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DONALD F. SCHNELL
VICE PRESIDENT

May 31, 1984

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Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Denton: ULNRC-835

DOCKET NUMBER 50-483
CALLAWAY PLANT, UNIT 1
CALLAWAY TECHNICAL SPECIFICATIONS

References: 1) ULNRC-792 dated April 9, 1984
2) ULNRC-816 dated May 11, 1984

Attachment: Specifications Changed Since Reference 2

In the referenced letters Union Electric affirmed the accuracy of Callaway Technical Specifications. The attachment to this letter contains specifications which have changed since Reference 2 and which have been resolved between Union Electric and the Staff. With these changes we consider the Callaway Technical Specifications complete for OL issuance.

In my judgement, the Callaway Technical Specifications accurately reflect the plant design and operating program as described in the FSAR and other information on our docket.

Very truly yours,

Donald F. Schnell

Donald F. Schnell

DS/nld
Attachment

cc: J. Holonich
F. Anderson

B001
1/1

STATE OF MARYLAND)
) S S
COUNTY OF MONTGOMERY)

Donald F. Schnell, of lawful age, being first duly sworn upon oath says that he is Vice President-Nuclear and an officer of Union Electric Company; that he has read the foregoing document and knows the content thereof; that he has executed the same for and on behalf of said company with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By Donald F. Schnell
Donald F. Schnell
Vice President
Nuclear

SUBSCRIBED and sworn to before me this 31st day of May, 1984

Diane Carole Kavanagh
Diane Carole Kavanagh

My Commission Expires: 7/1/86

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SPECIFICATIONS CHANGED SINCE REFERENCE 2

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* Pages are attached

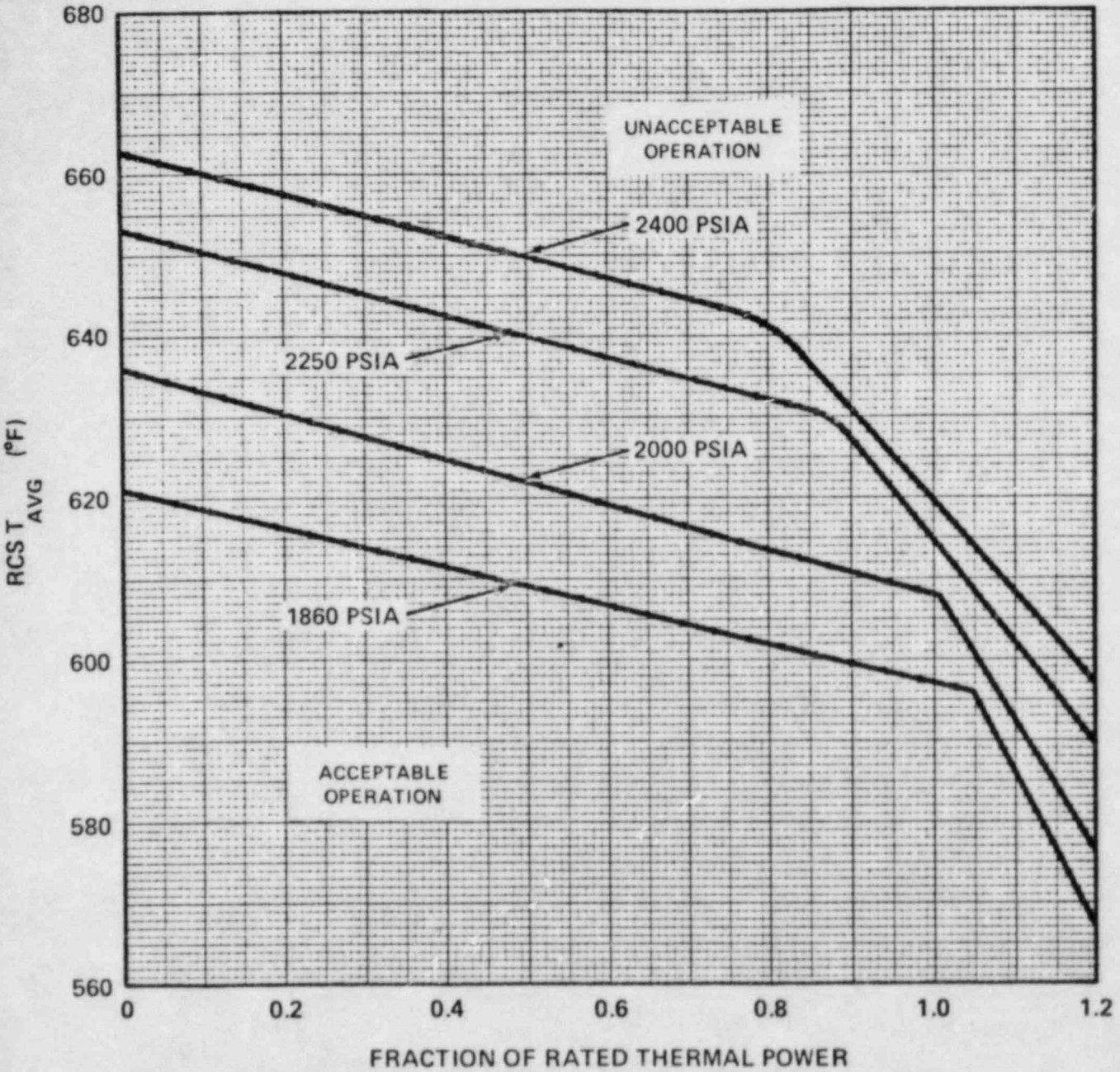

FIGURE 2.1-1

REACTOR CORE SAFETY LIMIT - FOUR LOOPS IN OPERATION

TABLE 3.2-1

DNB PARAMETERS

LIMITS

PARAMETER	Four Loops in Operation	Three Loops in Operation
Indicated Reactor Coolant System T_{avg}	$\leq$ 592.5°F	**
Indicated Pressurizer Pressure	$\geq$ 2220 psig*	**

*Limit not applicable during either a THERMAL POWER ramp in excess of 5% of RATED THERMAL POWER per minute or a THERMAL POWER step in excess of 10% of RATED THERMAL POWER.

