UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

DEC 11 1995

Entergy Operations, Inc.
ATTN: C. R. Hutchinson, Vice President
Operations - Grand Gulf
P.O. Box 756
Port Gibson, Mississippi 39150

SUBJECT: IMPROVED TECHNICAL SPECIFICATIONS

This refers to the meeting conducted in the Region IV office on December 5, 1995. This meeting related to any experiences and lessons learned from your implementation of the Improved Technical Specifications.

We appreciated the time your staff took at our request to describe your program and lessons learned. We found the presentation to be informative, especially the examples provided for using the Technical Specifications and your safety function determination document.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter will be placed in the NRC's Public Document Room.

Should you have any questions concerning this matter, we will be pleased to discuss them with you.

Sincerely,

J. E. Dyer, Director
Division of Reactor Projects

Enclosures:
1. Attendance List
2. Licensee Presentation

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Senior Resident Inspector
Leah Tremper (OC/LFDCB, MS: TWFN 9E10)
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PE:DRP/D	C:DRP/D	D:DRP		
GAPick	PHHarrel	JEDyer		
12/11/95	12/11/95	12/11/95		

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GAPick		PHHarrel		JEDyer					
12/11/95		12/12/95		12/11/95					

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MEETING: IMPROVED TECHNICAL SPECIFICATIONS

DATE: 12 - 5 - 95

ATTENDANCE LIST

(PLEASE PRINT CLEARLY)

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M. MURPHY	R IV / DRS	~~Examiner/Inspector~~
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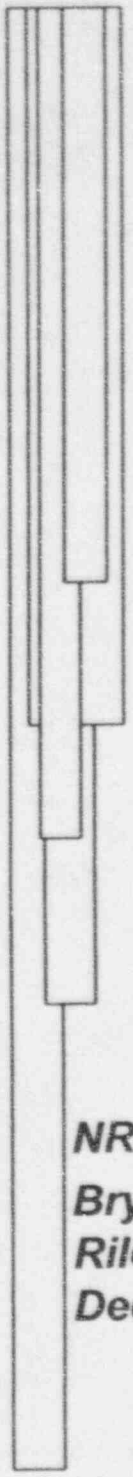
Bryan Ford	EOI / Grand Gulf	Engineer, NSRA
Riley Collins	EOI / Grand Gulf	Out. Sched. Supt

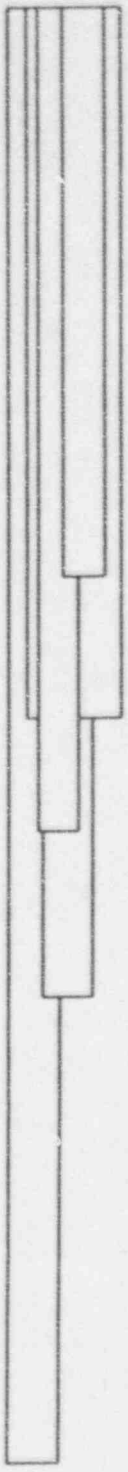


Improved Technical Specifications at Grand Gulf Nuclear Station

NRC Region 4
Bryan Ford
Riley Collins
December 5, 1995

Improved Technical Specifications at Grand Gulf Nuclear Station

◆ Major Philosophy Changes and Benefits	Bryan Ford
◆ Control of Relocated Requirements	Bryan Ford
◆ Overview of Implementation Project	Riley Collins
◆ Conversion Results	Bryan Ford
◆ Summary	Bryan Ford
◆ Examples	Riley Collins



Major Philosophy Changes and Benefits

Major Philosophy Changes

- LCO 3.0.4 MODE change allowance
- Loss of safety function determination program
- Human factors
- Rules for use of the Technical Specifications

LCO 3.0.4 MODE Change Allowance

- LCO 3.0.4 prohibits entering a MODE with inoperable equipment if the LCO Required Actions will require the condition to be exited. But allows changing MODES to comply with Required Actions.
- Restricts MODE changes only in MODES 1, 2, and 3. Does not restrict MODE changes associated with a unit shut down.
- The LCO Required Actions provide the appropriate compensatory actions for the inoperabilities.
- Change clarified the requirements and allowed the deletion of the old cumbersome LCO 3.0.4 allowable MODE change matrix.

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1

LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2 and LCO 3.0.7.

LCO 3.0.2

Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required, unless otherwise stated.

LCO 3.0.3

When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

a. MODE 2 within 7 hours;

b. MODE 3 within 13 hours; and

c. MODE 4 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, and 3.

LCO 3.0.4

When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall not be made except when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time. This Specification shall not prevent changes in MODES or other

(continued)

3.0 LCO APPLICABILITY

LCO 3.0.4 (continued)

specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

Exceptions to this Specification are stated in the individual Specifications. These exceptions allow entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered allow unit operation in the MODE or other specified condition in the Applicability only for a limited period of time.

LCO 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, and 3.

LCO 3.0.5

Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, additional evaluations and limitations may be required in accordance with Specification 5.5.10, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

(continued)

Loss of Safety Function Determination Program

- Clarifies rules for "cascading" Tech. Spec. LCO Required Actions
- Requires that any loss of safety function due to multiple inoperabilities be identified and appropriate ACTIONS taken
- The loss of safety function review is performed following the operability determination
- Safety function is evaluated on a LCO Function basis and the program requires that actions be taken where the loss of safety function exists

3.0 LCO APPLICABILITY

LCO 3.0.4 (continued)

specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

Exceptions to this Specification are stated in the individual Specifications. These exceptions allow entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered allow unit operation in the MODE or other specified condition in the Applicability only for a limited period of time.

LCO 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, and 3.

LCO 3.0.5

Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, additional evaluations and limitations may be required in accordance with Specification 5.5.10, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

(continued)

5.5 Programs and Manuals

5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program (continued)

b. A surveillance program to ensure that the quantity of radioactive material contained in any outside temporary tank not including liners or shipping radwaste is ≤ 10 curies, excluding tritium and dissolved or entrained noble gases.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

5.5.9 Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Acceptability of new fuel oil for use prior to addition to storage tanks, and acceptability of stored fuel oil every 92 days, by determining that the fuel oil has:

1. a water and sediment contents within limits, and

2. a kinematic viscosity within limits for ASTM 2D fuel oil;

b. Total particulate concentration of the new fuel is ≤ 2 mg/100 ml when tested in accordance with ASTM D-2274-70 within 7 days after addition of the new fuel to the storage tank; and

c. Total particulate concentration of the fuel oil in the storage tanks is ≤ 2 mg/100 ml when tested every 92 days in accordance with ASTM D-2274-70.

5.5.10 Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial

(continued)

5.5 Programs and Manual

5.5.10 Safety Function Determination Program (SFDP) (continued)

or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6. The SFDP shall contain the following:

a. Provisions for cross division checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

b. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;

c. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and

d. Other appropriate limitations and remedial or compensatory actions.

A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:

a. A required system redundant to system(s) supported by the inoperable support system is also inoperable; or

b. A required system redundant to system(s) in turn supported by the inoperable supported system is also inoperable; or

c. A required system redundant to support system(s) for the supported systems (a) and (b) above is also inoperable.

The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

(continued)

Human factored format

- Three column format for LCO Actions greatly increases clarity
- The instrumentation tables are easier to read
- The frequency requirements for Surveillance's are no longer buried in the text of the requirement
- Technical Specification requirements are focused on the required results and not on how to achieve the results
- Expanded bases

3/4.1.5 STANDBY LIQUID CONTROL SYSTEM

LIMITING CONDITION FOR OPERATION

3.1.5 Two standby liquid control system subsystems shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 5*.

ACTION:

a. In OPERATIONAL CONDITION 1 or 2:

1. With one system subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours.

2. With both standby liquid control system subsystems inoperable, except for the condition covered in ACTION a.3, restore at least one subsystem to OPERABLE status within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours.

