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ATTN: Document Control Desk
United States Nuclear Regulatory Commission
Washington, DC 20555-0001

Perry Nuclear Power Plant
Docket No. 50-440
Subject: Submittal of Technical Specification Bases, Revision 6

Pursuant to the requirements of Section 5.5.11.d of the Perry Nuclear Power Plant (PNPP) Technical Specifications, the FirstEnergy Nuclear Operating Company (FENOC) is hereby submitting a copy of the PNPP Technical Specification Bases, Revision 6. This submittal reflects the changes made subsequent to the changes reported in the Revision 5 Technical Specification Bases submittal, which was provided by letter dated October 14, 2005. The changes are identified by sidebars.

There are no regulatory commitments contained in this letter. If there are any questions, or if additional information is required, please contact Mr. Thomas A. Lentz, Manager – FENOC Fleet Licensing, at (330) 761-6071.

Sincerely,

Barry S. Allen

Enclosure

cc: NRC Project Manager
NRC Resident Inspector
NRC Region III

A001

NRR

TECHNICAL SPECIFICATION BASES
REVISION 6
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B 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

BASES

LCOs	LCO 3.0.1 through LCO 3.0.8 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.
LCO 3.0.1	LCO 3.0.1 establishes the Applicability statement within each individual Specification as the requirement for when the LCO is required to be met (i.e., when the unit is in the MODES or other specified conditions of the Applicability statement of each Specification).
LCO 3.0.2	LCO 3.0.2 establishes that upon discovery of a failure to meet an LCO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that an ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of an LCO are not met. This Specification establishes that: a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Specification; and b. Completion of the Required Actions is not required when an LCO is met within the specified Completion Time, unless otherwise specified. There are two basic types of Required Actions. The first type of Required Action specifies a time limit in which the LCO must be met. This time limit is the Completion Time to restore an inoperable system or component to OPERABLE status or to restore variables to within specified limits. If this type of Required Action is not completed within the specified Completion Time, a shutdown may be required to place the unit in a MODE or condition in which the Specification is not applicable. (Whether stated as a Required Action or not, correction of the entered Condition is an action that may always be considered upon entering ACTIONS.) The second type of Required Action specifies the

(continued)

BASES

LCO 3.0.7 (continued)

allow specified TS requirements to be changed to permit performances of these special tests and operations, which otherwise could not be performed if required to comply with the requirements of these TS. Unless otherwise specified, all the other TS requirements remain unchanged. This will ensure all appropriate requirements of the MODE or other specified condition not directly associated with or required to be changed to perform the special test or operation will remain in effect.

The Applicability of a Special Operations LCO represents a condition not necessarily in compliance with the normal requirements of the TS. Compliance with Special Operations LCOs is optional. A special operation may be performed either under the provisions of the appropriate Special Operations LCO or under the other applicable TS requirements. If it is desired to perform the special operation under the provisions of the Special Operations LCO, the requirements of the Special Operations LCO shall be followed. When a Special Operations LCO requires another LCO to be met, only the requirements of the LCO statement are required to be met regardless of that LCO's Applicability (i.e., should the requirements of this other LCO not be met, the ACTIONS of the Special Operations LCO apply, not the ACTIONS of the other LCO). However, there are instances where the Special Operations LCO's ACTIONS may direct the other LCO's ACTIONS be met. The Surveillances of the other LCO are not required to be met, unless specified in the Special Operations LCO. If conditions exist such that the Applicability of any other LCO is met, all the other LCO's requirements (ACTIONS and SRs) are required to be met concurrent with the requirements of the Special Operations LCO.

LCO 3.0.8

LCO 3.0.8 establishes conditions under which systems are considered to remain capable of performing their intended safety function when associated snubbers are not capable of providing their associated support function(s). This LCO states that the supported system is not considered to be inoperable solely due to one or more snubbers not capable of performing their associated support function(s). This is appropriate because a limited length of time is allowed for maintenance, testing, or repair of one or more snubbers not capable of performing their associated support function(s) and appropriate compensatory measures are specified in the snubber requirements, which are located outside of the TS

(continued)

BASES

LCO 3.0.8 (continued)

under licensee control. The snubber requirements do not meet the criteria in 10 CFR 50.36(c)(2)(ii), and, as such, are appropriate for control by the licensee.

If the allowed time expires and the snubber(s) are unable to perform their associated support function(s), the affected supported system's LCO(s) must be declared not met and the Conditions and Required Actions entered in accordance with LCO 3.0.2.

