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February 22, 2000

Mr. Gregory M. Rueger
Senior Vice President and General Manager
Pacific Gas and Electric Company
Diablo Canyon Nuclear Power Plant
P. O. Box 3
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON NUCLEAR POWER PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENT RE: MAIN FEEDWATER SYSTEM (TAC NOS. MA3407 AND MA3408)

Dear Mr. Rueger:

The Commission has issued the enclosed Amendment No. 140 to Facility Operating License No. DPR-80 and Amendment No. 140to Facility Operating License No. DPR-82 for the Diablo Canyon Nuclear Power Plant (DCNPP), Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TS) in response to your application dated August 10, 1998, as supplemented by letter dated November 24, 1999.

The amendments revise TS 3/4.3.2, Table 3.3-5, "Engineered Safety Features Response Times," of the current Technical Specifications (CTS) to add the response times for closure of the main feedwater regulating valves (MFRVs) and MFRV bypass valves, and trip of the main feedwater pumps (MFWPs). The change would also revise TS 3/4.7.1.7 to add a limiting condition for operation (LCO), actions, and surveillance requirements for the MFWP turbine stop valves, and revise the TS 3/4.7.1.7 actions and surveillance requirements for the MFRVs, MFRV bypass valves, and main feedwater isolation valves (MFIVs) to be consistent with the NUREG-1431 requirements. These amendments also revise Section 3.7.3 and its associated bases of the improved Technical Specification (ITS) to make the corresponding revisions to the CTS.

A copy of the related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,
/RA/
Steven D. Bloom, Project Manager, Section 2
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-275
and 50-323

Enclosures: 1. Amendment No. 140 to DPR-80
2. Amendment No. 140 to DPR-82
3. Safety Evaluation

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

PACIFIC GAS AND ELECTRIC COMPANY

DOCKET NO. 50-323

DIABLO CANYON NUCLEAR POWER PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 140
License No. DPR-82

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Pacific Gas and Electric Company (the licensee) dated August 10, 1998, as supplemented by letter dated November 24, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-82 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 140, are hereby incorporated in the license. Pacific Gas and Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days from the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Stephen Dembek, Chief, Section 2
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: February 22, 2000

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

PACIFIC GAS AND ELECTRIC COMPANY

DOCKET NO. 50-323

DIABLO CANYON NUCLEAR POWER PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 140
License No. DPR-82

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Pacific Gas and Electric Company (the licensee) dated August 10, 1998, as supplemented by letter dated November 24, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-82 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 140, are hereby incorporated in the license. Pacific Gas and Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days from the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Stephen Dembek, Chief, Section 2
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: February 22, 2000

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 140 TO FACILITY OPERATING LICENSE NO. DPR-80

AND AMENDMENT NO. 140 TO FACILITY OPERATING LICENSE NO. DPR-82

DOCKET NOS. 50-275 AND 50-323

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are to both the current Technical Specifications (CTS) and to the improved Technical Specifications (ITS). The revised pages are identified by the above amendment numbers and contain marginal lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness for the CTS.

REMOVE	INSERT
3/4 3-28	3/4 3-28 (CTS)
3/4 3-29	3/4 3-29 (CTS)
3/4 3-30	3/4 3-30 (CTS)
3/4 3-31	3/4 3-31 (CTS)
3/4 7-9b	3/4 7-9b (CTS)
---	3/4 7-9c (CTS)
B 3/4 7-8	B 3/4 7-8 (CTS)
B 3/4 7-9	B 3/4 7-9 (CTS)
B 3/4 7-10	B 3/4 7-10 (CTS)
B 3/4 7-11	B 3/4 7-11 (CTS)
3.7-6	3.7-6 (ITS)
3.7-7	3.7-7 (ITS)
3.7-8	3.7-8 (ITS)
B 3.7-12	B 3.7-12 (ITS)
B 3.7-13	B 3.7-13 (ITS)
B 3.7-14	B 3.7-14 (ITS)
B 3.7-15	B 3.7-15 (ITS)
B 3.7-16	B 3.7-16 (ITS)
B 3.7-17	B 3.7-17 (ITS)
B 3.7-18	B 3.7-18 (ITS)

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
7. Loss of Power (4.16 kV Emergency Bus Undervoltage)		
a. First Level		
1) Diesel Start	≥ 0 volts with a ≤ 0.8 second time delay and ≥ 2583 volts with a ≤ 10 second time delay	≥ 0 volts with a ≤ 0.8 second time delay and ≥ 2583 volts with a ≤ 10 second time delay
2) Initiation of Load Shed	One relay ≥ 0 volts with a ≤ 4 second time delay and ≥ 2583 volts with a ≤ 25 second time delay with one relay ≥ 2870 volts, instantaneous	One relay ≥ 0 volts with a ≤ 4 second time delay and ≥ 2583 volts with a ≤ 25 second time delay with one relay ≥ 2870 volts, instantaneous
b. Second Level		
1) Diesel Start	≥ 3785 volts with a ≤ 10 second time delay	≥ 3785 volts with a ≤ 10 second time delay
2) Initiation of Load Shed	≥ 3785 volts with a ≤ 20 second time delay	≥ 3785 volts with a ≤ 20 second time delay
8. Engineered Safety Features Actuation System Interlocks		
a. Pressurizer Pressure, P-11	≤ 1915 psig	≤ 1917.5 psig
b. DELETED		
c. Reactor Trip, P-4	N.A.	N.A.
9. Residual Heat Removal Pump Trip on Refueling Water Storage Tank Level - Low	32.56%	≤ 33.68% and ≥ 31.44%

NOTE 1: Time constants utilized in the lead-lag compensator for Steam Pressure - Low are τ_1 = 50 seconds and τ_2 = 5 seconds.

NOTE 2: Steam Generator Water Level Low-Low Trip Time Delay

$TD = B1(P)^3 + B2(P)^2 + B3(P) + B4$

Where: P = RCS Loop ΔT Equivalent to Power (%RTP), P ≤ 50% RTP

TD = Time delay for Steam Generator Water Level Low-Low (in seconds)

B1 = -0.007128

B2 = +0.8099

B3 = -31.40

B4 = +464.1

NOTE 3: Time constants utilized in the rate-lag compensator for Negative Steam Line Pressure Rate - High are τ_3 = 50 seconds and τ_4 = 50 seconds.