**These values left blank pending NRC approval of three loop operation.

REMOTE SHUTDOWN INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.5 The remote shutdown monitoring instrumentation channels given in Table 3.3-9 and the auxiliary shutdown panel (ASP) controls shall be OPERABLE with readouts displayed external to the control room.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With the number of OPERABLE remote shutdown monitoring channels less than the Minimum Channels OPERABLE required by Table 3.3-9, restore the inoperable channel(s) to OPERABLE status within 7 days; otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With the ASP controls inoperable, restore the inoperable ASP controls to OPERABLE status within 7 days; otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.5.1 Each remote shutdown monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies given in Table 4.3-6.

4.3.3.5.2 The ASP controls shall be demonstrated OPERABLE at least once per 18 months, by operating each actuated component from the ASP.

4.3.3.5.3 The provisions of Specification 4.0.4 are not applicable for entry into MODE 3 for the turbine-driven auxiliary feedwater pump or the atmospheric dump valves.

TABLE 3.3-9

REMOTE SHUTDOWN MONITORING INSTRUMENTATION

INSTRUMENT	READOUT LOCATION	TOTAL NO. OF CHANNELS	MINIMUM CHANNELS OPERABLE
1. RCS Pressure-Wide Range	ASP*	2	1
2. Reactor Coolant Temperature-Cold Leg	ASP*	4	1
3. Source Range Neutron Flux	ASP*	2	1
4. Reactor Trip Breaker Indication	RTS**	1/trip breaker	1/trip breaker
5. Reactor Coolant Temperature - Hot Leg	ASP*	2	1
6. Reactor Coolant Pump Breakers	***	1/pump	1/pump
7. Pressurizer Pressure	ASP*	1	1
8. Pressurizer Level	ASP*	2	1
9. Steam Generator Pressure	ASP*	2/stm. gen.	1/stm. gen.
10. Steam Generator Level	ASP*	2/stm. gen.	1/stm. gen.
11. Auxiliary Feedwater Flow Rate	ASP*	4	1
12. Auxiliary Feedwater Suction Pressure	ASP*	3	1

*Auxiliary Shutdown Panel

**Reactor Trip Switchgear

***13.8 kV Switchgear

TABLE 4.3-6

REMOTE SHUTDOWN MONITORING INSTRUMENTATION

SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION
1. RCS Pressure - Wide Range	M	R
2. Reactor Coolant Temperature - Cold Leg	M	R
3. Source Range, Neutron Flux	M	R
4. Reactor Trip Breaker Indication	M	N.A.
5. Reactor Coolant Temperature - Hot Leg	M	R
6. Reactor Coolant Pump Breakers	N.A.	N.A.
7. Pressurizer Pressure	M	R
8. Pressurizer Level	M	R
9. Steam Generator Pressure	M	R
10. Steam Generator Level	M	R
11. Auxiliary Feedwater Flow Rate	M	R
12. Auxiliary Feedwater Pump Suction Pressure	M	R

TABLE 4.3-7 (Continued)

TABLE NOTATIONS

*Not applicable if the associated block valve is in the closed position.
**Not applicable if the block valve is verified in the closed position and power is removed.
***CHANNEL CALIBRATION may consist of an electronic calibration of the channel, not including the detector, for range decades above 10R/h and a one point calibration check of the detector below 10R/H with an installed ~~or~~ portable gamma source. or

INSTRUMENTATION

RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.10 The radioactive gaseous effluent monitoring instrumentation channels shown in Table 3.3-13 shall be OPERABLE with their Alarm/Trip Setpoints set to ensure that the limits of Specifications 3.11.2.1 and 3.11.2.5 are not exceeded. The Alarm/Trip Setpoints of these channels meeting Specification 3.11.2.1 shall be determined and adjusted in accordance with the methodology and parameters in the ODCM.

APPLICABILITY: As shown in Table 3.3-13.

ACTION:

a. With a radioactive gaseous effluent monitoring instrumentation channel Alarm/Trip Setpoint less conservative than required by the above specification, immediately suspend the release of radioactive gaseous effluents monitored by the affected channel, or declare the channel inoperable.

b. With less than the minimum number of radioactive gaseous effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-13. Restore the inoperable instrumentation to OPERABLE status within the time specified in the ACTION, or explain in the next Semiannual Radioactive Effluent Release Report, pursuant to Specification 6.9.1.7, why this inoperability was not corrected within the time specified.

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

SURVEILLANCE REQUIREMENTS

4.3.3.10 Each radioactive gaseous effluent monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, SOURCE CHECK, CHANNEL CALIBRATION and ANALOG CHANNEL OPERATIONAL TEST at the frequencies shown in Table 4.3-9.

REACTOR COOLANT SYSTEM

HOT STANDBY

LIMITING CONDITION FOR OPERATION

3.4.1.2 At least three of the reactor coolant loops listed below shall be OPERABLE and at least two of these reactor coolant loops shall be in operation:*

a. Reactor Coolant Loop A and its associated steam generator and reactor coolant pump,

b. Reactor Coolant Loop B and its associated steam generator and reactor coolant pump,

c. Reactor Coolant Loop C and its associated steam generator and reactor coolant pump, and

d. Reactor Coolant Loop D and its associated steam generator and reactor coolant pump.