3. With the sodium pentaborate concentration greater than 15.2 weight percent and the net tank volume greater than or equal to 4281 gallons and less than or equal to 5088 gallons, verify the sodium pentaborate solution temperature to be greater than or equal to the standby liquid control system solution minimum temperature limit of Figure 3.1.5-1 once per 4 hours and restore the sodium pentaborate solution to within the normal operation limits of Figures 3.1.5-1 and 3.1.5-2 within 72 hours. Otherwise, declare both standby liquid control system subsystems inoperable and be in at least HOT SHUTDOWN within the next 12 hours.

b. In OPERATIONAL CONDITION 5*:

1. With one system subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 30 days or insert all insertable control rods within the next hour.

2. With both standby liquid control system subsystems inoperable, insert all insertable control rods within one hour.

SURVEILLANCE REQUIREMENTS

4.1.5 Each standby liquid control system subsystem shall be demonstrated OPERABLE:

a. At least once per 24 hours by verifying that;

1. The temperature of the sodium pentaborate solution is greater than or equal to 75°F and less than or equal to 130°F.

2. The available volume of sodium pentaborate solution is within the limits of Figure 3.1.5-2.

*With any control rod withdrawn. Not applicable to control rods removed per Specification 3.9.10.1 or 3.9.10.2.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Standby Liquid Control (SLC) System

LCO 3.1.7 Two SLC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Concentration of boron in solution in Limited Operation region.	A.1	Restore concentration of boron in solution to Normal Operation region.	72 hours
	AND		
	A.2	Perform SR 3.1.7.2.	Once per 4 hours
B. One SLC subsystem inoperable.	B.1	Restore SLC subsystem to OPERABLE status.	7 days
C. Two SLC subsystems inoperable.	C.1	Restore one SLC subsystem to OPERABLE status.	8 hours
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	12 hours

Expanded Bases

- Provides detailed information in the following areas
  - Background
  - Applicable Safety Analyses
  - LCO
  - Applicability
  - Actions
  - Surveillance Requirements
  - References
- Provides guidance on the "how to" meet Tech Spec requirements
- Contains many of the details located in the old Tech Specs
- Bases can be changed via a 50.59 evaluation

B 3.1 REACTIVITY CONTROL SYSTEMS

B 3.1.7 Standby Liquid Control (SLC) System

BASES

BACKGROUND

The SLC System is designed to provide the capability of bringing the reactor, at any time in a fuel cycle, from full power and minimum control rod inventory (which is at the peak of the xenon transient) to a subcritical condition with the reactor in the most reactive xenon free state without taking credit for control rod movement. The SLC System satisfies the requirements of 10 CFR 50.62 (Ref. 1) on anticipated transient without scram (ATWS).

The SLC System consists of a boron solution storage tank, two positive displacement pumps, two explosive valves, which are provided in parallel for redundancy, and associated piping and valves used to transfer borated water from the storage tank to the reactor pressure vessel (RPV). The borated solution is discharged through the high pressure core spray system sparger.

APPLICABLE SAFETY ANALYSES

The SLC System is manually initiated from the main control room, as directed by the emergency operating procedures, if the operator believes the reactor cannot be shut down, or kept shut down, with the control rods. The SLC System is used in the event that not enough control rods can be inserted to accomplish shutdown and cooldown in the normal manner. The SLC System injects borated water into the reactor core to compensate for all of the various reactivity effects that could occur during plant operation. To meet this objective, it is necessary to inject a quantity of boron that produces a concentration of at least 660 ppm of natural boron in the reactor core at 68°F. To allow for potential leakage and imperfect mixing in the reactor system, an additional amount of boron equal to 25% of the amount cited above is added (Ref. 2). The temperature versus concentration limits in Figure 3.1.7-1 are calculated such that the required concentration is achieved accounting for dilution in the RPV with normal water level and including the water volume in the residual heat removal shutdown cooling piping and in the recirculation loop piping. This quantity of borated solution is the amount

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

that is above the pump suction shutoff level in the boron solution storage tank. No credit is taken for the portion of the tank volume that cannot be injected.

The SLC System satisfies the requirements of the NRC Policy Statement because operating experience and probabilistic risk assessment have generally shown it to be important to public health and safety.

LCO

The OPERABILITY of the SLC System provides backup capability for reactivity control, independent of normal reactivity control provisions provided by the control rods. The OPERABILITY of the SLC System is based on the conditions of the borated solution in the storage tank and the availability of a flow path to the RPV, including the OPERABILITY of the pumps and valves. Two SLC subsystems are required to be OPERABLE, each containing an OPERABLE pump, an explosive valve and associated piping, valves, and instruments and controls to ensure an OPERABLE flow path.

APPLICABILITY

In MODES 1 and 2, shutdown capability is required. In MODES 3 and 4, control rods are not able to be withdrawn since the reactor mode switch is in shutdown and a control rod block is applied. This provides adequate controls to ensure the reactor remains subcritical. In MODE 5, only a single control rod can be withdrawn from a core cell containing fuel assemblies. Demonstration of adequate SDM (LCO 3.1.1, "SHUTDOWN MARGIN (SDM)") ensures that the reactor will not become critical. Therefore, the SLC System is not required to be OPERABLE during these conditions, when only a single control rod can be withdrawn.

ACTIONS

A.1 and A.2

When the boron concentration is in the Limited Operation region (between 15.2 weight percent and 28.5 weight percent), the SBLC System contains sufficient boron to perform its design basis functions. But the associated solution temperatures required to prevent precipitation of the boron from solution is potentially greater than the primary containment's ambient temperature. As a result, the non safety tank heaters may be required to maintain the tank

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

temperatures above the precipitation temperature. As a result of this potential reliance on the heaters to maintain the solution temperature operation in the Limited Operation region is only allowed for up to 72 hours and SR 3.1.7.2 is required to be performed once per 4 hours. The SR 3.1.7.2 is performed once per 4 hours to compensate for the reduced range of acceptable temperatures to preclude precipitation at the higher concentrations while remaining below the upper temperature limit (Reference 3). It is not necessary in the Limited Operation region to declare both SLC subsystems inoperable, since they are capable of performing their design basis functions. Because the SLC System capability still exists for vessel injection under these conditions, the allowed Completion Time of 72 hours is acceptable and provides adequate time to restore concentration to within limits.

B.1

If one SLC subsystem is inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days. It is not necessary to enter this condition due to operation in the Limited Operation region. In this condition, the remaining OPERABLE subsystem is adequate to perform the shutdown function. However, the overall reliability is reduced because a single failure in the remaining OPERABLE subsystem could result in reduced SLC System shutdown capability. The 7 day Completion Time is based on the availability of an OPERABLE subsystem capable of performing the intended SLC System function and the low probability of a Design Basis Accident (DBA) or severe transient occurring concurrent with the failure of the Control Rod Drive System to shut down the plant.

C.1

If both SLC subsystems are inoperable, at least one subsystem must be restored to OPERABLE status within 8 hours. It is not necessary to enter this condition due to operation in the Limited Operation region. The allowed Completion Time of 8 hours is considered acceptable, given the low probability of a DBA or transient occurring

(continued)

BASES

ACTIONS

C.1 (continued)

concurrent with the failure of the controls rods to shut down the reactor.

D.1

If any Required Action and associated Completion Time is not met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to MODE 3 within 12 hours. The allowed Completion Time of 12 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.1.7.1

SR 3.1.7.1 is a 24 hour Surveillance to verify the volume of the borated solution in the storage tank. This Surveillance ensures the proper amount of sodium pentaborate (boron) solution is available to maintain the required minimum weight of 5800 pounds of boron in the solution. This required volume is identified as a required range of solution volumes ranging from 4281 gallons to 5088 gallons as a function of the boron concentration. The lower volume bound is the volume required to assure that the solution, at a concentration of 15.2 weight percent boron, will contain the 5800 pounds of boron approved by the NRC as the quantity conservatively needed for cold shutdown during an ATWS event. The upper bound on the required volume is limited by the tank volume of 5088 gallons (Reference 3). The 24 hour Frequency of this SR is based on operating experience that has shown there are relatively slow variations in the measured parameters.