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.
1) Feedwater Isolation	N.A.
2) Reactor Trip	N.A.
3) Phase "A" Isolation	N.A.
4) Containment Ventilation Isolation	N.A.
5) Auxiliary Feedwater	N.A.
6) Component Cooling Water	N.A.
7) Containment Fan Cooler Units	N.A.
8) Auxiliary Saltwater Pumps	N.A.
b. Phase "B" Isolation	
1) Containment Spray (Coincident with SI Signal)	N.A.
2) Containment Ventilation Isolation	N.A.
c. Phase "A" Isolation	
1) Containment Ventilation Isolation	N.A.
d. Steam Line Isolation	N.A.
2. Containment Pressure-High	
a. Safety Injection (ECCS)	$\leq 27^{(7)}/25^{(4)}$
1) Reactor Trip	≤ 2
2) Feedwater Isolation	(9)
3) Phase "A" Isolation	$\leq 18^{(1)}/28^{(3)}$
4) Containment Ventilation Isolation	N.A.
5) Auxiliary Feedwater	$\leq 60^{(3)}$
6) Component Cooling Water	$\leq 38^{(1)}/48^{(3)}$
7) Containment Fan Cooler Units	$\leq 40^{(3)}$
8) Auxiliary Saltwater Pumps	$\leq 48^{(1)}/58^{(3)}$
3. Pressurizer Pressure-Low	
a. Safety Injection (ECCS)	$\leq 27^{(7)}/25^{(4)}/35^{(5)}$
1) Reactor Trip	≤ 2
2) Feedwater Isolation	(9)
3) Phase "A" Isolation	$\leq 18^{(1)}$
4) Containment Ventilation Isolation	N.A.
5) Auxiliary Feedwater	$\leq 60^{(3)}$
6) Component Cooling Water	$\leq 48^{(3)}/38^{(1)}$
7) Containment Fan Cooler Units	$\leq 40^{(3)}$
8) Auxiliary Saltwater Pumps	$\leq 58^{(3)}/48^{(1)}$

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION			RESPONSE TIME IN SECONDS
4.	Negative Steam Line Pressure Rate-High		
	a.	Steam Line Isolation	≤ 8
5.	DELETED		
6.	Steam Line Pressure-Low		
	a.	Safety Injection (ECCS)	≤ 25[4]/35[5]
		1) Reactor Trip	≤ 2
		2) Feedwater Isolation	(9)
		3) Phase "A" Isolation	≤ 18[1]/28[3]
		4) Containment Ventilation Isolation	N.A.
		5) Auxiliary Feedwater	≤ 60[3]
		6) Component Cooling Water	≤ 38[1]/48[3]
		7) Containment Fan Cooler Units	≤ 40[3]
		8) Auxiliary Saltwater Pumps	≤ 48[1]/58[3]
	b.	Steam Line Isolation	≤ 8

TABLE 3.3-5 (Continued)

ENGINEERED SAFETY FEATURES RESPONSE TIMES

INITIATING SIGNAL AND FUNCTION		RESPONSE TIME IN SECONDS
7. Containment Pressure-High-High		
a.	Containment Spray	≤ 48.5[6]
b.	Phase "B" Isolation	N.A.
c.	Steam Line Isolation	≤ 7
8. Steam Generator Water Level-High-High		
a.	Turbine Trip	≤ 2.5
b.	Feedwater Isolation	(9)
9. Steam Generator Water Level Low-Low		
a.	Motor-Driven Auxiliary Feedwater Pumps	≤ 60[3][8]
b.	Turbine-Driven Auxiliary Feedwater Pump	≤ 60[8]
10. RCP Bus Undervoltage		
	Turbine-Driven Auxiliary Feedwater Pump	≤ 60
11. Deleted		
12. Containment Ventilation Exhaust Radiation-High		
	Containment Ventilation Isolation	≤ 11

TABLE 3.3-5 (Continued)

TABLE NOTATIONS

(1) Diesel generator starting delay not included because offsite power available.

(2) Notation deleted.

(3) Diesel generator starting and loading delays included.

(4) Diesel generator starting delay not included because offsite power is available. Response time limit includes opening of valves to establish SI path and attainment of discharge pressure for centrifugal charging pumps (where applicable). Sequential transfer of charging pump suction from the VCT to the RWST (RWST valves open, then VCT valves close) is included.

(5) Diesel generator starting and sequence loading delays included. Offsite power is not available. Response time limit includes opening of valves to establish SI path and attainment of discharge pressure for centrifugal charging pumps. Sequential transfer of charging pump suction from the VCT to the RWST (RWST valves open, then VCT valves close) is included.

(6) The maximum response time of 48.5 seconds is the time from when the containment pressure exceeds the High-High Setpoint until the spray pump is started and the discharge valve travels to the fully open position assuming off-site power is not available. The time of 48.5 seconds includes the 28-second maximum delay related to ESF loading sequence. Spray riser piping fill time is not included. The 80-second maximum spray delay time does not include the time from LOCA start to "P" signal.

(7) Diesel generator starting and sequence loading delays included. Sequential transfer of charging pump suction from the VCT to the RWST (RWST valves open, then VCT valves close) is not included. Response time limit includes opening of valves to establish SI flow path and attainment of discharge pressure for centrifugal charging pumps, SI, and RHR pumps (where applicable).

(8) Does not include Trip Time Delays. Response times include the transmitters, Eagle-21 Process Protection cabinets, Solid State Protection System cabinets and actuation devices only. This reflects the response times necessary for THERMAL POWER in excess of 50% RTP.

(9) Feedwater isolation includes closure of the main feedwater regulating valves (MFRVs), MFRV bypass valves, main feedwater isolation valves (MFIVs), and trip of the main feedwater pumps (MFWPs). The response time for feedwater isolation by closure of the MFRVs and MFRV bypass valves is 9 seconds. The response time for feedwater isolation by closure of the MFIVs is 63 seconds for a safety injection signal; and 66 seconds for a steam generator water level - high-high signal. The response time for feedwater isolation by trip of the MFWPs is 5 seconds (not including pump coastdown).

TABLE 4.3-2

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL OPERATIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Safety Injection, (Reactor Trip Feedwater Isolation, Start Diesel Generators, Containment Fan Cooler Units, and Component Cooling Water)								
a. Manual Initiation	N.A.	N.A.	N.A.	R24	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	R24	1, 2, 3, 4
c. Containment Pressure-High	S	R24	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4
d. Pressurizer Pressure-Low	S	R24	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
e. DELETED								
f. Steam Line Pressure-Low	S	R24	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
2. Containment Spray (coincident with SI signal)								
a. Manual Initiation	N.A.	N.A.	N.A.	R24	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	M(1)	M(1)	R24	1, 2, 3, 4
c. Containment Pressure-High-High	S	R24	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4

MAIN FEEDWATER ISOLATION VALVES (MFIVs), MAIN FEEDWATER REGULATING VALVES (MFRVs), MFRV BYPASS VALVES, AND MAIN FEEDWATER PUMP (MFWP) TURBINE STOP VALVES

LIMITING CONDITION FOR OPERATION

3.7.1.7 Four MFIVs, four MFRVs, four MFRV bypass valves, and four MFWP turbine stop valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3, except when MFIV, MFRV, or MFRV bypass valve is closed and deactivated or isolated by a closed manual valve; or when MFWP turbine stop valve is closed and steam supply to the MFWP turbine is isolated, or MFWP discharge is isolated by a closed manual valve.