APPLICABILITY: MODE 3**.

ACTION:

a. With less than the above required reactor coolant loops OPERABLE, restore the required loops to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

b. With only one reactor coolant loop in operation, restore at least two loops to operation within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

c. With no reactor coolant loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required reactor coolant loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.2.1 At least the above required reactor coolant pumps, if not in operation, shall be determined OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.2.2 The required steam generators shall be determined OPERABLE by verifying secondary side wide range water level to be greater than or equal to 10% at least once per 12 hours.

4.4.1.2.3 At least two reactor coolant loops shall be verified in operation and circulating reactor coolant at least once per 12 hours.

*All reactor coolant pumps may be deenergized for up to 1 hour provided: (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and (2) core outlet temperature is maintained at least 10°F below saturation temperature.

**See Special Test Exception Specification 3.10.4.

CONTAINMENT COOLING SYSTEM

LIMITING CONDITIONS FOR OPERATION

3.6.2.3 Two independent groups of containment cooling fans shall be OPERABLE with two fan systems to each group.

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

ACTION:

a. With one group of the above required containment cooling fans inoperable and both Containment Spray Systems OPERABLE, restore the inoperable group of cooling fans to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With two groups of the above required containment cooling fans inoperable and both Containment Spray Systems OPERABLE, restore at least one group of cooling fans to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore both above required groups of cooling fans to OPERABLE status within 7 days of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With one group of the above required containment cooling fans inoperable and one Containment Spray System inoperable, restore the inoperable Containment Spray System to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore the inoperable group of containment cooling fans to OPERABLE status within 7 days of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.3 Each group of containment cooling fans shall be demonstrated OPERABLE:

a. At least once per 31 days by:

1) Starting each non-operating fan group from the control room, and verifying that each fan group operates for at least 15 minutes, and

2) Verifying a cooling water flow rate of greater than or equal to 2200 gpm to each cooler group.

b. At least once per 18 months by verifying that on a Safety Injection test signal, the fans start in slow speed or, if operating, shift to slow speed and the cooling water flow rate increases to at least 4000 gpm to each cooler group.

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

PENETRATIONS	VALVE NUMBER	FUNCTION	TYPE LEAK TEST REQUIRED	MAXIMUM ISOLATION TIME (Seconds)
6. Remote Manual - (Continued)				
P-79	EJ HV-8701A	RCS Hot Leg 1 to RHR Pump A Suction	A	N.A.
P-52	EJ HV-8701B	RCS Hot Leg 4 to RHR Pump B Suction	A	N.A.
P-82	EJ HV-8809A	RHR Pump A Cold Leg Injection Iso Valve	A	N.A.
P-27	EJ HV-8809B	RHR Pump B Cold Leg Injection Iso Valve	A	N.A.
P-15	EJ HV-8811A	CTMT Recirc Sump to RHR Pump A Sucion	A	N.A.
P-14	EJ HV-8811B	CTMT Recirc Sump to RHR Pump B Sucion	A	N.A.
P-21	EJ HV-8840	RHR Hot Leg Recirc Iso Valve	A	N.A.
P-87	EM HV-8802A*	SI Pump A Disch Hot Leg Iso Valve	A	N.A.
P-48	EM HV-8802B*	SI Pump B Disch Hot Leg Iso Valve	A	N.A.
P-49	EM HV-8835	SI Pumps Disch to Cold Leg Iso Valve	A	N.A.
P-89	EN HV-6	CTMT Spray Pump A Discharge Iso Valve	A	N.A.
P-66	EN HV-12	CTMT Spray Pump B Discharge Iso Valve	A	N.A.
7. Active for SIS				
P-80	BG HV-8105	CVCS Charging Line	C	10

*These valves were assumed to be closed during the accident analysis and are normally closed but may be opened on an intermittent basis under administrative control.

PLANT SYSTEMS

3/4.7.5 ULTIMATE HEAT SINK

LIMITING CONDITION FOR OPERATION

3.7.5 The ultimate heat sink (UHS) shall be OPERABLE with:

a. A minimum water level at or above 13.25 feet (El 831.25 feet MSL) from the bottom of the UHS,

b. An average water temperature of less than or equal to 90°F, and

c. Two UHS cooling tower trains (2 cells per train).

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

ACTION:

With the UHS inoperable, restore the UHS to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.5.1 The UHS shall be determined OPERABLE at least once per 24 hours by verifying the average water temperature and water level to be within their limits.

4.7.5.2 The UHS cooling tower trains shall be demonstrated OPERABLE at least once per 31 days by verifying that each cooling tower fan operates for at least 15 minutes in both the slow and fast mode and at least once per 18 months by visually inspecting and verifying no abnormal breakage or degradation of the fill materials.

4.7.5.3 The UHS shall be determined OPERABLE at least once per 31 days by visually inspecting the UHS riprap for any abnormal degradation which might lead to blockage of the ESW pump suction.

3/4.8.2 D.C. SOURCES

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.1 As a minimum, the following D.C. electrical sources shall be OPERABLE:

a. 125-Volt Battery Bank NK11 and NK13, and its associated Full-Capacity Chargers NK21 and NK23, and

b. 125-Volt Battery Bank NK12 and NK14, and its associated Full-Capacity Chargers NK22 and NK24.