LCO 3.0.8 is an allowance, not a requirement. When one or more snubbers are unable to perform their associated support function(s), the supported system may be immediately declared inoperable instead of using LCO 3.0.8.

LCO 3.0.8.a applies when one or more snubbers are not capable of providing their associated support function(s) to a single division or subsystem of a multiple division or subsystem supported system or to a single division supported system. LCO 3.0.8.a allows 72 hours to restore the snubber(s) before declaring the supported system inoperable. The 72 hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the snubber(s) are not capable of performing their associated support function and due to the availability of the redundant division of the supported system.

LCO 3.0.8.b applies when one or more snubbers are not capable of providing their associated support function(s) to more than one division or subsystem of a multiple division or subsystem supported system. LCO 3.0.8.b allows 12 hours to restore the snubber(s) before declaring the supported system inoperable. The 12 hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the snubber(s) are not capable of performing their associated support function. For example, if more than one ECCS subsystem is affected, LCO 3.0.8.b is applicable.

Every time the provisions of LCO 3.0.8 are used it must be confirmed that at least one division (or subsystem) of systems supported by the inoperable snubber(s) would remain capable of performing their required safety or supported functions for postulated non-seismic design loads.

(continued)

BASES

LCO 3.0.8 (continued)

Every time the provisions of LCO 3.0.8 are used, it must be verified that at least one success path, involving equipment not associated with the inoperable snubber(s), exists to provide makeup and core cooling needed to mitigate LOOP accident sequences. To ensure this requirement is met, one of the following two means of heat removal must be available when LCO 3.0.8 is used:

a. At least one high-pressure makeup path (high pressure core spray or reactor core isolation cooling) and heat removal capability (suppression pool cooling or shutdown cooling), including a minimum set of supporting equipment required for success, not associated with the inoperable snubber(s), or

b. At least one low pressure makeup path (low pressure coolant injection or core spray) and heat removal capability (suppression pool cooling or shutdown cooling), including a minimum set of supporting equipment required for success, not associated with the inoperable snubber(s).

LCO 3.0.8 only applies to the seismic function of a snubber. In addition, a record of the design function of the inoperable snubber (i.e., seismic versus non-seismic), the implementation of the applicable restrictions, and the associated plant configuration shall all be available on a recoverable basis.

LCO 3.0.8 requires that risk be assessed and managed. Industry and NRC guidance on the implementation of 10 CFR 50.65(a)(4) (the Maintenance Rule) does not address seismic risk. However, use of LCO 3.0.8 must be considered with respect to other plant maintenance activities, and integrated into the existing Maintenance Rule process to the extent possible so that maintenance on any unaffected division or subsystem is properly controlled, and emergent issues are properly addressed. The risk assessment need not be quantified, but may be a qualitative awareness of the vulnerability of systems and components when one or more snubbers are not able to perform their associated support function.

BASES

APPLICABLE SAFETY ANALYSES (continued)

allow continuous drainage of the SDV during normal plant operation to ensure the SDV has sufficient capacity to contain the reactor coolant discharge during a full core scram. To automatically ensure this capacity, a reactor scram (LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation") is initiated if the SDV water level exceeds a specified setpoint. The setpoint is chosen such that all control rods are inserted before the SDV has insufficient volume to accept a full scram.

SDV vent and drain valves satisfy Criterion 3 of the NRC Policy Statement.

LCO

The OPERABILITY of all SDV vent and drain valves ensures that, during a scram, the SDV vent and drain valves will close to contain reactor water discharged to the SDV piping. Since the vent and drain lines are provided with two valves in series, the single failure of one valve in the open position will not impair the isolation function of the system. Additionally, the valves are required to be open to ensure that a path is available for the SDV piping to drain freely at other times.

APPLICABILITY

In MODES 1 and 2, scram may be required, and therefore, the SDV vent and drain valves must be OPERABLE. In MODES 3 and 4, control rods are not able to be withdrawn since the reactor mode switch is in the shutdown position and a control rod block is applied. Also, during MODE 5, only a single control rod can be withdrawn from a core cell containing fuel assemblies. Therefore, the SDV vent and drain valves are not required to be OPERABLE in these MODES since the reactor is subcritical and only one rod may be withdrawn and subject to scram.