ACTION:

a. With one or more MFIVs inoperable, restore the inoperable MFIV to OPERABLE status or close or isolate the MFIV within 72 hours; verify the MFIV closed or isolated once per 7 days. Separate ACTION entry is allowed for each valve.

b. With one or more MFRVs inoperable, restore the inoperable MFRV to OPERABLE status or close or isolate the MFRV within 72 hours; verify the MFRV closed or isolated once per 7 days. Separate ACTION entry is allowed for each valve.

c. With one or more MFRV bypass valves inoperable, restore the inoperable MFRV bypass valve to OPERABLE status or close or isolate the MFRV bypass valve within 72 hours; verify the MFRV bypass valve closed or isolated once per 7 days. Separate ACTION entry is allowed for each valve.

d. With one or more MFWP turbine stop valves inoperable; restore the inoperable MFWP turbine stop valve to OPERABLE status or close the MFWP turbine stop valve or trip the MFWP or isolate the MFWP discharge within 72 hours; verify the MFWP turbine stop valve closed, the MFWP tripped, or the MFWP discharge isolated once per 7 days. Separate ACTION entry is allowed for each valve.

e. With two valves inoperable resulting in a loss of feedwater isolation capability for a flow path, restore at least one valve to OPERABLE status or isolate the affected flow path within 8 hours.

f. Required ACTION requirements above not met, be in at least HOT STANDBY in 6 hours and in HOT SHUTDOWN within the following 6 hours.

MAIN FEEDWATER ISOLATION VALVES (MFIVs), MAIN FEEDWATER REGULATING VALVES (MFRVs), MFRV BYPASS VALVES, AND MAIN FEEDWATER PUMP (MFWP) TURBINE STOP VALVES

SURVEILLANCE REQUIREMENTS

4.7.1.7.1 Each MFRV and MFRV bypass valve shall be demonstrated OPERABLE by determining the isolation time of each valve to be less than or equal to 7 seconds (not including instrument delays) at least each COLD SHUTDOWN but not more frequently than once per 92 days.

4.7.1.7.2 Each MFIV shall be demonstrated OPERABLE by determining the isolation time of each valve to be less than or equal to 60 seconds (not including instrument delays) when tested pursuant to Specification 4.0.5.

4.7.1.7.3 Each MFWP turbine stop valve shall be demonstrated OPERABLE by determining the closure time of each valve to be less than or equal to 1 second (not including instrument delays) at least each COLD SHUTDOWN, but not more frequently than once per 92 days.

4.7.1.7.4 Verify each MFIV, MFRV, MFRV bypass valve, and MFWP turbine stop valve actuates to the closed position on an actual or simulated actuation signal at least once every 24 months.

3/4.7.1.3 AUXILIARY FEEDWATER SOURCE

The principal function of the Auxiliary Feedwater (AFW) Source is to provide a qualified source of water to the steam generators via the AFW System for removal of decay and sensible heat from the Reactor Coolant System (RCS) through generation and release of steam.

The minimum usable water volume in the Condensate Storage Tank (CST) ensures the availability of sufficient water for cooldown of the RCS to less than 350°F in the event of a total loss of offsite power. This minimum volume is also sufficient to remove decay heat sufficient to maintain the RCS at HOT STANDBY conditions for 8 hours with steam discharge to the atmosphere.

An alternate plant cooldown scenario has been postulated for the loss of offsite power, which assumes a reduced Reactor Coolant System cooldown rate and provides credit only for seismically qualified water sources. The lower rate increases the cooldown time period until the Residual Heat Removal System can be used to remove further decay heat. The capacity of the seismically qualified portion of the CST is less than the total amount of water needed for the extended time period. The Fire Water Storage Tank (FWST) has been identified as the seismically qualified source of additional water in the event of an extended cooldown without offsite power.

With the CST less than the required volume, the volume must be restored to the limit. Four hours provides time to restore the required volume from the condenser, or other source, and is a reasonable time to limit the risk from accidents requiring the plant to cool down.

With the FWST unable to supply the required backup volume of cooling water to the AFW System, the operability of the supply must be restored within seven days. This is considered a reasonable time to limit the risk of an accident which would require the use of the backup volume in addition to the primary volume maintained in the CST. Alternate non-seismically qualified water sources are also available to supply water to supplement the CST volume.

3/4.7.1.4 SPECIFIC ACTIVITY

The limitations on Secondary Coolant System specific activity ensure that the resultant off-site radiation dose will be limited to a small fraction of 10 CFR Part 100 dose guideline values in the event of a steam line rupture. This dose also includes the effects of a coincident 1 gpm reactor-to-secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the safety analyses.

3/4.7.1.5 MAIN STEAM LINE ISOLATION VALVES

The OPERABILITY of the main steam line isolation valves ensures that no more than one steam generator will blowdown in the event of a steam line rupture. This restriction is required to: (1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and (2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the main steam isolation valves within the closure times of the Surveillance Requirements is consistent with the assumptions used in the safety analyses.

3/4.7.1.6 STEAM GENERATOR 10% ATMOSPHERIC DUMP VALVES

The Limiting Condition for Operation requirement of four steam generator 10% atmospheric dump valves (ADVs) (PCV-19, PCV-20, PCV-21, and PCV-22) ensures that following a steam generator tube rupture accident subcooling can be achieved, consistent with assumptions used in the steam generator tube rupture analysis, to facilitate equalizing pressures between the Reactor Coolant System and the faulted steam generator. This eliminates further primary to secondary leakage and potential subsequent overfill of the affected steam generator. The analysis assumes that the 10% ADV on the ruptured steam generator is not used, and that the other three 10% ADVs are used for heat removal. The surveillance requirement for the 10% ADVs backup air bottles ensures that the 10% ADVs will be available to mitigate the consequences of a steam generator tube rupture accident concurrent with loss of offsite power.

A backup air bottle pressure of 260 psig provides adequate air to operate as assumed in the analysis. This provides sufficient margin to allow cooldown consistent with the analysis assumptions.

Concurrent with the requirement that a specific number of 10% ADVs be OPERABLE is the requirement that the associated 10% ADV block valves upstream be open. Should an associated 10% ADV block valve be closed, the 10% ADV downstream of that block valve should also be considered inoperable and the applicable ACTION statement shall be entered until such time that the block valve is opened.

Additionally, the requirements of Technical Specification 3.6.3, Containment Isolation Valves, apply to the 10% ADVs.