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

ACTION:

With one of the required battery banks and/or full-capacity chargers inoperable, restore the inoperable battery bank and/or full-capacity charger to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.1 Each 125-volt battery bank and charger shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

1) The parameters in Table 4.8-2 meet the Category A limits, and

2) The total battery terminal voltage is greater than or equal to 130.2 volts on float charge.

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, by verifying that:

1) The parameters in Table 4.8-2 meet the Category B limits,

2) There is no visible corrosion at either terminals or connectors, or the cell-to-cell and terminal connection resistance of these items is less than 150 x 10^{-6} ohm, and

3) The average electrolyte temperature of at least every sixth cell is above 60°F.

c. At least once per 18 months by verifying that:

1) The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,

2) The cell-to-cell and terminal connections are clean, tight, and coated with anticorrosion material,

3) The resistance of each cell-to-cell and terminal connection is less than or equal to 150 x 10^{-6} ohm, and

4) The battery charger will supply at least 300 amperes at 130.2 volts for at least 1 hour.

d. At least once per 18 months, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status simulated emergency loads for the design duty cycle when the battery is subject to a battery service test;

e. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60 month interval this performance discharge test may be performed in lieu of the battery service test required by Specification 4.8. .1d.; and

f. At least once per 18 months during shutdown, by giving performance discharge tests of battery capacity to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

D.C. SOURCES

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.2 As a minimum, the following D.C. electrical sources shall be OPERABLE:

a. 125-Volt Battery Bank NK11 and NK13, and its associated Full-Capacity Chargers NK21 and NK23, or

b. 125-Volt Battery Bank NK12 and NK14, and its associated Full-Capacity Chargers NK22 and NK24.

APPLICABILITY: MODES 5 and 6.

ACTION:

With the required battery bank and/or full-capacity charger inoperable, immediately suspend all operations involving CORE ALTERATIONS, positive reactivity changes or movement of irradiated fuel; initiate corrective action to restore the required battery bank and/or full-capacity charger to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.8.2.2 The above required 125-volt battery banks and associated chargers shall be demonstrated OPERABLE in accordance with Specification 4.8.2.1.

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

CONTAINMENT PENETRATION CONDUCTOR OVERCURRENT PROTECTIVE DEVICES

LIMITING CONDITION FOR OPERATION

3.8.4.1 All containment penetration conductor overcurrent protective devices given in Table 3.8-1 shall be OPERABLE.

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

ACTION:

With one or more of the above required containment penetration conductor overcurrent protective device(s) inoperable:

a. Restore the protective device(s) to OPERABLE status or deenergize the circuit(s) by tripping the associated backup circuit breaker, or racking out or removing the inoperable circuit breaker within 72 hours, declare the affected system or component inoperable, and verify the backup circuit breaker to be tripped or the inoperable circuit breaker racked out, or removed, at least once per 7 days thereafter; the provisions of Specification 3.0.4 are not applicable to overcurrent devices in circuits which have their backup circuit breakers tripped, their inoperable circuit breakers racked out, or removed, or

b. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.4.1 All containment penetration conductor overcurrent protective devices given in Table 3.8-1 shall be demonstrated OPERABLE:

a. At least once per 18 months:

1) By verifying that the 13.8 kV circuit breakers are OPERABLE by selecting, on a rotating basis, at least 10% of the circuit breakers, and performing the following:

a) A CHANNEL CALIBRATION of the associated protective relays,

b) An integrated system functional test which includes simulated automatic actuation of the system and verifying that each relay and associated circuit breakers and control circuits function as designed and as specified in Table 3.8-1, and

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	POWERED EQUIPMENT
Low Voltage Power and Control (Continued)	
1BBK40A P-30A Fuse NK5108 B-30A Fuse	PZR PORV BBPCV455A
4BBK04B P-30A Fuse NK4421 B-30A Fuse	PZR PORV BBPCV456A
5BGK04B P-3A Fuse RL001 B-3A Fuse	Alternate Charging Path Isol Valv BGHV8147
6BGK04A P-3A Fuse RL001 B-3A Fuse	Normal Charging Path Isol Valv BGHV8146
P-5LFY10A 3A Fuse RL023 B-5RLY01H 15A Breaker PG19GCR217	Containment Cooler Drain Valve LFLV97
P-5LFY10C 3A Fuse RL023 B-5RLY01H 15A Breaker PG19GCR217	Containment Cooler Drain Valve LFLV99
P-6LFY10B 3A Fuse RL023 B-6RLY01G 15A Breaker PG20GBR217	Containment Cooler Drain Valve LFLV98
P-6LFY10D 3A Fuse RL023 B-6RLY01G 15A Breaker PG20GBR217	Containment Cooler Drain Valve LFLV100
P-6LFY17A 3A Fuse RL023 B-6RLY01G 15A Breaker PG20GBR217	Refueling Pool Stand Pipe Discharge Valve LFLV122
P-5LFY20A 15A Breaker PG19NHF224 B-5LFY20A 30A Fuse PG19NHF1	Instrument Tunnel Sump Moisture Sensor TLVF01