ACTIONS

The ACTIONS table is modified by Note 1 indicating that a separate Condition entry is allowed for each SDV vent and drain line. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable SDV line. Complying with the Required Actions may allow for continued operation, and subsequent inoperable SDV lines are governed by subsequent Condition entry and application of associated Required Actions.

The ACTIONS table is also modified by Note 2 stating that an isolated line may be unisolated under administrative control to allow draining and venting of the SDV. When a line is

(continued)

BASES

ACTIONS (continued)

isolated, the potential for an inadvertent scram due to high SDV level is increased. During these periods, the line may be unisolated under administrative control. This allows depressurization of the SDV and any accumulated water in the SDV to be drained, to preclude a reactor scram on SDV high level. This is acceptable, since the administrative controls ensure the line can be isolated quickly, by a dedicated operator, if a scram occurs with the line not isolated.

A.1

When one SDV vent or drain valve is inoperable in one or more lines, the associated line must be isolated to contain the reactor coolant during a scram. The 7 day Completion Time is reasonable, given the level of redundancy in the lines and the low probability of a scram occurring during the time the valve(s) are inoperable and the line is not isolated. The SDV is still isolable since the redundant valve in the affected line is OPERABLE. Since the SDV is still isolable, the affected SDV line may be opened. This allows depressurization of the SDV and any accumulated water in the line to be drained, to preclude a reactor scram on SDV high level. During these periods, the single failure criterion may not be preserved, and a higher risk exists to allow reactor water out of the primary system during a scram.

B.1

If both valves in a line are inoperable, the line must be isolated to contain the reactor coolant during a scram.

The 8 hour Completion Time to isolate the line is based on the low probability of a scram occurring while the line is not isolated and unlikelihood of significant CRD seal leakage.

C.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

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APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

2.b. Average Power Range Monitor Flow Biased Simulated Thermal Power-High

The Average Power Range Monitor Flow Biased Simulated Thermal Power-High Function monitors neutron flux to approximate the THERMAL POWER being transferred to the reactor coolant. The APRM neutron flux is electronically filtered with a time constant representative of the fuel heat transfer dynamics to generate a signal proportional to the THERMAL POWER in the reactor. The trip level is varied as a function of recirculation drive flow (i.e., at lower core flows the setpoint is reduced proportional to the reduction in power experienced as core flow is reduced with a fixed control rod pattern) but is clamped at an upper limit that is always lower than the Average Power Range Monitor Fixed Neutron Flux-High Function Allowable Value. The Average Power Range Monitor Flow Biased Simulated Thermal Power-High Function provides protection against transients where THERMAL POWER increases slowly (such as the loss of feedwater heating event) and protects the fuel cladding integrity by ensuring that the MCPR SL is not exceeded. During these events, the THERMAL POWER increase does not significantly lag the neutron flux response and, because of a lower trip setpoint, will initiate a scram before the high neutron flux scram. For rapid neutron flux increase events, the THERMAL POWER lags the neutron flux and the Average Power Range Monitor Fixed Neutron Flux-High Function will provide a scram signal before the Average Power Range Monitor Flow Biased Simulated Thermal Power-High Function setpoint is exceeded.

During continued operation with only one recirculation loop in service, the APRM flow biased simulated thermal power-high setpoint is required to be conservatively set (refer to the Bases for LCO 3.4.1, "Recirculation Loops Operating," for more detailed discussion). The setpoint modification may be delayed for up to 24 hours in accordance with the allowances of LCO 3.4.1. After this time, the LCO 3.3.1.1 requirement for APRM OPERABILITY will enforce the more conservative setpoint.

The APRM System is divided into two groups of channels with four APRM channels inputting to each trip system. The system is designed to allow one channel in each trip system to be bypassed. Any one Average Power Range Monitor channel in a trip system can cause the associated trip system to trip.

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BASES (continued)

SR 3.3.1.1.19

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended Function. A Frequency of 31 days provides an acceptable level of system average availability over the Frequency and is based upon operating experience and the reliability of this instrumentation.

REFERENCES

1. USAR, Figure 7.2-1.
2. USAR, Section 5.2.2.
3. USAR, Section 6.3.3.
4. USAR, Chapter 15.
5. USAR, Section 15.4.1.
6. NEDO-23842, "Continuous Control Rod Withdrawal in the Startup Range," April 18, 1978.
7. USAR, Section 15.4.9.
8. Letter, P. Check (NRC) to G. Lainas (NRC), "BWR Scram Discharge System Safety Evaluation," December 1, 1980, as attached to NRC Generic Letter dated December 9, 1980.
9. NEDO-30851-P-A, "Technical Specification Improvement Analyses for BWR Reactor Protection System," March 1988.
10. GE DSDS 22A3771AJ.
11. NEDO-32291, "System Analyses for Elimination of Selected Response Time Testing Requirements," January 1994.

