and ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION (Continued)

The Engineered Safety Features Actuation System interlocks perform the following functions:

P-4 Reactor tripped - Actuates Turbine trip, closes main feedwater valves on T_{avg} below Setpoint, prevents the opening of the main feedwater valves which were closed by a Safety Injection or High Steam Generator Water Level signal, allows safety injection block so that components can be reset or tripped.

Reactor not tripped - prevents manual block of Safety Injection.

P-11 On increasing pressurizer pressure, P-11 automatically reinstates Safety Injection actuation on low pressurizer pressure and low steam line pressure. On decreasing pressure, P-11 allows the manual block of safety injection actuation on low pressurizer pressure and low steam line pressure. to prevent an uncontrolled cooldown due to steam dump operation

P-12 On increasing reactor coolant loop temperature, P-12 automatically provides an arming signal to the steam dump system. On decreasing reactor coolant loop temperature, P-12 automatically removes the arming signal from the Steam Dump System and allows the operator to go to bypass interlock to continue a controlled cooldown using three cooldown values.

P-14 On increasing steam generator water level, P-14 automatically trips all feedwater isolation valves and inhibits feedwater control valve modulation, trips the main feed pumps, and trips the main turbine.

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING FOR PLANT OPERATIONS

The OPERABILITY of the radiation monitoring instrumentation for plant operations ensures that: (1) the associated action will be initiated when the radiation level monitored by each channel or combination thereof reaches its Setpoint, (2) the specified coincidence logic is maintained, and (3) sufficient redundancy is maintained to permit a channel to be out-of-service for testing or maintenance. The radiation monitors for plant operations senses radiation levels in selected plant systems and locations and determines whether or not predetermined limits are being exceeded. If they are, the signals are combined into logic matrices sensitive to combinations indicative of various accidents and abnormal conditions. Once the required logic combination is completed, the system sends actuation signals to initiate alarms or automatic isolation action and actuation of Emergency Exhaust or Ventilation Systems.

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TABLE 3.6-1 (Continued)

TABLE NOTATIONS

*Identification code for containment penetration and associated isolation valves in FSAR Tables 6.2.4-1, 6.2.4-2, and 6.2.4-3.

Note 1: These are closed systems which meet the requirements of NUREG-0800 Section 6.2.4, II.6, paragraph o. These valves are therefore not required to be leak tested.

Note 2: These valves inside containment are part of closed systems outside containment which are in service post accident at a pressure in excess of containment design pressure and satisfy single failure criterion. These valves are therefore not required to be leak tested.

Note 3: These are closed systems outside containment which are in service post accident and have a water-filled loop seal on the containment side of the valves for a period greater than 30 days following the accident. These valves are therefore leak rate tested with water.

Note 4: These ESF valves are normally open and remain open during post-accident conditions. Postaccident they are continually pressurized in excess of containment pressure from an ESF source which meets the single failure criterion. These valves are therefore not required to be leak tested.

Note 5: An effective fluid seal on these penetrations is provided by the suction sources to the residual heat removal pumps during and following an accident. In addition, these containment isolation valves are non-automatic, are not required to operate postaccident and are located inside containment. These valves are therefore not required to be leak tested.

Note 6: ~~These ESF valves are normally closed, but are designed to open during post-accident conditions. They are part of closed systems outside containment which are in service post accident at a pressure in excess of containment design pressure and satisfy single failure criteria. In the event the valve is not opened post-accident, leakage of containment atmosphere is prevented by pump pressure on the system side and a water seal on the containment side of the valve. The combination of the valve disc seal and the double stem seals preclude the possibility of significant stem leakage under the low containment pressure conditions seen in the postulated post-accident condition. Therefore, these valves are not required to be tested.~~ Not Used.

Note 7: These are parallel ESF valves that are normally closed, but are designed to open during post-accident conditions. Failure of one valve to open will not prevent system pressurization on both sides of both valves in excess of containment pressure. These valve are therefore not required to be leak tested.

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TABLE 3.6-1 (Continued)

TABLE NOTATIONS

Note 8: These valves located outside containment are normally closed and see a pressure in excess of containment pressure in post-accident conditions. ~~A valve stem leakage check will be performed on a quarterly basis to assure no significant stem leakage would occur in post-accident conditions.~~

Note 9: These valves are classified as "passive" in accordance with Specification 4.0.5 and are stroke time-tested only following maintenance which could effect the stroke time of the valve.

Note 10: These valves require steam to be tested and are thus not required to be tested until the plant is in MODE 3.

A quarterly valve stem leakage check will be performed on each valve and limited to a maximum of 25 ml/min per valve. On a selective basis, adjustments and repairs will be made to reduce stem leakage on those valves approaching the maximum stem leakage value.

SURVEILLANCE REQUIREMENTS (Continued)

3) Verifying that the Emergency Pressurization System maintains the control room at a positive pressure of greater than or equal to 1/8 inch Water Gauge relative to the adjacent areas, including the outside atmosphere, at a flow rate of less than or equal to 260 cfm during system operation;

4) Verifying that the heaters in the Emergency Pressurization System dissipate ~~20~~ ± 1 kW when tested in accordance with ANSI N510-~~1975~~ 1980; and 10

5) Verifying that on a High Chlorine test signal, the system automatically switches into the recirculation mode of operation with flow through the recirculation HEPA filters and charcoal adsorber banks within 10 seconds.

f. After each complete or partial replacement of a HEPA filter bank in the Recirculation System, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the system at a flow rate of 8000 cfm ± 10%;

g. After each complete or partial replacement of a charcoal adsorber bank in the Recirculation System, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 8000 cfm ± 10%;

h. After each complete or partial replacement of a HEPA filter bank in the Emergency Pressurization System, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a DOP test aerosol while operating the system at a flow rate of 800 cfm ± 10%; and

i. After each complete or partial replacement of a charcoal adsorber bank in the Emergency Pressurization System, by verifying that the cleanup system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the system at a flow rate of 800 cfm ± 10%.

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