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	POWERED EQUIPMENT
Low Voltage Power and Control (Continued)	
P-6LFY20B 15A Breaker PG20NBR216 B-6LFY20B 30A Fuse PG20NBR1	Instrument Tunnel Sump Moisture Sensor TVLF02
P-5SDY06C 15A Breaker PG19NHF215 B-5SDY06C 30A Fuse PG19NHF1	Local Radiation Monitor Power Supplies SPRIA39-42
P-1SJY01D 3A Fuse RL011 B-1RLY01G 15A Breaker NG01ACR119	Press. Ctmt Isol Vlv SJHV128
P-4SJY01A 3A Fuse RL011 B-4RLY01G 15A Breaker NG02ACR140	Press. Liq/HL 1&3 Sample Clr Vlv SJHV5
1GTK03C P-3A Fuse RL020 B-3A Fuse	Ctmt Purge Isol Vlv GTHZ7
P-1GSY01E 3A Fuse RL011 B-1RLY01G 15A Breaker NG01ACR119	Hydrogen Analyzer Ctmt Sample Vlv GSHV14
P-1GSY01F 3A Fuse RL011 B-1RLY01G 15A Breaker NG01ACR119	Hydrogen Anal Samp Return to Ctmt Vlv GSHV18
P-4GSY01A 3A Fuse RL011 B-4RLY01G NG02ACR140 15A Breaker	Hydrogen Anal Ctmt Sample Vlv GSHV4
P-4GSY01B 3A Fuse RL011 B-4RLY01G 15A Breaker NG02ACR140	Hydrogen Anal Ctmt Sample Vlv GSHV5

TABLE 3.8-1 (Continued)

CONTAINMENT PENETRATION CONDUCTOR

OVERCURRENT PROTECTIVE DEVICES

PROTECTIVE DEVICE NUMBER AND LOCATION	POWERED EQUIPMENT
Low Voltage Power and Control (Continued)	
6GNG04B P-6A Fuse PG20NBF5 B-4A Fuse	Cavity Cooling Fan Discharge Damper GNHZ48
1HBK03A P-3A Fuse RL021 B-3A Fuse	RCDT Vapor Space CTMT Isol Vlv HBHV7126
6HBK04A P-3A Fuse HB115 B-3A Fuse	RCDT Vapor Space CTMT Isol Vlv HBHV7127
5EPY07B P-3A Fuse RP043 B-15A CB-1	Accumulator Tank Discharge Valve Position Switch EPHV8808DA EPHV8808BA
6EPY07A P-3A Fuse RP044 B-15A CB-1	Accumulator Tank Discharge Valve Position Switch EPHV8808AA EPHV8808CA
6GTY12A P-15A Breaker PG20GBR134 B-20A Fuse	CTMT Minipurge Exhaust Isolation Damper GTHZ41
6GTY12A P-15A Breaker PG20GBR134 B-20A Fuse	CTMT Minipurge Exhaust Isolation Damper GTHZ42
P-5SRY09A 5A Fuse SR057 B-5SRY09A 20A Breaker PG19GEF6	In-Core Neutron Monitoring Drive Unit Heater SR01A, B
P-5SRY09A 5A Fuse SR057 B-5SRY09A 20A Breaker PG19GEF6	In-Core Neutron Monitoring Drive Unit Heater SR01C, D

SURVEILLANCE REQUIREMENTS (Continued)

to removal of the reactor vessel head by performing a load test of at least 125% of the secondary automatic overload cutoff and demonstrating an automatic load cutoff when the refueling machine load exceeds the Setpoints of Specification 3.9.6a.2).

4.9.6.2 Each auxiliary hoist and associated load indicator used for movement of drive rods within the reactor vessel shall be demonstrated OPERABLE within 100 hours prior to removal of the reactor vessel head by performing a load test of at least 1250 pounds.

3/4.10.4 REACTOR COOLANT LOOPS

LIMITING CONDITION FOR OPERATION

3.10.4 The limitations of the following requirements may be suspended:

a. Specification 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 hot rod drop time measurements 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 hot rod drop time measurements.

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 performance of hot rod drop time measurements, 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 initiation of the hot rod drop time measurements and at least once per 4 hours during the hot rod drop time measurements by verifying correct breaker alignments and indicated power availability.

The specifications of this section provide the general requirements applicable to each of the Limiting Conditions for Operation and Surveillance Requirements within Section 3/4. In the event of a disagreement between the requirements stated in these Technical Specifications and that stated in an applicable Federal Regulation or Act the requirements stated in the applicable Federal Regulation or Act shall take precedence and shall be met.

3.0.1 This specification defines the applicability of each specification in terms of defined OPERATIONAL MODES or other specified conditions and is provided to delineate specifically when each specification is applicable.

3.0.2 This specification defines those conditions necessary to constitute compliance with the terms of an individual Limiting Condition for Operation and associated ACTION requirement.

3.0.3 The specification delineates the measures to be taken for those circumstances not directly provided for in the ACTION statements and whose occurrence would violate the intent of a specification. For example, Specification 3.5.2 requires two independent ECCS subsystems to be OPERABLE and provides explicit ACTION requirements if one ECCS subsystem is inoperable. Under the requirements of Specification 3.0.3, if both the required ECCS subsystems are inoperable, within 1 hour measures must be initiated to place the unit in at least HOT STANDBY within the next 6 hours, and in at least HOT SHUTDOWN within the following 6 hours. As a further example, Specification 3.6.2.1 requires two Containment Spray Systems to be OPERABLE and provides explicit ACTION requirements if one Containment Spray System is inoperable. Under the requirements of Specification 3.0.3 if both the required Containment Spray Systems are inoperable, within 1 hour measures must be initiated to place the unit in at least HOT STANDBY within the next 6 hours, in at least HOT SHUTDOWN within the following 6 hours, and in COLD SHUTDOWN within the subsequent 24 hours. It is acceptable to initiate and complete a reduction in OPERATIONAL MODES in a shorter time interval than required in the ACTION statement and to add the unused portion of this allowable out-of-service time to that period for operation in subsequent lower OPERATIONAL MODE(S). Stated allowable out-of-service times are applicable regardless of the OPERATIONAL MODE(S) in which the inoperability is discovered but the times provided for achieving a mode reduction are not applicable if the inoperability is discovered in a mode lower than the applicable mode. For example, if the Containment Spray System was discovered to be inoperable while in STARTUP, the ACTION Statement would allow up to 156 hours to achieve COLD SHUTDOWN. If HOT STANDBY is attained in 16 hours rather than the allowed 78 hours, 140 hours would still be available before the plant would be required to be in COLD SHUTDOWN. However, if this system was discovered to be inoperable while in HOT STANDBY, the 6 hours provided to achieve HOT STANDBY would not be additive to the time available to achieve COLD SHUTDOWN so that the total allowable time is reduced from 156 hours to 150 hours.