The Technical Specification is applicable in plant operational Modes 1, 2, and 3 because the 10% ADVs are required to provide the subcooling as necessary to permit primary system depressurization for SGTR accident mitigation.

3/4.7.1.7 MAIN FEEDWATER ISOLATION VALVES (MFIVs), MAIN FEEDWATER REGULATING VALVES (MFRVs), MFRV BYPASS VALVES, AND MAIN FEEDWATER PUMP (MFWP) TURBINE STOP VALVES

The OPERABILITY of the MFIVs, MFRVS, MFRV bypass valves and MFWP turbine stop valves ensures that the valves will be capable of performing their intended safety function. The safety function of these valves is to rapidly close following: (1) a steam line or feedwater line

3/4.7.1.7 MAIN FEEDWATER ISOLATION VALVES (MFIVs), MAIN FEEDWATER REGULATING VALVES (MFRVs), MFRV BYPASS VALVES, AND MAIN FEEDWATER PUMP (MFWP) TURBINE STOP VALVES (continued)

rupture, thereby limiting the Reactor Coolant System cooldown and limiting the total energy release to the containment; or (2) a feedwater system malfunction, thereby limiting Reactor Coolant System cooldown.

The analysis of excessive RCS heat removal due to a feedwater system malfunction assumes that a control system malfunction or operator error causes a MFRV and associated bypass valve to open fully, resulting in a step increase in feedwater flow to one steam generator. The analysis assumes a feedwater isolation signal is generated by a high-high steam generator level. Feedwater isolation is assumed to occur as a result of the MFRV and associated bypass valve closing as a result of the feedwater isolation signal. Closure of the MFIVs and trip of the MFWPs provide feedwater isolation if a MFRV or MFRV bypass valve fails to close.

Rupture of a steam line is analyzed to calculate the response of the reactor core and to determine the resulting mass and energy releases. Two separate analyses are performed since conservative assumptions for the core response analysis are different than the conservative assumptions for the mass and energy release analysis. The core response analysis credits feedwater isolation as a result of the safety injection signal which results in a feedwater isolation signal. Feedwater isolation is assumed to occur as a result of closure of all MFRVs and MFRV bypass valves.

The mass and energy release analysis consists of several cases. The analysis assumes feedwater isolation occurs as a result of the safety injection signal which results in a feedwater isolation signal. Some cases are analyzed that assume a MFRV fails and feedwater isolation occurs as a result of closure of the MFIV. For cases with other single failure assumptions, feedwater isolation is assumed to occur as a result of closure of all MFRVs and MFRV bypass valves.

The core response and mass and energy releases that would result from a rupture of a main feedwater line are bounded by the analyses of the rupture of a main steam line.

The OPERABILITY of the MFIVs, MFRVs, MFRV bypass valves and MFWP turbine stop valves within the closure time of the surveillance requirements is consistent with the assumptions used in the safety analyses. When these valves are closed, they are performing their safety function.

The APPLICABILITY of this specification is MODES 1, 2, and 3, except when a MFIV, MFRV, or MFRV bypass valve is closed and deactivated or isolated by a closed manual valve; or when the MFWP turbine stop valve is closed and the steam supply to the MFWP turbine is isolated, or the MFWP discharge to the steam generators is isolated by a closed manual valve. The basis for this is that in MODES 1 and 2 there is significant energy and in MODE 3 there may be significant energy in the Steam Generators. With significant energy in the Steam Generators the valves are needed for isolation of the Steam Generators in the event of a secondary system pipe rupture.

3/4.7.1.7 MAIN FEEDWATER ISOLATION VALVES (MFIVs), MAIN FEEDWATER REGULATING VALVES (MFRVs), MFRV BYPASS VALVES, AND MAIN FEEDWATER PUMP (MFWP) TURBINE STOP VALVES (continued)

The ACTION statement requires that an inoperable valve either be restored to an OPERABLE condition or closed within 72 hours. Closing the valve fulfills the safety function of feedwater isolation so the ACTION Statement can be exited. If a MFIV, MFRV or a MFRV bypass valve is inoperable, another option available is to isolate the inoperable valve with at least one closed valve within 72 hours. If a MFWP turbine stop valve is inoperable, options available are to close the MFWP turbine stop valve or trip the MFWP or isolate the MFWP discharge to the steam generators within 72 hours, which will perform the safety function of feedwater isolation so the ACTION statement can be exited.

Separate ACTION entry is allowed for each inoperable valve unless there is a loss of feedwater isolation capability for a flow path. Redundant components in the flow path would perform the feedwater isolation function.

With either a MFRV or MFRV bypass valve and MFIV inoperable, or MFWP turbine stop valve (resulting in a loss of MFWP trip function) and MFRV or MFRV bypass valve inoperable, there may be no redundant system to operate automatically and perform the required safety function. Under these conditions, affected valves in each flow path must be restored to OPERABLE status, or the affected flow path isolated within 8 hours. This action returns the system to the condition where at least one valve in each flow path is performing the required safety function. With both a MFWP turbine stop valve and MFIV inoperable, the MFRV and MFRV bypass valve will operate automatically to provide feedwater isolation for the flow path. The 8 hour Completion Time is reasonable, based on operating experience, to complete the actions required to close the MFIV, MFRV, MFRV bypass valve, or MFWP turbine stop valve, or otherwise isolate the affected flow path.

3/4.7.3 VITAL COMPONENT COOLING WATER SYSTEM

The OPERABILITY of the Vital Component Cooling Water System ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses.

3/4.7.4 AUXILIARY SALTWATER SYSTEM

The OPERABILITY of the Auxiliary Saltwater System ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses.

Each auxiliary saltwater (ASW) pump room drain check valve is required to be OPERABLE for the associated ASW train to be OPERABLE. Both check valves are required to be OPERABLE to ensure that the ASW system can perform its required function if a design flood event occurred. In the event of a single failure, at least one ASW train will remain OPERABLE so that the plant can be shut down following the design flood event.

3/4.7.5 CONTROL ROOM VENTILATION SYSTEM

The OPERABILITY of the Control Room Ventilation System ensures that: (1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system, and (2) the control room will remain habitable for operations personnel during and following all credible accident conditions. The OPERABILITY of this system in conjunction with control room design provisions is based on limiting the radiation exposure to personnel occupying the control room to 5 rem or less whole body, or its equivalent. This limitation is consistent with the requirements of General Design Criterion 19 of Appendix A, 10 CFR Part 50. Operation of the system with the heaters operating to maintain low humidity using automatic control for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. ANSI N510-1980 will be used as a procedural guide for surveillance testing, except laboratory testing of charcoal shall be performed in accordance with ASTM D3803-1989.