SR 3.1.7.2

SR 3.1.7.2 is a 24 hour Surveillance to verify the temperature of the borated solution in the storage tank. When the boron concentration is $\leq$ 15.2 weight percent the corresponding saturation temperature is $\leq$ 70°F which is below the corresponding minimum allowable temperature of 75°F, this at least 5°F difference is maintained when the

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.1.7.2 (continued)

boron concentration is > 15.2 weight percent. The upper temperature limit of 130°F is set to meet the pump net positive suction head requirements for two pump operation and to ensure the temperature is below the 150°F temperature rating of the SLC System piping (Reference 3).

This Surveillance ensures the proper boron solution temperature is maintained. Maintaining a minimum specified boron solution temperature is important in ensuring that the boron remains in solution and does not precipitate out in the storage tank or in the pump suction piping (Reference 3). The 24 hour Frequency of this SR is based on operating experience that has shown there are relatively slow variations in the measured parameters.

SR 3.1.7.3

SR 3.1.7.3 is a 24 hour Surveillance to verify the temperature of the pump suction piping. The minimum acceptable temperature is such that when the boron solution temperature is in the acceptable range, the boron concentration is ≤ 28.5 weight percent, and the pump suction piping at 70°F (which is below the corresponding minimum allowable temperature of 75°F) the SLC System will still be able to inject the required amount of solution without excessive precipitation. The upper temperature limit of 130°F is set to meet the pump net positive suction head requirements for two pump operation and to ensure the temperature is below the 150°F temperature rating of the SLC System piping. Maintaining a minimum specified pump suction piping temperature is important in ensuring that the boron remains in solution and does not precipitate out in the pump suction piping (Reference 3). The 24 hour Frequency of this SR is based on operating experience that has shown there is relatively slow variation in the measured parameter.

SR 3.1.7.4 and SR 3.1.7.6

SR 3.1.7.4 verifies the continuity of the explosive charges in the injection valves to ensure proper operation will occur if required. Other administrative controls, such as those that limit the shelf life of the explosive charges,

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.7.4 and SR 3.1.7.6 (continued)

must be followed. The 31 day Frequency is based on operating experience that has demonstrated the reliability of the explosive charge continuity.

SR 3.1.7.6 verifies each valve in the system is in its correct position, but does not apply to the squib (i.e., explosive) valves. Verifying the correct alignment for manual, power operated, and automatic valves in the SLC System flow path ensures that the proper flow paths will exist for system operation. A valve is also allowed to be in the nonaccident position, provided it can be aligned to the accident position from the control room, or locally by a dedicated operator at the valve controls. This is acceptable since the SLC System is a manually initiated system. This Surveillance does not apply to valves that are locked, sealed, or otherwise secured in position, since they were verified to be in the correct position prior to locking, sealing, or securing. This verification of valve alignment does not apply to valves that cannot be inadvertently misaligned, such as check valves. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct positions. The 31 day Frequency is based on engineering judgment and is consistent with the procedural controls governing valve operation that ensure correct valve positions.

SR 3.1.7.5

This Surveillance requires an examination of the sodium pentaborate solution by using chemical analysis to ensure the proper concentration of boron exists in the storage tank. SR 3.1.7.5 must be performed anytime boron or water is added to the storage tank solution to establish that the boron solution concentration is within the specified limits. This Surveillance must be performed anytime the solution temperature is restored to $\geq$ 75°F after the solution temperature has been < 75°F, to ensure no significant boron precipitation occurred. The 31 day Frequency of this Surveillance is appropriate because of the relatively slow variation of boron concentration between surveillances.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.1.7.7

Demonstrating each SLC System pump develops a flow rate ≥ 41.2 gpm at a discharge pressure ≥ 1300 psig without actuating the pump's relief valve ensures that pump performance has not degraded during the fuel cycle. This minimum pump flow rate requirement ensures that, when combined with the sodium pentaborate solution concentration requirements, the rate of negative reactivity insertion from the SLC System will adequately compensate for the positive reactivity effects encountered during power reduction, cooldown of the moderator, and xenon decay. This test confirms one point on the pump design curve, and is indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this Surveillance is in accordance with the Inservice Testing Program.

SR 3.1.7.8 and SR 3.1.7.9

These Surveillances ensure that there is a functioning flow path from the boron solution storage tank to the RPV, including the firing of an explosive valve. The replacement charge for the explosive valve shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of that batch successfully fired. The pump and explosive valve tested should be alternated such that both complete flow paths are tested every 36 months, at alternating 18 month intervals. The Surveillance may be performed in separate steps to prevent injecting boron into the RPV. An acceptable method for verifying flow from the pump to the RPV is to pump demineralized water from a test tank through one SLC subsystem and into the RPV. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance test when performed at the 18 month Frequency; therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.7.8 and SR 3.1.7.9 (continued)

Demonstrating that all heat traced piping between the boron solution storage tank and the suction inlet to the injection pumps is unblocked ensures that there is a functioning flow path for injecting the sodium pentaborate solution. An acceptable method for verifying that the suction piping is unblocked is to pump from the storage tank to the test tank and then draining and flushing the piping with demineralized water. The 18 month Frequency is acceptable since there is a low probability that the subject piping will be blocked due to precipitation of the boron from solution in the heat traced piping. This is especially true in light of the daily temperature verification of this piping required by SR 3.1.7.3. However, if, in performing SR 3.1.7.3, it is determined that the temperature of this piping has fallen below the specified minimum, SR 3.1.7.9 must be performed once within 24 hours after the piping temperature is restored $\geq$ 75°F after the piping temperature has been $<$ 75°F.

REFERENCES

1. 10 CFR 50.62.

2. UFSAR, Section 9.3.5.3.

3. GNRI-91/00153, Issuance of Amendment No. 79 to Facility Operating License No. NPF-29 - Grand Gulf Nuclear Station, Unit 1, Regarding Standby Liquid Control System Technical Specifications, dated July 30, 1991.

Rules for use of the Technical Specifications

- Details rules for and examples of the usage of the Tech Specs
- Section 1.2 "Logical Connectors"
- Section 1.3 "Completion Times"
- Section 1.4 "Frequency"
- Increases the consistency of the interpretation of the requirements of the Technical Specifications

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).
DESCRIPTION	The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the LCO. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability. If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition starting from the time of discovery of the situation that required entry into the Condition. Once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will <u>not</u> result in separate entry into the Condition unless specifically stated. The Required Actions of the Condition continue to apply to each additional failure, with Completion Times based on initial entry into the Condition.

(continued)

1.3 Completion Times

DESCRIPTION (continued)

However, when a subsequent division, subsystem, component, or variable expressed in the Condition is discovered to be inoperable or not within limits, the Completion Time(s) may be extended. To apply this Completion Time extension, two criteria must first be met. The subsequent inoperability:

a. Must exist concurrent with the first inoperability; and

b. Must remain inoperable or not within limits after the first inoperability is resolved.

The total Completion Time allowed for completing a Required Action to address the subsequent inoperability shall be limited to the more restrictive of either:

a. The stated Completion Time, as measured from the initial entry into the Condition, plus an additional 24 hours; or

b. The stated Completion Time as measured from discovery of the subsequent inoperability.

The above Completion Time extension does not apply to those Specifications that have exceptions that allow completely separate re-entry into the Condition (for each division, subsystem, component, or variable expressed in the Condition) and separate tracking of Completion Times based on this re-entry. These exceptions are stated in individual Specifications.