3.0.4 This specification provides that entry into an OPERATIONAL MODE or other specified applicability condition must be made with: (1) the full complement of required systems, equipment, or components OPERABLE and (2) all other parameters as specified in the Limiting Conditions for Operation being met without regard for allowable deviations and out-of-service provisions contained in the ACTION statements.

The intent of this provision is to ensure that facility operation is not initiated with either required equipment or systems inoperable or other specified limits being exceeded.

Exceptions to this provision have been provided for a limited number of specifications when STARTUP with inoperable equipment would not affect plant safety. These exceptions are stated in the ACTION statements of the appropriate specifications.

4.0.1 This specification provides that surveillance activities necessary to ensure the Limiting Conditions for Operation are met and will be performed during the OPERATIONAL MODES or other conditions for which the Limiting Conditions for Operation are applicable. Provisions for additional surveillance activities to be performed without regard to the applicable OPERATIONAL MODES or other conditions are provided in the individual Surveillance Requirements. Surveillance Requirements for Special Test Exceptions need only be performed when the Special Test Exception is being utilized as an exception to an individual specification.

4.0.2 The provisions of this specification provide allowable tolerances for performing surveillance activities beyond those specified in the nominal surveillance interval. These tolerances are necessary to provide operational flexibility because of scheduling and performance considerations. The phrase "at least" associated with a surveillance frequency does not negate this allowable tolerance value and permits the performance of more frequent surveillance activities.

The tolerance values, taken either individually or consecutively over three test intervals, are sufficiently restrictive to ensure that the reliability associated with the surveillance activity is not significantly degraded beyond that obtained from the nominal specified interval.

4.0.3 The provisions of this specification set forth the criteria for determination of compliance with the OPERABILITY requirements of the Limiting Conditions for Operation. Under these criteria, equipment, systems or components are assumed to be OPERABLE if the associated surveillance activities have been satisfactorily performed within the specified time interval. Nothing in this provision is to be construed as defining equipment, systems or components OPERABLE, when such items are found or known to be inoperable although still meeting the Surveillance Requirements. Items may be determined inoperable during use, during surveillance tests or in accordance with this specification. Therefore, ACTION statements are entered when the Surveillance Requirements should have been performed rather than at the time it is discovered that the tests were not performed.

4.0.4 This specification ensures that the surveillance activities associated with a Limiting Condition for Operation have been performed within the specified time interval prior to entry into an OPERATIONAL MODE or other applicable condition. The intent of this provision is to ensure that surveillance activities have been satifactorily demonstrated on a current basis as required to meet the operability requirements of the Limiting Condition of operation.

Under the terms of this specification, for example, during initial plant STARTUP or following extended plant outages, the applicable surveillance activities must be performed within the stated surveillance interval prior to placing or returning the system or equipment into OPERABLE status.

4.0.5 This specification ensures that inservice inspection of ASME Code Class 1, 2, and 3 components and inservice testing of ASME Code Class 1, 2, and 3 pumps and valves will be performed in accordance with a periodically updated version of Section XI of the ASME Boiler and Pressure Vessel Code and Addenda as required by 10 CFR 50.55a. Relief from any of the above requirements has been provided in writing by the Commission and is not a part of these Technical Specifications.

This specification includes a clarification of the frequencies for performing the inservice inspection and testing activities required by Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda. This clarification is provided to ensure consistency in surveillance intervals throughout these Technical Specifications and to remove any ambiguities relative to the frequencies for performing the required inservice inspection and testing activities.

Under the terms of this specification, the more restrictive requirements of the Technical Specifications take precedence over the ASME Boiler and Pressure Vessel Code and applicable Addenda. For example, the requirements of Specification 4.0.4 to perform surveillance activities prior to entry into an OPERATIONAL MODE or other specified applicability condition takes precedence over the ASME Boiler and Pressure Vessel Code provision which allows pumps to be tested up to 1 week after return to normal operation. And for example, the Technical Specification definition of OPERABLE does not grant a grace period before a device that is not capable of performing its specified function is declared inoperable and takes precedence over the ASME Boiler and Pressure Vessel Code provision which allows a valve to be incapable of performing its specified function for up to 24 hours before being declared inoperable.

QUADRANT POWER TILT RATIO (Continued)

For purposes of monitoring QUADRANT POWER TILT RATIO when one excore detector is inoperable, the movable incore detectors are used to confirm that the normalized symmetric power distribution is consistent with the QUADRANT POWER TILT RATIO. The incore detector monitoring is done with a full incore flux map or two sets of four symmetric thimbles. The two sets of four symmetric thimbles is a unique set of eight detector locations. These locations are C-8, E-5, E-11, H-3, H-13, L-5, L-11, N-8.

3/4.2.5 DNB PARAMETERS

The limits on the DNB-related parameters assure that each of the parameters is maintained within the normal steady-state envelope of operation assumed in the transient and accident analyses. The limits are consistent with the initial FSAR assumptions and have been analytically demonstrated adequate to maintain a minimum DNBR of 1.30 throughout each analyzed transient. The indicated T_{avg} value of 592.5°F and the indicated pressurizer pressure value of 2220 psig correspond to analytical limits of 595°F and 2205 psig respectively, with allowance for measurement uncertainty.