3/4.7.6 AUXILIARY BUILDING SAFEGUARDS AIR FILTRATION SYSTEM

The OPERABILITY of the Auxiliary Building Safeguards Air Filtration System ensures that radioactive materials leaking from the ECCS equipment within the auxiliary building following a LOCA are filtered prior to reaching the environment. Operation of the system with the heaters operating to maintain low humidity for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The operation of this system and the resultant effect on offsite dosage calculations were assumed in the safety analyses. ANSI N510-1980 will be used as a procedural guide for surveillance testing, except laboratory testing of charcoal shall be performed in accordance with ASTM D3803-1989.

3/4.7.12 ULTIMATE HEAT SINK

The OPERABILITY of the Component Cooling Water (CCW) System and the components that it cools is ensured if the CCW temperature remains equal to or less than 132°F during any condition assumed in the safety analysis. One CCW heat exchanger is required in service when the ocean temperature is 64°F or less. Two CCW heat exchangers are required in service when the ocean temperature is greater than 64°F. If the reactor coolant temperature is less than 350°F (MODE 4), one CCW heat exchanger in service is adequate even if the ocean temperature is greater than 64°F.

3.7 PLANT SYSTEMS

3.7.3 Main Feedwater Isolation Valves (MFIVs), Main Feedwater Regulating Valves (MFRVs), MFRV Bypass Valves, and Main Feedwater Pump (MFWP) Turbine Stop Valves

LCO 3.7.3 Four MFIVs, four MFRVs, four MFRV bypass valves, and four MFWP turbine stop valves shall be OPERABLE

APPLICABILITY: MODES 1, 2, and 3 except when MFIV, MFRV, or MFRV bypass valve is closed and de-activated or isolated by a closed manual valve, or when MFWP turbine stop valve is closed and steam supply to the MFWP turbine is isolated, or when MFWP discharge is isolated by a closed manual valve.

ACTIONS

NOTE

Separate Condition entry is allowed for each valve.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more MFIVs inoperable.	A.1	Close or isolate MFIV.	72 hours
	AND		
	A.2	Verify MFIV is closed or isolated.	Once per 7 days
B. One or more MFRVs inoperable.	B.1	Close or isolate MFRV.	72 hours
	AND		
	B.2	Verify MFRV is closed or isolated.	Once per 7 days
C. One or more MFRV bypass valve(s) inoperable.	C.1	Close or isolate bypass valve.	72 hours
	AND		
	C.2	Verify bypass valve is closed or isolated.	Once per 7 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more MFWP turbine stop valves inoperable.	D.1.1 Close MFWP turbine stop valve. OR D.1.2 Trip MFWP. OR D.1.3 Isolate MFWP discharge. AND D.2 Verify MFWP turbine stop valve closed, MFWP tripped, or MFWP discharge isolated.	72 hours 72 hours 72 hours Once per 7 days
E. Two valves in the same flow path inoperable, resulting in a loss of feedwater isolation capability for the flow path.	E.1 Isolate affected flow path.	8 hours
F. Required Action and associated Completion Time not met.	F.1 Be in MODE 3 AND F.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.3.1	Verify the closure time of each MFIV is ≤ 60 seconds.	In accordance with the Inservice Testing Program
SR 3.7.3.2	Verify the closure time of each MFRV and MFRV bypass valve is ≤ 7 seconds.	At each COLD SHUTDOWN, but not more frequently than once per 92 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.7.3.3	Verify each MFIV, MFRV, MFRV bypass valve, and MFWP turbine stop valve actuates to the closed position on an actual or simulated actuation signal.	24 months
SR 3.7.3.4	Verify the closure time of each MFWP turbine stop valve is ≤ 1 second.	At each COLD SHUTDOWN, but not more frequently than once per 92 days.

B 3.7 PLANT SYSTEMS

B 3.7.3 Main Feedwater Isolation Valves (MFIVs), Main Feedwater Regulating Valves (MFRVs), MFRV Bypass Valves, and Main Feedwater Pump (MFWP) Turbine Stop Valves

BASES

BACKGROUND

The safety related function of the MFRVs and the MFRV bypass valves is to provide the initial isolation of main feedwater (MFW) flow to the secondary side of the steam generators following a high energy line break (HELB). Since the MFRVs and MFRV bypass valves are located in non-safety related piping, the MFIVs also provide safety related isolation of the MFW flow to the secondary side of the steam generators a short time later. Closure of the MFRVs and MFRV bypass valves or tripping of the MFWPs and closure of the MFIVs a short time later terminates flow to the steam generators, terminating the event for feedwater line breaks (FWLBs) occurring upstream of the MFIVs or MFRVs. The consequences of events occurring in the main steam lines or in the MFW lines downstream from the MFIVs will be mitigated by their closure. Closure of the MFRVs and MFRV bypass valves, or tripping of the MFWPs and closure of the MFIVs a short time later effectively terminates the addition of feedwater to an affected steam generator, limiting the mass and energy release for steam line breaks (SLBs) or FWLBs inside containment, and reducing the cooldown effects for SLBs.

The MFIVs isolate the non-safety related portions from the safety related portions of the system. In the event of a secondary side pipe rupture inside containment, the valves limit the quantity of high energy fluid that enters containment through the break, and provide a pressure boundary for the controlled addition of auxiliary feedwater (AFW) to the intact loops.

One MFIV and one MFRV and MFRV bypass valve, are located on each MFW line, outside but close to containment. The ~~MFIVs and~~ MFRVs are located upstream of the AFW injection point so that AFW may be supplied to the steam generators following MFIV or MFRV closure. The piping volume from these valves to the steam generators must be accounted for in calculating mass and energy releases, and refilled prior to AFW reaching the steam generator following either an SLB or FWLB.

(continued)

BASES

BACKGROUND (continued)

The MFIVs and MFRVs and MFRV bypass valves, close on receipt of any safety injection (SI) signal, or steam generator (S/G) water level - high high signal. They may also be actuated manually. The MFWP turbine is also tripped upon receipt of an SI or S/G water level - high high signal (as well as other pump related trips), however, these are Class II trips and are only credited as a backup to the single failure of a MFRV and MFRV bypass valve trip. The MFRVs and MFRV bypass valves also close on receipt of a T_{avg} - Low coincident with reactor trip (P-4). In addition to the MFIVs and the MFRVs and MFRV bypass valves, a check valve located upstream ~~of the~~ MFIV is available. The check valve isolates the feedwater line, penetrating containment, and ensures that the intact steam generators do not continue to feed the feedwater line break in the non-safety related piping upstream of the feedwater isolation check valves and that the AFW flow will be to the steam generators.

A description of the MFIVs, MFRVs, and MFRV bypass valves is found in the FSAR, Section 10.4.7 (Ref. 1).