BASES

APPLICABLE SAFETY ANALYSES (continued)	The OPRM Instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).
LCO	Four channels of the OPRM period based detection algorithm are required to be OPERABLE to ensure that stability related oscillations are detected and suppressed prior to exceeding the MCPR safety limit. Only one of the two OPRM modules period based detection algorithm is required for OPRM channel OPERABILITY. The highly redundant and low minimum number of required LPRMs in the OPRM cell design ensures that large numbers of cells will remain OPERABLE, even with large numbers of LPRMs bypassed.
APPLICABILITY	The OPRM instrumentation is required to be OPERABLE in order to detect and suppress neutron flux oscillations in the event of thermal-hydraulic instability. As described in References 1, 2, and 3, the power/core flow region protected against anticipated oscillations is defined by THERMAL POWER ≥ 23.8% RTP and recirculation drive flow < the value corresponding to 60% of rated core flow. The OPRM trip is required to be enabled in this region, and the OPRM must be capable of enabling the trip function as a result of transients that place the core into that power/flow region. Therefore, the OPRM is required to be OPERABLE with THERMAL POWER ≥ 23.8% RTP, and at all core flows while above that THERMAL POWER. It is not necessary for the OPRM to be OPERABLE with THERMAL POWER < 23.8% RTP because instabilities would not be expected to grow large enough to threaten the MCPR Safety Limit. This expectation is due, in part, to the large MCPR margin that exists at low power (Ref. 6).

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.3.3 (continued)

excluded from CHANNEL CALIBRATION because of the difficulty of simulating a meaningful signal. Changes in neutron detector sensitivity are compensated for by performing the 1000 MWD/T LPRM calibration using the TIPs (SR 3.3.1.3.2).

The Frequency of 24 months is based upon the assumption of the magnitude of equipment drift provided by the equipment supplier (Ref. 9).

SR 3.3.1.3.4

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required trip logic for a specific channel. The functional testing of control rods in LCO 3.1.3, "Control Rod OPERABILITY," and scram discharge volume (SDV) vent and drain valves in LCO 3.1.8, "Scram Discharge Volume (SDV) Vent and Drain Valves," overlaps this Surveillance to provide complete testing of the assumed safety function. The OPRM self-test function may be utilized to perform this testing for those components that it is designed to monitor.

The 24 month Frequency is based on engineering judgment, high reliability of the components, and operating experience.

SR 3.3.1.3.5

This SR ensures that trips initiated from the OPRM System will not be inadvertently bypassed when THERMAL POWER is ≥ 23.8% RTP and recirculation drive flow is < the value corresponding to 60% of rated core flow.

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.3.5 (continued)

This normally involves verification of the OPRM bypass function, by ensuring the OPRM modules are enabled when the APRM input is ≥ 23.8% RTP and the recirculation drive flow input is < the value corresponding to 60% of rated core flow. The APRM and recirculation drive flow inputs are calibrated by surveillances in their respective Technical Specifications. Because the enabled region conservatively bounds the region where instabilities are actually expected, the above nominal values of power/flow are utilized for the bypass setpoints, without further allowance for instrument drift or uncertainty.

If any bypass channel setpoint is nonconservative (i.e., the OPRM module is bypassed at ≥ 23.8% RTP and recirculation drive flow < the value corresponding to 60% of rated core flow), then the affected OPRM module is considered inoperable. Alternatively, the bypass channel can be placed in the conservative condition (enabled). If placed in the enabled condition, this SR is met and the module is considered OPERABLE.

The Frequency of 24 months is based on engineering judgment, high reliability of the components, and operating experience.

SR 3.3.1.3.6

This SR ensures that the individual channel response times are less than or equal to the maximum values assumed in the accident analysis (Ref. 10). The OPRM self-test function may be utilized to perform this testing for those components it is designed to monitor. The LPRM amplifier cards inputting to the OPRM are excluded from the OPRM response time testing. The RPS RESPONSE TIME acceptance criteria are included in Reference 11.