The 12-hour periodic surveillance of these parameters through instrument readout is sufficient to ensure that the parameters are restored within their limits following load changes and other expected transient operation.

3/4.4.2 SAFETY VALVES

The pressurizer Code safety valves operate to prevent the RCS from being pressurized above its Safety Limit of 2735 psig. Each safety valve is designed to relieve 420,000 lbs per hour of saturated steam. The relief capacity of a single safety valve is adequate to relieve any overpressure condition which could occur during shutdown. In the event that no safety valves are OPERABLE, an operating RHR loop, connected to the RCS, provides overpressure relief capability and will prevent RCS overpressurization. In addition, the Overpressure Protection System provides a diverse means of protection against RCS overpressurization at low temperatures.

During operation, all pressurizer Code safety valves must be OPERABLE to prevent the RCS from being pressurized above its Safetv Limit of 2735 psig. The combined relief capacity of all of these valves is greater than the maximum surge rate resulting from a complete loss-of-load assuming no Reactor trip and also assuming no operation of the power-operated relief valves or steam dump valves.

Demonstration of the safety valves' lift settings will occur only during shutdown and will be performed in accordance with the provisions of Section XI of the ASME Boiler and Pressure Code.

3/4.4.3 PRESSURIZER

The 12-hour periodic surveillance is sufficient to ensure that the parameter is restored to within its limit following expected transient operation. The maximum water volume also ensures that a steam bubble is formed and thus the RCS is not a hydraulically solid system. The requirement that a minimum number of pressurizer heaters be OPERABLE enhances the capability of the plant to control Reactor Coolant System pressure and establish natural circulation.

3/4.4.4 RELIEF VALVES

The power-operated relief valves (PORVs) and steam bubble function to relieve RCS pressure during all design transients up to and including the design step load decrease with steam dump. Operation of the PORVs minimizes the undesirable opening of the spring-loaded pressurizer Code safety valves. Each PORV has a remotely operated block valve to provide a positive shutoff capability should a relief valve become inoperable.

COLD OVERPRESSURE (Continued)

possible by the geometrical relationship of the RHR suction line and the RCS wide range temperature indicator used for COMS; 3) instrument uncertainties; and 4) single failure. To ensure mass and heat input transients more severe than those assumed cannot occur, technical specifications require lockout of both safety injection pumps and all but one centrifugal charging pump while in MODES 4, 5 and 6 with the reactor vessel head installed and disallow start of an RCP if secondary temperature is more than 50°F above primary temperature. Exceptions to these mode requirements are acceptable as described below.

Operation above 350°F but less than 375°F with only one centifugal charging pump OPERABLE and no safety injection pumps OPERABLE is allowed for up to 4 hours. As shown by analysis LOCA's occurring at low temperature, low pressure conditions can be successfully mitigated by the operation of a single centrifugal charging pump and a single RHR pump with no credit for accumulator injection. Given the short time duration that the condition of having only one centrifugal charging pump OPERABLE is allowed and the probability of a LOCA occurring during this time, the failure of the single centrifugal charging pump is not assumed.

Operation below 350°F but greater than 325°F with all centrifugal charging and safety injection pumps OPERABLE is allowed for up to 4 hours. During low pressure, low temperature operation all automatic safety injection actuation signals except Containment Pressure - High are blocked. In normal conditions a single failure of the ESF actuation circuitry will result in the starting of at most one train of safety injection (one centrifugal charging pump, and one safety injection pump). For temperatures above 325°F, an overpressure event occurring as a result of starting two pumps can be successfully mitigated by operation of both PORV's without exceeding Appendix G limit. Given the short time duration that this condition is allowed and the low probability of a single failure causing an overpressure event during this time, the single failure of a PORV is not assumed. Initiation of both trains of safety injection during this 4-hour time frame due to operator error or a single failure occurring during testing of a redundant channel are not considered to be credible accidents.

Although COMS is required to be OPERABLE when RCS temperature is less than 368°F, operation with all centrifugal charging pumps and both safety injection pumps OPERABLE is acceptable when RCS temperature is greater than 350°F. Should an inadvertent safety injection occur above 350°F, a single PORV has sufficient capacity to relieve the combined flow rate of all pumps. Above 350°F ~~one~~ RCPs two and all pressurizer safety valves are required to be OPERABLE. Operation of an RCP eliminates the possibility of a 50°F difference existing between indicated and actual RCS temperature as a result of heat transport effects. Considering instrument uncertainties only, an indicated RCS temperature of 350°F is sufficiently high to allow full RCS pressurization in accordance with Appendix G limitations. Should an overpressure event occur in these conditions, the pressurizer safety valves provide acceptable and redundant overpressure protection.

The Maximum Allowed PORV setpoint for the Cold Overpressure Mitigation System will be updated based on the results of examinations of reactor vessel material irradiation surveillance specimens performed as required by 10 CFR Part 50, Appendix H and in accordance with the schedule in Table 4.4-5.

3/4.6.1.4 INTERNAL PRESSURE

The limitations on containment internal pressure ensure that: (1) the containment structure is prevented from exceeding its design negative pressure differential with respect to the outside atmosphere of 3.0 psig, and (2) the containment peak pressure does not exceed the design pressure of 60 psig during steam line break conditions.