APPLICABLE SAFETY ANALYSES

The design basis of the MFIVs, MFRVs, and MFRV bypass valves is established by the analyses for the large SLB. It is also influenced by the accident analysis for the large FWLB. Closure of the MFRVs and MFRV bypass valves, or tripping of the MFWPs and closure of the MFIVs a short time later, is relied on to terminate an SLB for core and containment response analysis and excess feedwater event upon the receipt of a feedwater isolation signal on high-high steam generator level.

Failure of an MFIV, MFRV, or the MFRV bypass valves to close, or failure of the MFWPs to trip, following an SLB or FWLB can result in additional mass and energy being delivered to the steam generators, contributing to cooldown. This failure also results in additional mass and energy releases following an SLB or FWLB event.

The ~~MFIVs, MF~~RVs, MFRV bypass valves, and MFWP trip satisfy Criterion 3 of 10 CFR 50.36 (c) (2) (ii).

LCO

This LCO ensures that the MFIVs, MFRVs and MFRV bypass valves, and tripping of the MFWPs, will isolate MFW flow to the steam generators, following an FWLB or main steam line break, or an excessive feedwater event. The MFIVs will also isolate the non-safety related portions from the safety related portions of the system.

(continued)

BASES

LCO (continued)

This LCO requires that four MFIVs, four MFRVs and four MFRV bypass valves be OPERABLE. The MFIVs and MFRVs and MFRV bypass valves are considered OPERABLE when isolation times are within limits and they close on an isolation actuation signal.

This LCO also requires that the MFWP turbine stop valves be OPERABLE. The MFWP turbine stop valves are considered OPERABLE when their closure times are within limit and they close on a feedwater isolation actuation signal.

Failure to meet the LCO requirements can result in additional mass and energy being released to containment following an SLB or FWLB inside containment. A feedwater isolation signal on high steam generator level is relied on to terminate an excess feedwater flow event and failure to meet the LCO may result in the introduction of water into the main steam lines.

APPLICABILITY

The MFIVs, MFRVs, MFRV bypass valves, and the MFWP turbine stop valves must be OPERABLE whenever there is significant mass and energy in the Reactor Coolant System and steam generators. This ensures that, in the event of an HELB, a single failure cannot result in the blowdown of more than one steam generator. In MODES 1, 2, and 3, the MFIVs, MFRVs, MFRV bypass valves, and the MFWP turbine stop valves are required to be OPERABLE to limit the amount of available fluid that could be added to the steam generators in the case of a secondary system pipe break inside containment or an excessive feedwater event. They are not required to be OPERABLE when the MFIVs, MFRVs, and MFRV bypass valves are closed and deactivated or isolated by a closed manual valve, or when the MFWP turbine stop valves are closed and the steam supplies to the MFWP turbine stop valves are isolated, or the MFWP discharge to the steam generators is isolated by a closed manual valve.

When the MFIVs, MFRVs, and MFRV bypass valves are closed and deactivated or isolated by a closed manual valve, they are already performing their safety function. A single MFWP is operated at low power levels. It is placed in service and taken out of service at approximately 2 percent power. Before a MFWP is placed in operation, the MFWP turbine stop valves are closed and the high pressure and low pressure steam supplies to the MFWP turbine are isolated. When the MFWP turbine stop valves are closed and the steam supplies to the MFWP turbine stop valves are isolated, or the MFWP discharge to the steam generators is isolated by a closed manual valve, the safety function of the MFWP turbine stop valves is being performed.

(continued)

BASES

APPLICABILITY (continued)

In MODES 4, 5, and 6, steam generator energy is low. Therefore, the MFIVs, MFRVs, and MFRV bypass valves are normally closed and the MFWPs are tripped since MFW is not required.

ACTIONS

The ACTIONS table is modified by a Note indicating that separate Condition entry is allowed for each valve.

A.1 and A.2

With one MFIV in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or isolate inoperable affected valves within 72 hours. When these valves are closed or isolated, they are performing their required safety function.

The 72 hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the Class II main feedwater pump trip and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths. The 72 hour Completion Time is reasonable, based on operating experience.

Inoperable MFIVs that are closed or isolated must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls, to ensure that these valves are closed or isolated.

B.1 and B.2

With one MFRV in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or isolate inoperable affected valves within 72 hours. When these valves are closed or isolated, they are performing their required safety function.

The 72 hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the Class II main feedwater pump trip and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths. The 72 hour Completion Time is reasonable, based on operating experience.

Inoperable MFRVs, that are closed or isolated, must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls to ensure that the valves are closed or isolated.

(continued)

BASES

ACTIONS (continued)

C.1 and C.2

With one MFRV bypass valve in one or more flow paths inoperable, action must be taken to restore the affected valves to OPERABLE status, or to close or isolate inoperable affected valves within 72 hours. When these valves are closed or isolated, they are performing their required safety function.

The 72 hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the Class II main feedwater pump trip and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths. The 72 hour Completion Time is reasonable, based on operating experience.

Inoperable MFRV bypass valves that are closed or isolated must be verified on a periodic basis that they are closed or isolated. This is necessary to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, in view of valve status indications available in the control room, and other administrative controls, to ensure that these valves are closed or isolated.

D.1.1, D.1.2, D.1.3, D.1.4, and D.2

When one MFWP turbine stop valve inoperable, action must be taken to restore the affected valve to OPERABLE status or close the affected valve, trip the MFWP, or isolate the MFWP discharge within 72 hours. When the MFWP turbine stop valve is closed, the MFWP is tripped, or the MFWP discharge to the steam generators is isolated, the feedwater isolation safety function is being performed.

The 72 hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves and the low probability of an event occurring during this time period that would require termination of MFW flow. The 72 hour Completion Time is reasonable, based on operating experience.

Closure of the MFWP turbine stop valve, trip of the MFWP, or isolation of the MFWP discharge must be verified on a periodic basis to ensure that the assumptions in the safety analysis remain valid. The 7 day Completion Time is reasonable, based on engineering judgment, in view of valve or pump status indicators available in the control room, and other administrative controls, to ensure that the MFWP turbine stop valve is closed, the MFWP is tripped, or the MFWP discharge is isolated.