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition entry) or as a time modified by the phrase "from discovery . . ." Example 1.3-3 illustrates one use of this type of Completion Time. The 10 day Completion Time specified for Conditions A and B in Example 1.3-3 may not be extended.

(continued)

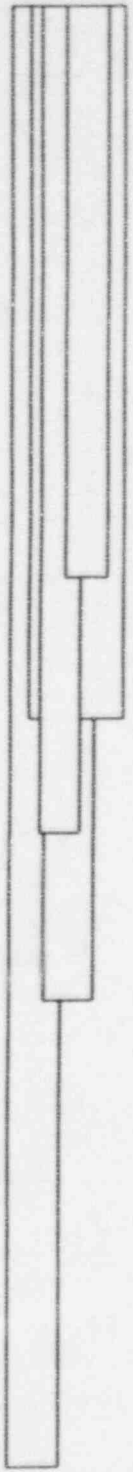
1.3 Completion Times

EXAMPLES	EXAMPLE 1.3-7 (continued) Condition B is entered, but continues from the time Condition A was initially entered. If Required Action A.1 is met after Condition B is entered, Condition B is exited and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.
IMMEDIATE COMPLETION TIME	When "Immediately" is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

REAL Benefits

- Positive changes in Tech. Specs. well beyond those available by GL line item improvements
  - approximately 60% of the plant wish list
  - potential plant shutdown averted
  - control rod position indication requirements in shutdown
- Significant Reduction in Tech. Spec. changes needed (from > 20 per year to 1 in 1995)
- Aggressive modification or deletion of relocated specifications
  - performance based audit program
  - LLRT requirements
- Enhanced Bases
  - better ties to license and design basis
  - better understanding of characteristics important to safety
  - better input into 50.59 evaluations, Tech. Spec. changes, and OPERABILITY determinations

Control of Relocated Requirements



Control of Relocated Requirements

- The Scope of the items controlled by the Tech Specs has been changed by relocating the following types of requirements to licensee control:
  - Items which did not meet the Final Policy Statement's selection criteria
    - Approximately 25 entire LCOs (e.g., seismic monitoring)
    - Approximately 10 instrumentation functions (e.g., delta temperature isolations)
  - Instrumentation used to demonstrate OPERABILITY (e.g., accumulator alarms)
  - Details of "how to" accomplish actions, surveillances, etc. (e.g., how to disarm a control rod)
  - Administrative requirements (e.g., procedure change control requirements)

Control of Relocated Requirements

- Requirements controlled under 50.59 except for the following administrative requirements which are controlled under 50.54:

  1. Review and Audit requirements and

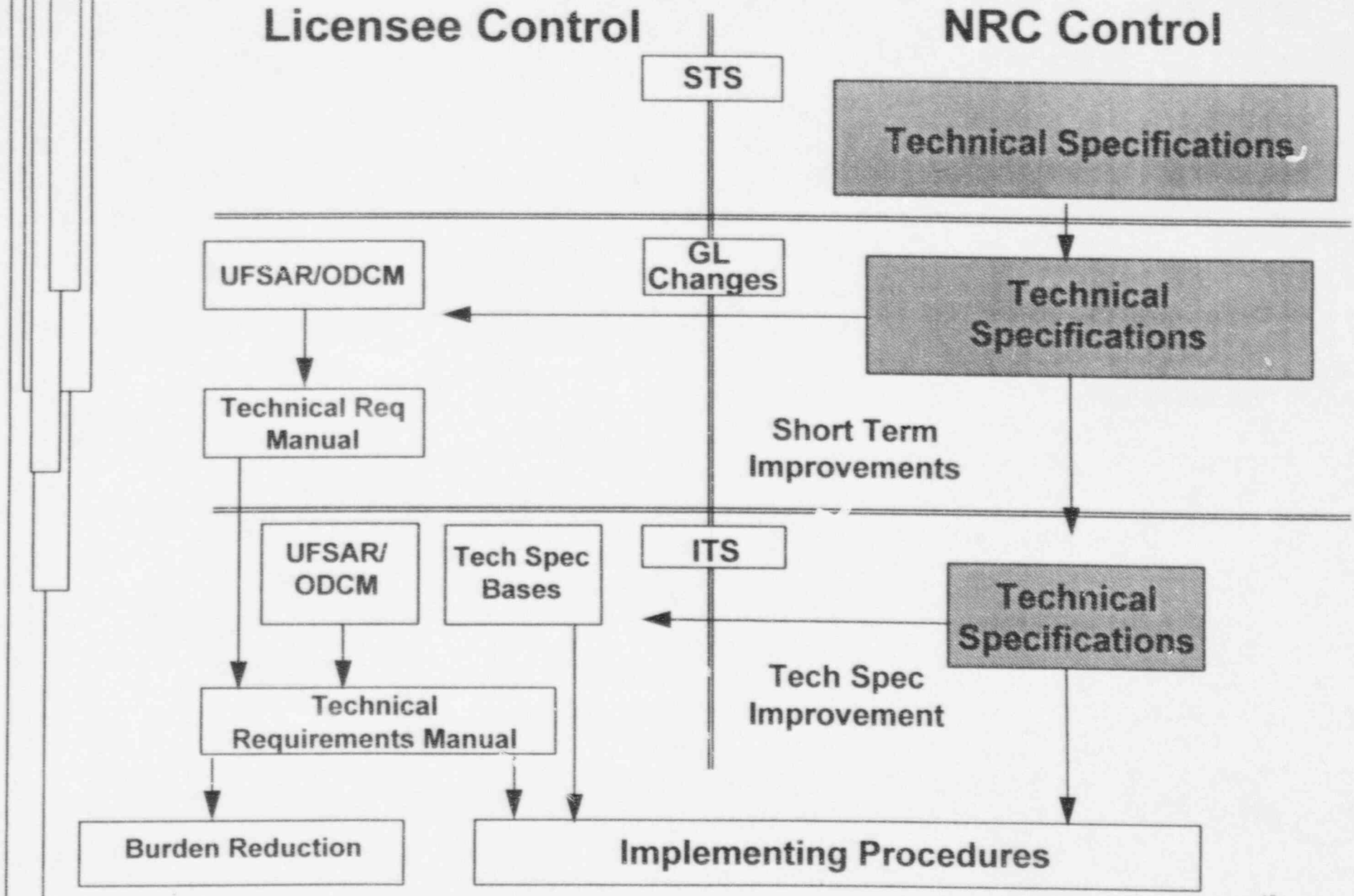
  2. Record Retention requirements.

- Identified in the Tech. Spec. Bases or Technical Requirements Manual

Control of Relocated Requirements

- Technical Requirements Manual (TRM)
  - Provides a central location for relocated Tech Spec requirements
  - Provides high visibility
  - Treated by the plant staff with the same importance as Tech Spec requirements
  - Same rules of use apply to the TRM as apply to the Tech Specs
  - Reformatted to match the Improved Technical Specifications format
  - Paged into the Tech Specs

Control of Relocated Requirements



Overview of Implementation Project

Preparation of Procedures

Revise procedures used to satisfy Tech Spec requirements

- Priority 1 - New or more restrictive requirements
- Priority 2 - Technical changes including less restrictive changes
- Priority 3 - Administrative number change