The maximum peak pressure expected to be obtained from a steam line break event is 48 psig. The limit of 1.5 psig for initial positive containment pressure will limit the total pressure to 49.5 psig, which is less than design pressure and is consistent with the safety analyses.

3/4.6.1.5 AIR TEMPERATURE

The limitations on containment average air temperature ensure that the overall containment average air temperature does not exceed the initial temperature condition assumed in the safety analysis for a steam line break accident. Measurements shall be made at all listed locations, whether by fixed or portable instruments, prior to determining the average air temperature.

3/4.6.1.6 CONTAINMENT VESSEL STRUCTURAL INTEGRITY

This limitation ensures that the structural integrity of the containment vessel will be maintained in accordance with safety analysis requirements for the life of the facility. Structural integrity is required to ensure that the containment will withstand the maximum pressure of 50 psig in the event of a steam line break accident. The measurement of containment tendon lift-off force, the tensile tests of the tendon wires or strands, the visual examination of tendons, anchorages and exposed interior and exterior surfaces of the containment, and the Type A leakage test are sufficient to demonstrate this capability.

The Surveillance Requirements for demonstrating the containment's structural integrity are in compliance with the recommendations of proposed Regulatory Guide 1.35, "Inservice Surveillance of Ungrouted Tendons in Prestressed Concrete Containment Structures," April 1979, and proposed Regulatory Guide 1.35.1, "Determining Prestressing Forces for Inspection of Prestressed Concrete Containments," April 1979.

The required Special Reports from any engineering evaluation of containment abnormalties shall include a description of the tendon condition, the condition of the concrete (especially at tendon anchorages), the inspection procedure, the tolerances on cracking, the results of the engineering evaluation and the corrective actions taken.

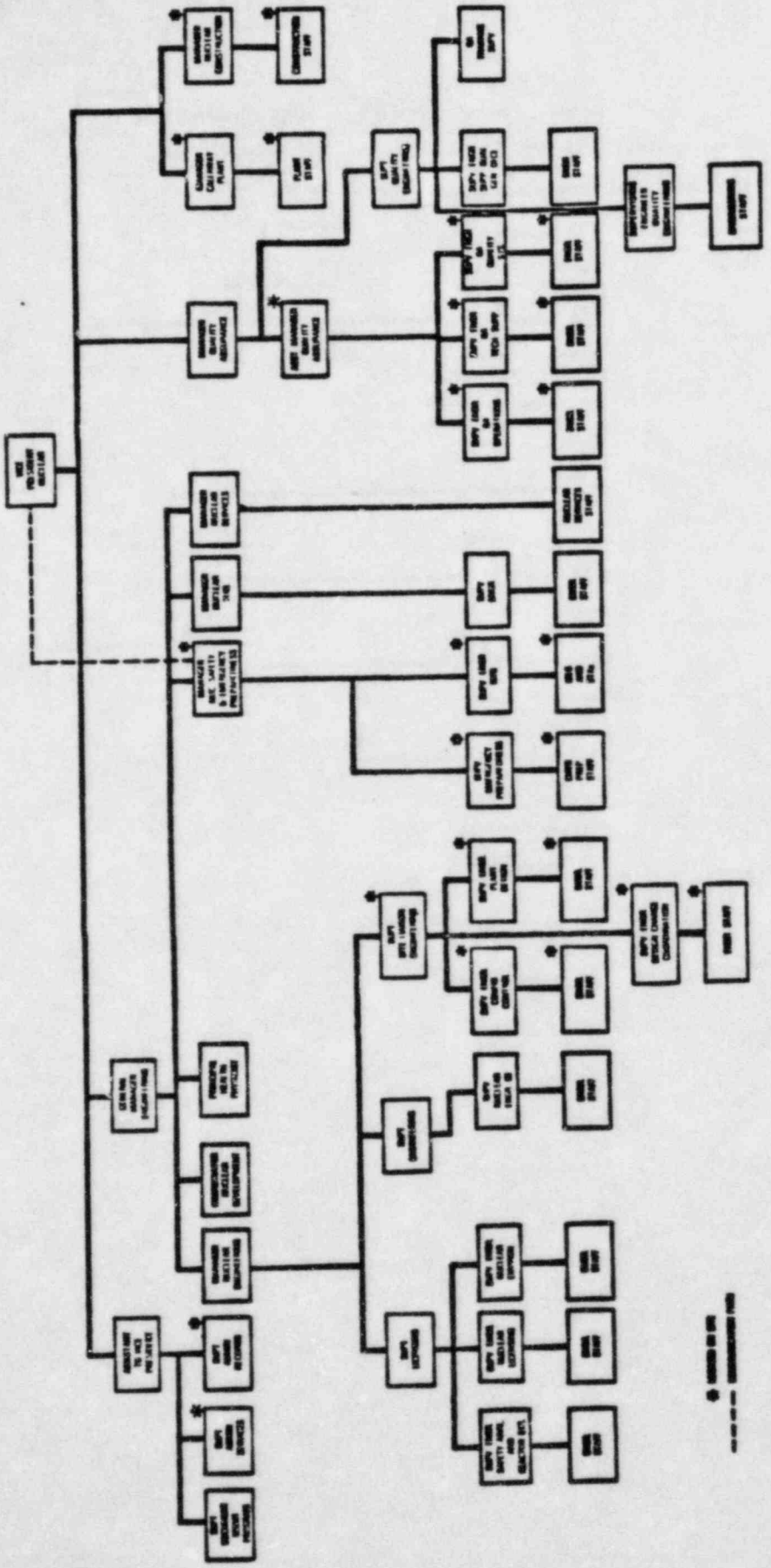

FIGURE 6.2-1

OFFSITE ORGANIZATION