(continued)

BASES

ACTIONS (continued)

E.1

With either a MFRV or MFRV bypass valve and MFIV inoperable, or MFWP turbine stop valve (resulting in a loss of MFWP trip function) and MFRV or MFRV bypass valve inoperable, there may be no redundant system to operate automatically and perform the required safety function. Under these conditions, affected valves in each flow path must be restored to OPERABLE status, or the affected flow path isolated within 8 hours. This action returns the system to the condition where at least one valve in each flow path is performing the required safety function. With both a MFWP turbine stop valve and MFIV inoperable, the MFRV and MFRV bypass valve will operate automatically to provide feedwater isolation for the flow path. The 8 hour Completion Time is reasonable, based on operating experience, to complete the actions required to close the MFIV, MFRV, MFRV bypass valve, or MFWP turbine stop valve, or otherwise isolate the affected flow path

F.1 and F.2

If the MFIV(s), MFRV(s) and the MFRV bypass valve(s) cannot be restored to OPERABLE status, or closed, or isolated, or the MFWP turbine stop valve(s) cannot be restored to an OPERABLE status, closed, the MFWP tripped, or the MFWP discharge isolated, within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.3.1 and SR 3.7.3.2

These SRs verify that the closure time of each MFIV is ≤ 60 seconds and that each MFRV, and MFRV bypass valves is ≤ 7 seconds, not including the instrument delays. The MFIV and MFRV and MFRV bypass valve closure times are assumed in the accident and containment analyses. These Surveillances are normally performed upon returning the unit to operation following a refueling outage. These valves should not be tested at power since even a part stroke exercise increases the risk of a valve closure with the unit generating power. This is consistent with the ASME Code (Ref. 2) stroke requirements during operation in MODES 1 and 2.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Frequency for these SRs is in accordance with the Inservice Testing Program.

SR 3.7.3.3

This SR verifies that each MFIV, MFRV, MFRV bypass valve, and MFWP turbine stop valve can close on an actual or simulated actuation signal. This Surveillance is normally performed upon returning the plant to operation following a refueling outage. The Frequency of MFIV, MFRV, MFRV bypass valve, and MFWP turbine stop valve testing is every 24 months. The 24 month Frequency is based on the refueling cycle. Operating experience has shown that these components are reliable and can be expected to pass the Surveillance when performed at the 24 month Frequency. Therefore, this Frequency is acceptable from a reliability standpoint.

SR 3.7.3.4

This SR verifies that the closure time of each MFWP turbine stop valve is ≤ 1 second, not including the instrument delays. The MFWP turbine stop valve closure times are assumed in the accident and containment analyses. These surveillances are normally performed on returning the unit to operation following a refueling outage. The Frequency is the same as that for the MFRVs and the MFRV bypass valves. Preventive/predictive maintenance related to the MFWP turbine stop valves, and actions initiated in response to control oil cleanliness problems, shall be performed to ensure reliability of MFWP trip function.

REFERENCES

1. FSAR, Section 10.4.7.

2. ANSI/ASME OM-1-1987, (including OM-a-1988 ADDENDA).

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 140 TO FACILITY OPERATING LICENSE NO. DPR-80

AND AMENDMENT NO. 140 TO FACILITY OPERATING LICENSE NO. DPR-82

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON NUCLEAR POWER PLANT, UNITS 1 AND 2

DOCKET NOS. 50-275 AND 50-323

1.0 INTRODUCTION

By application dated August 10, 1998, as supplemented by letter dated November 24, 1999, Pacific Gas and Electric Company (the licensee, PG&E) requested changes to the current Technical Specifications (TSs) (Appendix A to Facility Operating License Nos. DPR-80 and DPR-82) for the Diablo Canyon Power Plant, Units 1 and 2 (DCPP). The proposed changes revise TS 3/4.3.2, Table 3.3-5, "Engineered Safety Features Response Times," of the current TS to add the response times for closure of the main feedwater regulating valves (MFRVs) and MFRV bypass valves, and trip of the main feedwater pumps (MFWPs). The change would also revise TS 3/4.7.1.7 to add a limiting condition for operation (LCO), actions, and surveillance requirements for the MFWP turbine stop valves, and revise the TS 3/4.7.1.7 actions and surveillance requirements (SRs) for the MFRVs, MFRV bypass valves, and main feedwater isolation valves (MFIVs) to be consistent with the NUREG-1431 requirements. These amendments also revise Section 3.7.3 and its associated bases of the improved Technical Specifications (ITS) to make revisions corresponding to those proposed for the CTS.

The supplemental letter dated November 24, 1999, provided additional clarifying information, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination published in the Federal Register on October 7, 1998 (63 FR 53954).

2.0 EVALUATION

The TSs LCO for the main feedwater regulating, bypass, and isolation valves was originally proposed by PG&E in LAR 90-14, dated December 21, 1990. The licensee proposed to add TS 3/4.7.1.6 for this purpose, which was later renumbered to TS 3/4.7.1.7 (as it currently exists in the DCCP combined CTS). In conjunction with this change, the licensee requested that the closure times that were listed in TS Table 3.3-5 for the MFIVs, MFRVs, and MFRV bypass valves be removed, since this requirement was redundant to the requirement that was being proposed in TS 3/4.7.1.6. The licensee also requested that the MFRV and MFRV bypass valve

closure time limit be increased from 5 seconds to 7 seconds. Although LAR 90-14 did not propose TS requirements for trip of the MFWP turbine, this function was credited for isolating feedwater flow within about 10 seconds (along with subsequent MFIV closure) in the event of a failure of a MFRV or MFRV bypass valve to close. This information was submitted by PG&E in a letter dated November 22, 1991, in response to questions that were asked during NRC review of LAR 90-14. LAR 90-14 was approved by the NRC on March 18, 1993.

The TS changes requested in LAR 98-05 are primarily administrative, in that the specific requirements that are being proposed have either been reviewed and accepted previously by the NRC in conjunction with LAR 90-14, or, as discussed further below, are consistent with the Standard Technical Specification (STS) requirements that have been established for feedwater isolation. A listing of the TS changes that were requested, along with the staff's evaluation, is provided below.

a. Revise TS Table 3.3.5, items 2.a.2, 3.a.2, 6.a.2, and 8.b, to replace the times listed for feedwater isolation (either $\leq$63 or $\leq$66) with note 9, which includes response time requirements for closure of the MFRVs and closure of the MFRV bypass valves (9 seconds), trip of the MFWP turbine (5 seconds), as well as the response times currently listed for closure of the MFIVs ($\leq$63 seconds for a safety injection signal, and $\leq$66 seconds for steam generator (SG) water level, high-high signal).

Feedwater isolation to a SG is achieved by closing its MFRV and the associated bypass valve. If these valves fail to close, feedwater isolation to the SG is achieved by tripping the MFWPs or closing the MFIVs. As such, the MFRV and its associated bypass valve provide primary function of isolating the feedwater flow to a SG. The backup function of MFW flow isolation is provided by the trip of the MFWPs or closure of the MFIVs. If an MFRV or its associated bypass fail to isolate MFW flow to the SG during an accident or a transient, a trip of the MFWPs followed by the closure of the MFIVs would provide the required isolation function.