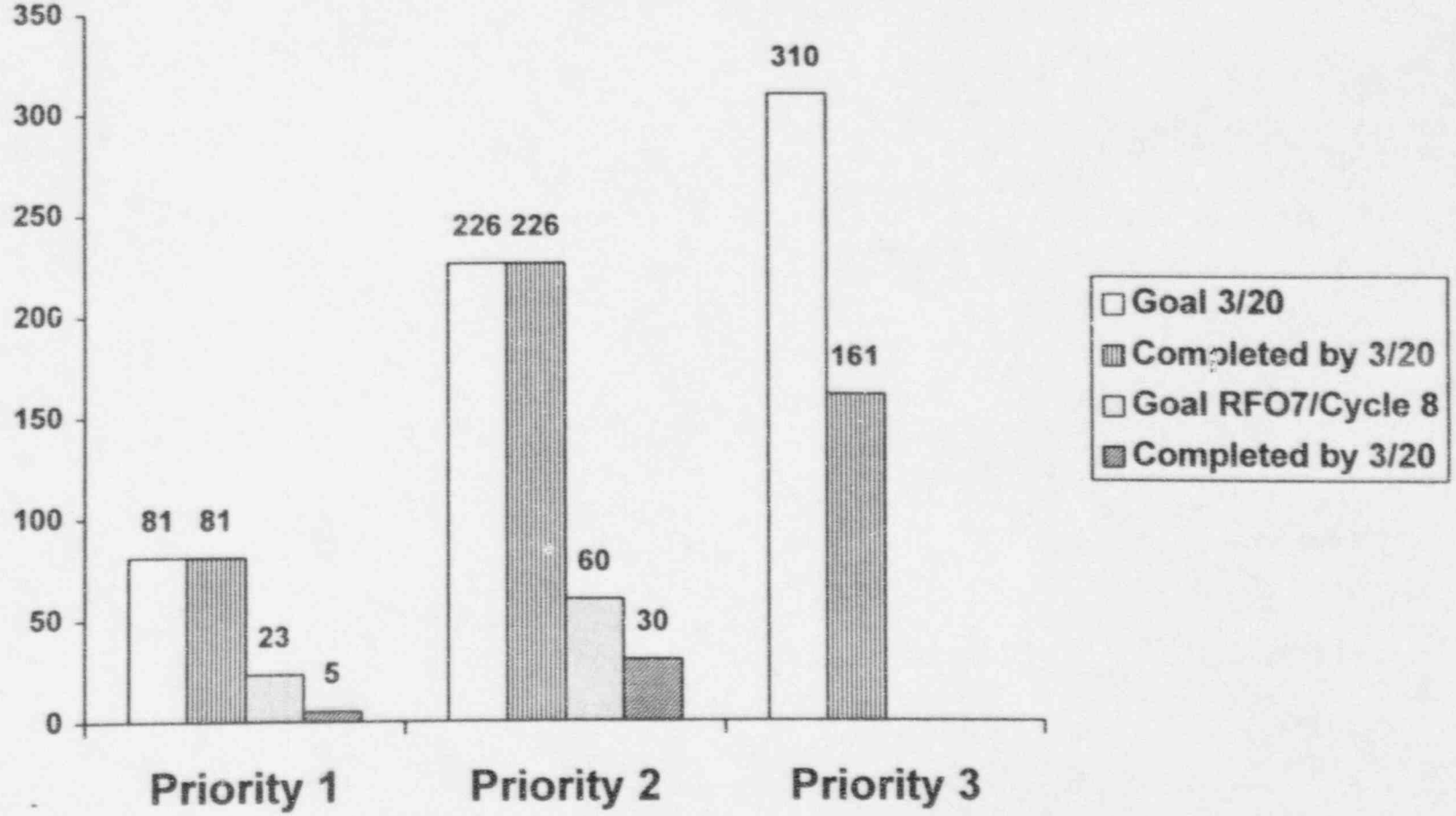
Freeze period stopping procedure changes not required for plant safety approximately 30 days prior to implementation

New procedures and programs

- new surveillances - e.g., ECCS minimum flow instrumentation
- new programs - Bases control and Safety Function Determination

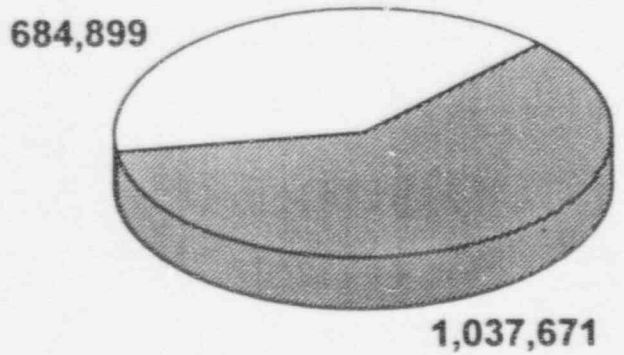
Remaining procedures are being revised after implementation during the normal revision process (36 left)

Procedure Distribution by Priority Group

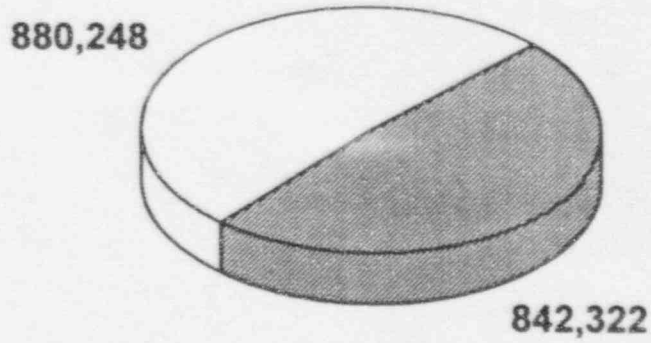


Grand Gulf
Technical Specification Improvement
Cost Distribution

ITS/Non-ITS



Hard/Soft Dollars



Grand Gulf
Technical Specification Improvement
Cost Distribution

ITS/Non-ITS

ITS:

271,707	New TS
329,563	Procedure revisions (ITS)
64,261	SRO Training Revs
318,500	Entergy Technical
53,640	Entergy Admin
1,037,671	

Non-ITS:

312,759	Parallel Initiatives
318,500	Entergy Technical
53,640	Entergy Admin
684,899	

Hard/Soft Dollars

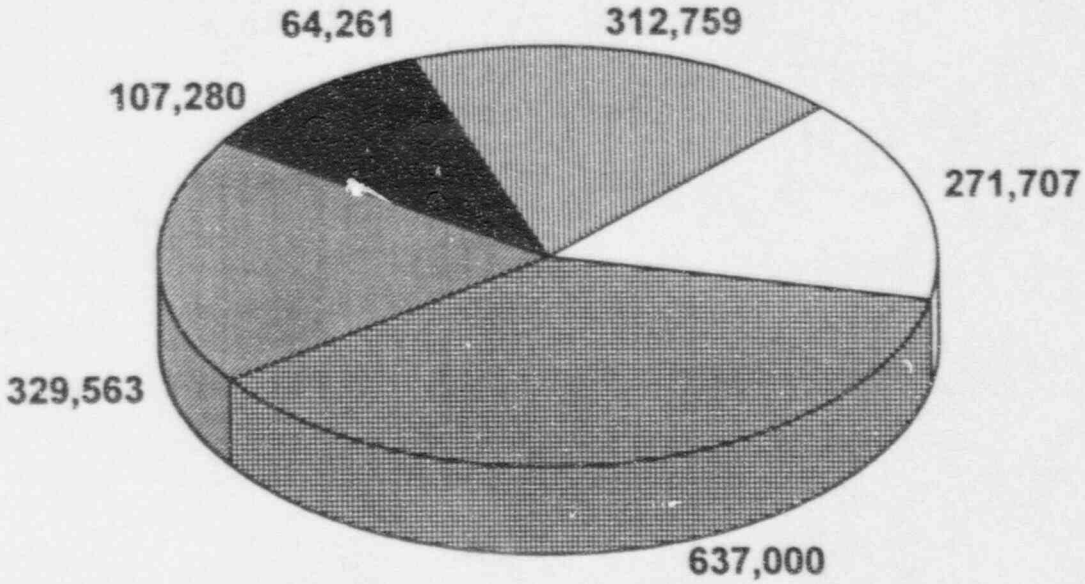
Contractor:

200,000	New TS
329,563	Procedure revisions (ITS)
312,759	Parallel initiatives
842,322	

In-House:

71,707	New TS
637,000	Entergy Technical
107,280	Entergy Admin
64,261	SRO Training Revs
880,248	

Grand Gulf
Technical Specification Improvement
Cost Distribution



Procedure Changes
Lessons Learned

- Most expensive part of conversion process
- Even if plans call for revising all affected procedures you need to prioritize the procedures
- Revise plant administrative controls to make the process as efficient as possible
- Minimize additional procedure enhancements during the conversion

Training

- Initial Operator Training
- Licensed Operator Requalification
- Plant Management
- Engineering and Support Personnel

Initial Operator Training

- Tech Spec format and usage
- Tech Spec Bases along with systems training
- All references to Improved Tech Specs

License Operator Re-Qualification

- Cycle 6, 1992 - Introduction to Basic Concepts
- Cycle 4, 1994 - Overview of Improved Tech Specs
- Cycle 5, 1994 - Examples showing flexibility given applicable conditions
- Cycle 7, 1994 - Examples including use of surveillance impact statements and introduction to safety function determination program
- Cycle 2, 1995 - Examples including shutdown/refueling specifications
- Written test of overall improved Tech Specs

Management, Engineering and Support Personnel Training

- PSRC and Duty Manager Indoctrination
  - Detail section by section review
- Engineering and Support Personnel Training
  - Use and application of ITS
  - Major changes
  - Implementation schedule and impact

Operations Readiness

- Operations experience with TRM
- Operations personnel heavily involved in the revision to update the TRM
- On-shift preparation
  - Issued ITS to control room for informal use
  - Trial (parallel) use of ITS LCOs
- Operations review of outstanding work orders
- Final implementation
  - ITS "experts" provided 24 hour coverage
  - ITS "experts" covered both shifts during outage

Conversion Results

Peer Assessment

"Self Assessment" performed during conversion (12/94) by:

- Lead Auditor from corporate Internal Audits
- SROs from ANO and RBS
- Plant safety review committee member from ANO
- Licensing supervisor from GGNS

Focused on the following items

- scope of implementation project
- operator training
- procedure review process
- resources committed

Identified that:

- Resources committed did not seem sufficient to meet schedule
- Testing of Licensed personnel needed

Post Implementation QA Audit

Sampled approximately 70 old TS requirements and verified the acceptability of the new presentation

Discussed with licensed personnel the status of the relocated requirements to identify if personnel understood management's expectation that the relocated requirements be followed

Sampled of 100 procedures (out of approximately 600) that were modified to reflect the ITS to verify that the TS reference was correct

Reviewed various LCOs to determine if the control room correctly interpreted the TS

Performance Measures

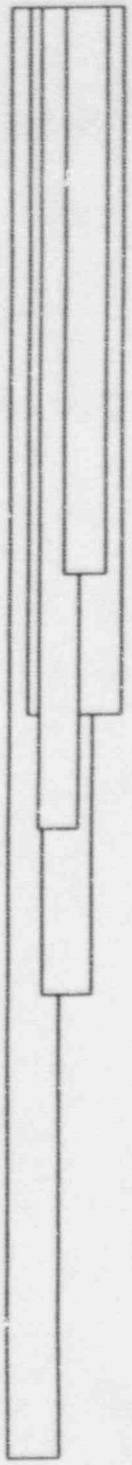
The QA audit identified one negative item

- The old TS allowed for 7 days of ADS accumulator alarm inoperability
- The relocated requirement only allowed 72 hours
- Item was corrected during the audit.

Approximately 2% of the procedures revised as part of implementation required changes during the outage

No reportable events or violations have been identified as resulting from the conversion

Only one error in the ITS LCOs have been identified



Summary

Summary

- Improved Technical Specifications were implemented approximately 7 months ago (including both power operation and outage conditions)
- No major problems identified including reportable events (LERs and NOVs)
- Conversion allows changes to low safety significance requirements to be modified by the licensee
- Conversion allows resources to be focused on "big ticket" issues
- Conversion at GGNS was a success

Examples

EXAMPLE 1

- Mode 1, 100% power

QUESTION:

- SBLC Pump A becomes inoperable at 0000 on April 11.
- T.S. actions?

ANSWER:

Enter T.S. 3.1.7, Condition B.

Fix SBLC Pump A by 0000 on April 18, or be in MODE 3 by 1200 on April 18.

EXAMPLE 2

- Mode 1, 100% power
- It is 1800 on April 17
- SBLC Pump A is still inoperable (from 0000 on April 11)

QUESTION:

- SBLC Pump B goes inoperable now.
- T.S. actions?

ANSWER:

In addition to LCO 3.1.7 Condition B enter LCO 3.1.7 Condition C.

Condition C (2 subsystems inoperable) requires that you fix one of the two SBLC pumps by 0200 on April 18, or be in MODE 3 by 1400 on April 18.

But Condition B is the limiting requirement. SBLC A must be fixed by 0000 on April 18, or the plant must be in MODE 3 by 1200 on April 18.

Discussion:

Section 1.3, "Completion Times," of the Tech Specs requires all applicable Conditions to be entered and states:

> "An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability."

EXAMPLE 3

- Mode 1, 100% power
- SBLC Pump A is fixed at 2000 on April 17.
- SBLC Pump B is still inoperable (from 1800 on April 11)

QUESTION:

- By what time does SBLC Pump B have to be fixed?

ANSWER:

0000 on April 19.

Discussion:

Condition C (2 subsystems inoperable) is exited when SBLC A is fixed but Condition B's completion time clock is still running from the start time of when SBLC A became inoperable. This is because Section 1.3 states:

> Once a Condition has been entered, subsequent divisions, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition unless specifically stated. The Required Actions of the Condition continue to apply to each additional failure, with Completion Times based on initial entry into the Condition.

Therefore, the completion time would seem to be to fix SBLC B by 0000 on April 18.

But Section 1.3 goes on to state that in certain instances the completion time may be extended.

1. The Completion Time for SBLC Pump B qualifies for an extension since it meets both criteria required by Section 1.3:

   a. SBLC B was inoperable for at least part of the same time that SBLC A was inoperable.

   b. SBLC B was inoperable after SBLC A was fixed.

2. The extension must be the lesser of the following:

   a. Stated Completion Time (7 days), as measured from initial entry into Condition B (0000 on April 11) plus 24 hours ⇒ 0000 on April 19.

   b. Stated Completion Time (7 days) as measured from discovery of the subsequent inoperability (1800 on April 17) ⇒ 1800 on April 24.

EXAMPLE 4

- Mode 1, 100% power
- Standby Gas Treatment subsystem (SGTS) A is inoperable

QUESTION:

- SGTS B goes inoperable at 0000 on April 11.
- What is the limiting T.S. action?

ANSWER:

LCO 3.6.4.3, Condition D requires LCO 3.0.3 to be entered.

EXAMPLE 5

- Mode 1, 100% power
- Standby Gas Treatment subsystem (SGTS) A is inoperable

QUESTION:

- Division 2 Load Shedding and Sequencing Panel (LSS) goes inoperable at 0000 on April 11.

- What is the limiting T.S. action?

ANSWER:

LCO 3.6.4.3 Condition D requires LCO 3.0.3 to be entered.

Discussion:

The SFDP Support to Supported Matrix requires that when an LSS is inoperable that a review to determine if LCO 3.6.4.3 Condition D is applicable be performed. If Condition D is applicable to the plant conditions then that Condition is entered and the Required Actions are taken.

EXAMPLE 6

- Mode 1, 100% power
- Standby Gas Treatment subsystem (SGTS) A is inoperable

QUESTION:

- Division 2 diesel generator goes inoperable at 0000 on April 11.

- What is the limiting T.S. action?