An SIS or a SG water level high-high signal initiates isolation of MFW flow to a SG. TS Table 3.3-5 currently specifies only the MFIVs response time for the MFW flow isolation when initiated by any one of those two signals (63 seconds for SIS and 66 seconds for SG water-level-high-high; the time includes instrumentation and the valve operation time). The MFRVs and their associated bypass valves non-class closure response time and the MFWPs non-class trip response time is currently controlled by the plant procedures. To ensure operability of both primary and backup feedwater isolation functions, the response times of MFRVs and their associated bypass valves and that of the MFWPs should also be specified in the plant TS. Therefore, to include response times of both the primary and the backup MFW isolation functions, the proposed change to the plant TS adds a note to Table 3.3-5 and specifies its applicability to feedwater isolation functions that are initiated by both the SI and the SG water level high-high signals. Note 9 includes current TS response times of the MFIVs and specifies 9 seconds response time for the closure of an MFRV and its associated bypass valve and 5 seconds response time for non class MFWPs trip. These response times were assumed in Diablo Canyion's accident analysis, "The Non-Loss of Coolant Accident Safety Analysis Feedwater Isolation Assumptions," discussed previously in LAR 90-14 and accepted by the staff, in Amendments 77 and 76 dated March 18, 1993. The only new information that is presented in LAR 98-05 is the breakdown of the MFWP turbine trip feedwater isolation time of 10 seconds into 5 seconds for MFWP trip response, and 5 seconds for MFWP coastdown. The

presented in LAR 98-05 is the breakdown of the MFWP turbine trip feedwater isolation time of 10 seconds into 5 seconds for MFWP trip response, and 5 seconds for MFWP coastdown. The 5 second response time includes 2 seconds for signal processing delay, 1 second for slave relay time response limit, 1 second for MFWP turbine stop valve closure, and 1 second for hardware margin. The proposed response time for MFWP turbine trip is reasonable, and satisfies the assumptions that were credited in the licensee's feedwater isolation analysis. The proposed response times for closure of the MFIVs, MFRVs, and MFRV bypass valves are unchanged from what was presented in LAR 90-14. The staff agrees that response times for the components listed in note 9 should be included in TS Table 3.3-5, and that the times listed are appropriate and acceptable.

This revision will be incorporated into an equipment control guideline (ECG) when the ITS are implemented.

b. Revise the title of TS 3/4.7.1.7 to read, "Main Feedwater Isolation Valves (MFIVs), Main Feedwater Regulating Valves (MFRVs), MFRV Bypass Valves, and Main Feedwater Pump (MFWP) Turbine Stop Valves," and revise the wording of the specification to read, "Four MFIVs, four MFRVs, four MFRV bypass valves, and four MFWP turbine stop valves shall be operable."

These changes are editorial and are necessary to reflect the addition of requirements for the MFWP turbine stop valves, and are therefore acceptable to the staff.

This revision will be incorporated into the title and wording of the specification of ITS 3.7.3.

c. Revise the Applicability of TS 3/4.7.1.7 to read, "Modes 1, 2, and 3, except when MFIV, MFRV, or MFRV bypass valve is closed and de-activated or isolated by a closed manual valve; or when MFWP turbine stop valve is closed and steam supply to MFWP turbine is isolated, or MFWP discharge is isolated by a closed manual valve," and move the current TS requirement to have the valves closed or isolated if not operable to the Applicability area of the specification.

These changes are editorial and are consistent with the format and content of the STS, and are therefore acceptable to the staff.

This revision will be incorporated into the applicability section of ITS 3.7.3.

d. Revise the Action Requirements of TS 3/4.7.1.7 to: (1) allow separate action entry for each valve; (2) increase the current allowable outage time (AOT) for an inoperable MFIV, MFRV, or MFRV bypass valve from 4 hours to 72 hours; (3) add action requirements for an inoperable turbine stop valve; and (4) establish an AOT of 8 hours for restoring the ability to isolate the affected main feedwater flow path when two valves become inoperable and cause a loss of the feedwater isolation capability for a flow path.

While changes (1), (2), and (4) are a relaxation from the existing TS requirements, change (2) allows a more reasonable time to diagnose the problem, mobilize corrective actions, obtain

administrative clearances, complete the maintenance, restore the value to an operable condition and where appropriate perform post maintenance verification, and change (4) provides a period of time to correct the problem without having to enter TS 3.0.3. These changes avoid unnecessary plant shutdowns and the associated stresses. They also reflect the format and content of the STS and are therefore acceptable to the staff.

The change discussed in (3) above is necessary to assure that the MFWP turbine trip function is available for isolating the MFW path as credited in the accident analyses. The action requirements and AOT that are proposed for this purpose are consistent with the format and content of the STS, and are therefore acceptable to the staff.

This revision will be incorporated into the action requirements for ITS 3.7.3.

e. Add SR 4.7.1.7.3 to require "Each MFWP turbine stop valve shall be demonstrated OPERABLE by determining the closure time of each valve to be less than or equal to 1 second (not including instrument delays) at least each COLD SHUTDOWN, but not more frequently than once per 92 days."

The proposed requirement is consistent with the format and content of the STS, and is necessary to assure that the MFWP turbine stop valves will close as assumed in the licensee's MFW isolation analysis. The one second closing time is consistent with the response time that was established for the MFWP trip function (discussed in (a), above) and is an additional restriction on operation, compared to existing requirements. Therefore, the proposed change is acceptable to the staff.

This revision will be incorporated into ITS SR 3.7.3.4.

f. Add SR 4.7.1.7.4 to "Verify each MFIV, MFRV, MFRV bypass valve, and MFWP turbine stop valve actuates to the closed position on an actual or simulated actuation signal at least once every 24 months."

This is a new requirement that does not exist in the licensee's current TS. The format and content is consistent with the STS, recognizing that the DCCP units are on a 24-month refueling cycle. The requirement is necessary to assure that isolation of the MFW system will occur within the time period assumed in the licensee's analysis, from event initiation until the main feedwater flow path is isolated. Therefore, the proposed change is acceptable to the staff.

g. Revise the TS Bases for TS 3/4.3.2 and TS 3/4.7.1.7 to be consistent with the changes that are being proposed.

The proposed changes to the TS Bases, as reflected in Attachment B and Attachment C of the licensee's August 10, 1998, submittal, and Enclosure A of the licensee's November 24, 1999, submittal are consistent with the proposed TS changes, and are acceptable to the staff.

The TS changes requested in LAR 98-05 are primarily administrative, in that the specific requirements that are being proposed have either been reviewed and accepted previously by

the NRC in conjunction with LAR 90-14, or, as set forth above, they are consistent with the Standard Technical Specification (STS) requirements that have been established for feedwater isolation. As discussed above, the staff considers the proposed changes to be acceptable.

This revision will be incorporated into ITS SR 3.7.3.3.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the California State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

These amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (63 FR 53954). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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