ANSWER:

LCO 3.8.1 Condition B Required Action B.2 requires that SBGT B be declared inoperable by 0400 April 11.

Subsequently, LCO 3.6.4.3 Condition D requires LCO 3.0.3 to be entered.

Discussion:

The definition of OPERABILITY states that equipment is OPERABLE when it can be powered from **either** normal or emergency power. Therefore, the SFDP does not require LCO 3.6.4.3 to be entered immediately. But for information the matrix does identify the systems to review.

EXAMPLE 7

- Mode 1, 100% power
- Standby Gas Treatment subsystem (SGTS) A is inoperable

QUESTION:

- A relay is broken such that SGTS B will not autostart on drywell high pressure.

- What is the limiting T.S. action for SGTS?

ANSWER:

LCO 3.3.6.2 Condition B requires that SGTS capability be restored within 1 hour.

Otherwise, LCO 3.3.6.2 Condition C must be entered and Required Actions C.2.1 or C.2.2 must be complied with.

Discussion:

The Instrumentation Capability Check requires you to evaluate for losses of safety function involving instrumentation and requires that the appropriate Required Actions of the instrumentation LCO be taken.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Standby Liquid Control (SLC) System

LCO 3.1.7 Two SLC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Concentration of boron in solution in Limited Operation region.	A.1	Restore concentration of boron in solution to Normal Operation region.	72 hours
	AND		
	A.2	Perform SR 3.1.7.2.	Once per 4 hours
B. One SLC subsystem inoperable.	B.1	Restore SLC subsystem to OPERABLE status.	7 days
C. Two SLC subsystems inoperable.	C.1	Restore one SLC subsystem to OPERABLE status.	8 hours
D. Required Action and associated Completion Time not met.	D.1	Be in MODE 3.	12 hours

3.3 INSTRUMENTATION

3.3.6.2 Secondary Containment Isolation Instrumentation

LCO 3.3.6.2 The secondary containment isolation instrumentation for each Function in Table 3.3.6.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6.2-1.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each channel.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels inoperable.	A.1 Place channel in trip.	12 hours for Function 2 AND 24 hours for Functions other than Function 2
B. One or more automatic Functions with secondary containment isolation capability not maintained.	B.1 Restore secondary containment isolation capability.	1 hour
C. Required Action and associated Completion Time of Condition A or B not met.	C.1.1 Isolate the associated penetration flow path(s). OR	1 hour (continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.1.2 Declare associated secondary containment isolation valve(s) inoperable.	1 hour
	AND	
	C.2.1 Place the associated standby gas treatment (SGT) subsystem in operation.	1 hour
	OR	
	C.2.2 Declare associated SGT subsystem inoperable.	1 hour

SURVEILLANCE REQUIREMENTS

----------NOTES----------

1. Refer to Table 3.3.6.2-1 to determine which SRs apply for each Secondary Containment Isolation Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours, provided the associated Function maintains secondary containment isolation capability.

SURVEILLANCE	FREQUENCY
SR 3.3.6.2.1 Perform CHANNEL CHECK.	12 hours

(continued)

Table 3.3.6.2-1 (page 1 of 1)
Secondary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES AND OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level – Low Low, Level 2	1,2,3,(a)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.5 SR 3.3.6.2.6	≥ -43.8 inches
2. Drywell Pressure – High	1,2,3	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.5 SR 3.3.6.2.6	≤ 1.43 psig
3. Fuel Handling Area Ventilation Exhaust Radiation – High High	1,2,3, (a),(b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.6 SR 3.3.6.2.7	≤ 4.0 mR/hr
4. Fuel Handling Area Pool Sweep Exhaust Radiation – High High	1,2,3, (a),(b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.4 SR 3.3.6.2.6 SR 3.3.6.2.7	≤ 35 mR/hr
5. Manual Initiation	1,2,3, (a),(b)	2	SR 3.3.6.2.6	NA

(a) During operations with a potential for draining the reactor vessel.

(b) During CORE ALTERATIONS and during movement of irradiated fuel assemblies in the primary or secondary containment.

3.6 CONTAINMENT SYSTEMS

3.6.4.3 Standby Gas Treatment (SGT) System

LCO 3.6.4.3 Two SGT subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,
During movement of irradiated fuel assemblies in the primary or secondary containment,
During CORE ALTERATIONS,
During operations with a potential for draining the reactor vessel (OPDRVs).

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One SGT subsystem inoperable.	A.1 Restore SGT subsystem to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, or 3.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours
C. Required Action and associated Completion Time of Condition A not met during movement of irradiated fuel assemblies in the primary or secondary containment, during CORE ALTERATIONS, or during OPDRVs.	----------NOTE---------- LCO 3.0.3 is not applicable. ---------- C.1 Place OPERABLE SGT subsystem in operation. OR	Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.1 Suspend movement of irradiated fuel assemblies in the primary and secondary containment. AND C.2.2 Suspend CORE ALTERATIONS. AND C.2.3 Initiate action to suspend OPDRVs.	Immediately Immediately Immediately
D. Two SGT subsystems inoperable in MODE 1, 2, or 3.	D.1 Enter LCO 3.0.3.	Immediately
E. Two SGT subsystems inoperable during movement of irradiated fuel assemblies in the primary or secondary containment, during CORE ALTERATIONS, or during OPDRVs.	E.1 Suspend movement of irradiated fuel assemblies in the primary and secondary containment. AND E.2 Suspend CORE ALTERATIONS. AND E.3 Initiate action to suspend OPDRVs.	Immediately Immediately Immediately

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources—Operating

LCO 3.8.1 The following AC electrical power sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the onsite Class 1E AC Electric Power Distribution System;

b. Three diesel generators (DGs); and

c. Division 1 and Division 2 automatic load sequencers.

APPLICABILITY: MODES 1, 2, and 3.

----------NOTE----------
Division 3 AC electrical power sources are not required to be OPERABLE when High Pressure Core Spray System is inoperable.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable for reasons other than Condition F.	A.1 Perform SR 3.8.1.1 for OPERABLE required offsite circuit. AND	1 hour AND Once per 8 hours thereafter (continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. (continued)	A.2	Restore required offsite circuit to OPERABLE status.	72 hours AND 24 hours from discovery of two divisions with no offsite power AND 6 days from discovery of failure to meet LCO
B. One required DG inoperable for reasons other than Condition F.	B.1	Perform SR 3.8.1.1 for OPERABLE required offsite circuit(s).	1 hour AND Once per 8 hours thereafter
	AND		
	B.2	Declare required feature(s), supported by the inoperable DG, inoperable when the redundant required feature(s) are inoperable.	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature(s)
	AND		

(continued)

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. (continued)	B.3.1	Determine OPERABLE DG(s) are not inoperable due to common cause failure.	24 hours
	OR		
	B.3.2	Perform SR 3.8.1.2 for OPERABLE DG(s).	24 hours
	AND		
	B.4	Restore required DG to OPERABLE status.	72 hours AND 6 days from discovery of failure to meet LCO
C. Two required offsite circuits inoperable.	C.1	Declare required feature(s) inoperable when the redundant required feature(s) are inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)
	AND		
	C.2	Restore one required offsite circuit to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One required offsite circuit inoperable for reasons other than Condition F. AND One required DG inoperable for reasons other than Condition F.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.7, "Distribution Systems—Operating," when any required division is de-energized as a result of Condition D. ---------- D.1 Restore required offsite circuit to OPERABLE status. OR D.2 Restore required DG to OPERABLE status.	12 hours 12 hours
E. Two required DGs inoperable.	E.1 Restore one required DG to OPERABLE status.	2 hours OR 24 hours if Division 3 DG is inoperable
F. One automatic load sequencer inoperable.	F.1 Restore automatic load sequencer to OPERABLE status.	24 hours
G. Required Action and associated Completion Time of Condition A, B, C, D, E, or F not met.	G.1 Be in MODE 3. AND G.2 Be in MODE 4.	12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. Three or more required AC sources inoperable.	H.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	7 days
SR 3.8.1.2	----------NOTE---------- All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. ---------- Verify each DG starts from standby conditions and achieves, in ≤ 10 seconds, voltage ≥ 3744 V and ≤ 4576 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	As specified in Table 3.8.1-1

(continued)

SUPPORT - SUPPORTED MATRIX

The Operating Support- Supported Matrix is organized such that where there is nothing in the block there is no support - supported relationship. When a Condition is specified, the supported system's LCO should be evaluated for the loss of safety function, and if there has been a loss of safety function then the indicated Condition in the supported system LCO is the appropriate compensatory action. Some blocks indicate that support system LCOs require supported systems to be declared inoperable. Other blocks may indicate that the supported system LCO contains additional appropriate compensatory actions which should be taken when the support system is inoperable.

If it is desired to use the operating Support - Supported Matrix for documenting which LCOs are inoperable but not entered due to use of LCO 3.0.6 flexibility, circle the appropriate blocks on the Matrix and attach to the support system LCO.

The Instrumentation Capability Check Matrix indicates which supported actuated equipment is required to maintain individual instrumentation Function capability. If one of the actuated equipment LCOs is inop in one division and the associated support instrumentation LCOs is inop in the other division, the instrumentation LCO is where the loss of safety function should be evaluated and if needed where the appropriate Condition should be entered. Instrumentation LCOs can not inappropriately extend supported actuation equipment LCOs.

In Modes 4 or 5 the Instrumentation Capability Check Matrix continues to apply. For other support systems, in Mode 4 or 5, the support system LCOs require the supported systems be declared inoperable or provide bounding compensatory actions.

Operating Support - Supported Matrix (Note 8)

SUPPORT → LCO SUPPORTED LCO ↓	3.7.1 SSW 3.7.2 HPCS-SSW (for HPCS)	3.8.1 AC Sources - Operating (Required Action B.2 and C.1)[Note 9]	3.8.7 Distribution - Operating (AC only) and LSS from 3.8.1 [NOTES 4 and 5]	3.8.7 Distribution - Operating (DC only) [NOTE 4]	Maximum Allowed Out of Service Time
3.1.7 SBLC		Condition C	Condition C	Condition C	8 days
3.1.8 SDV Vent & Drain Valves				Condition B	7 days 2 hours
3.4.9 RHR Hot Shutdown	Declare RHR INOP [NOTE 7]	Condition B	Condition B	Condition B	NA
3.5.1 ECCS - Operating	Conditions G and H Declare HPCS INOP [NOTE 3 and 7]	Conditions G and H [NOTE 3]	Conditions G and H [NOTE 3]	Conditions G and H [NOTE 3]	HPCS - 14 days 8 hours 1 low ECCS - 10 days 2 low ECCS - 6 days
3.5.3 RCIC	[NOTE 3]			[NOTE 3]	17 days
3.6.1.3 PCIVs		Condition B [NOTE 2]	Condition B [NOTE 2]	Condition B	28 hours
3.6.1.7 CTMT Spray	Condition B	Condition B	Condition B	Condition B	10 days
3.6.1.8 FWLCS		Condition B	Condition B	Condition B	31 days
3.6.1.9 MSIV-LCS		Condition B	Condition B	Condition B	31 days
3.6.2.3 SP Cooling	Condition B	Condition B	Condition B	Condition B	10 days
3.6.2.4 SPMU		2 INOP [NOTE 6]	2 INOP [NOTE 6]	2 INOP [NOTE 6]	8 days
3.6.3.1 Recombiners		Condition B	Condition B	Condition B	31 days
3.6.3.2 H2 Ignitors		Condition B	Condition B		31 days
3.6.3.3 Drywell Purge	Condition B	Condition B	Condition B	Condition B	33 days
3.6.4.2 SCIVs		Condition B [NOTE 2]	Condition B [NOTE 2]	Condition B	12 hours
3.6.4.3 SBGT		Condition D	Condition D	Condition D	8 days
3.6.5.3 DWIV		Condition B [NOTE 2]	Condition B [NOTE 2]	Condition B	32 hours
3.6.5.6 Vacuum Relief		Condition G	Condition G	Condition G	31 days
3.7.1 SSW		Condition E	Condition E	Condition E	1 SSW - 4 days
3.7.2 HPCS-SSW		Condition A	Condition A	Condition A	8 hours
3.7.3 CRFA	Condition D	Condition D	Condition D	Condition D	10 days
3.7.4 CR A/C	Condition B	Condition B	Condition B	Condition B	33 days
3.8.1 AC Sources	Declare DG INOP [NOTE 7]			Condition C and E	4 days
3.8.4 DC Sources - Op		Take 3.8.4 Cond A Act	Take 3.8.4 Cond A Act	Take 3.8.4 Cond A Act	NA
3.8.7 Dist. - Op	[NOTE 1]				NA

NOTE 1 Considered a support system to ensure that affects of loss of room cooling on distribution powered equipment is evaluated.

NOTE 2 Does not include AOVs or closed MOVs. MOVs which are capable of automatically opening should be deenergized.

NOTE 3 In MODEs 1, 2, or 3 at greater than 150 psig for inoperabilities involving HPCS or RCIC verify either HPCS or RCIC is OPERABLE within 1 hour or enter LCO 3.5.1 Condition D and take the Required Actions.

NOTE 4 The loss of safety function review for LCO 3.8.7, Distribution Systems - Operating, will consist of a review of the other divisions to identify if any LCO required equipment is inoperable in the other divisions. If any equipment is inoperable on the other division(s), impact of the inoperable distribution on any equipment redundant to the inoperable equipment will be performed. If redundant equipment is determined to be made inoperable by the inoperable distribution, the ACTIONS required for the LCO were the inoperable equipment exists will be taken in addition to the ACTIONS of LCO 3.8.7.

NOTE 5 The associated equipment will be considered inoperable if a inoperable Load Shedding and Sequencing (LSS) panel would result in their not being energized from both normal and emergency power appropriately during the loading sequence. As a result the review for a loss of safety function will essentially be the same review as is performed for inoperable AC distribution. DC distribution will not be considered made inoperable due to the inoperable LSS panel because of the associated required Class 1E battery.

NOTE 6 With two inoperable SPMU subsystems enter LCO 3.0.3

NOTE 7 LCO may require the associated systems to be declared inoperable and the associated ACTIONS taken if made inoperable.

NOTE 8 Refer to the instrumentation to supported equipment table for the instrumentation loss of capability check.

NOTE 9 This column is provided as an aid during performance of LCO 3.8.1 required action b.2 and c.1. This column is not a support system with respect to LCO 3.0.6.

Instrumentation Capability Check

Instrumentation LCO		Supported Equipment LCO	
3.3.5.1	ECCS Instrumentation	3.5.1 3.5.2 3.8.1 3.8.2	ECCS Operating ECCS Shutdown AC Sources Operating (DG) AC Sources Shutdown (DG)
3.3.5.2	RCIC Instrumentation	3.5.3	RCIC
3.3.6.1	Primary Containment and Drywell Isolation Instrumentation	3.1.7 3.6.1.3 3.6.5.3	SBLC PCIVs Drywell Isolation Valves
3.3.6.2	Secondary Containment Isolation Instrumentation	3.6.4.2 3.6.4.3	SCIVs SBGT
3.3.6.3	RHR Containment Spray Instrumentation	3.6.1.7	RHR Containment Spray
3.3.6.4	SPMU Instrumentation	3.6.2.4	SPMU
3.3.7.1	Control Room Fresh Air Instrumentation	3.7.3	Control Room Fresh Air
3.3.8.1	LOP Instrumentation	3.8.1	AC Sources (DG)