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BASES

REFERENCES (continued)

8. NRC Letter, B. Boger to R. Pinelli, "Acceptance of Licensing Topical Report CENPD-400-P, 'Generic Topical Report for the ABB Option III Oscillation Power Range Monitor'," August 16, 1995.

9. 00000-ICE-3230, "ABB Combustion Engineering Nuclear Operations, LTSSS Requirements Specification."

10. GENE-A13-00381-14, "Licensing Basis Hot Bundle Oscillation Magnitude for Perry" (latest approved revision).

11. USAR Table 7.2-3 "Reactor Protection System Response Time Table".

12. BWROG-94078, "BWR Owner's Group Guidelines for Stability Interim Corrective Action," June 1994.

13. BWROG-02072, "Review of BWR Owner's Group Guidelines for Stability Interim Corrective Action," November 20, 2002.

14. OG 02-0119-260, GE to BWR Owner's Group Detect and Suppress II Committee, "Backup Stability Protection (BSP) for Inoperable Option III Solution," July 17, 2002.

15. Calculation FM-037, Latest Revision.

16. Calculation FM-012, Latest Revision.

BASES

APPLICABLE SAFETY ANALYSES (continued)

The ECCW System satisfies Criterion 3 of the NRC Policy Statement.

LCO

In the event of a DBA, one ECCW subsystem is required to provide the minimum heat removal capability assumed in the safety analysis for the systems to which it supplies cooling water. To ensure this requirement is met, two ECCW subsystems must be OPERABLE. At least one ECCW subsystem will operate assuming the worst single active failure occurs coincident with the loss of offsite power.

An ECCW subsystem is considered OPERABLE when:

a. The associated pump and surge tank are OPERABLE; and

b. The associated piping, valves, heat exchanger, and instrumentation and controls required to perform the safety related function are OPERABLE.

The isolation of ECCW to other components or systems may render those components or systems inoperable, but does not affect the OPERABILITY of the ECCW System.

Several valves that were originally designed as part of Unit 2's ECCW system have retained ECCW (P42) identification numbers, even though the valves have no relationship with the Unit 1 ECCW system addressed by this LCO. Several of these valves are closed in order to isolate Nuclear Closed Cooling (NCC) from the Unit 1 Emergency Service Water (ESW) system when ESW is to be aligned to cool the Spent Fuel Pool heat exchangers. Other valves are opened to provide the ESW flow path to the heat exchangers. Those Unit 2/Common valves do not affect OPERABILITY of Unit 1 ECCW; they are instead associated with OPERABILITY of the Unit 1 ESW system.

APPLICABILITY

In MODE 1, the ECCW subsystems are in standby except when required to support RHR, LPCS, or RCIC System operations and testing. In MODES 2 and 3, the ECCW System is operated as necessary to support hot standby conditions or normal plant shutdown and cooldown using the RHR System.

In MODES 4 and 5, the requirements of the ECCW System are determined by the systems they support (Ref. 2).

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.7.10.1 (continued)

Isolation of the ECCW subsystem to components or systems does not necessarily affect the OPERABILITY of the ECCW subsystem. As such, when the ECCW subsystem pump, valves, and piping are OPERABLE, but a branch connection off the main header is isolated, the associated ECCW subsystem needs to be evaluated to determine if it is still OPERABLE.

The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

SR 3.7.10.2

This SR verifies that each Unit 1 Division 1 and 2 ECCW subsystem actuates on an actual or simulated initiation signal, including verification of the automatic start capability of the ECCW pump in each subsystem. The LOGIC SYSTEM FUNCTIONAL TEST in SR 3.3.5.1.6 overlaps this Surveillance to provide complete testing of the safety function.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. The 24 month Frequency is based on operating experience, and is consistent with a typical industry refueling cycle.

REFERENCES

1. USAR, Section 9.2.2.
2. Plant Data Book, Tab R, Section 6.4.9.

BASES

ACTIONS

A.2 (continued)

The Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This exception results in establishing the "time zero" at the time the LCO was initially not met, instead of at the time that Condition A was entered.

B.1

To ensure a highly reliable power source remains, it is necessary to verify the availability of the remaining required offsite circuit on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action being not met. However, if a circuit fails to pass SR 3.8.1.1, it is inoperable. Upon offsite circuit inoperability, additional Conditions must then be entered.

B.2

Required Action B.2 is intended to provide assurance that a loss of offsite power, during the period that a DG is inoperable, does not result in a loss of safety function of critical features (systems, subsystems, components, or devices). These features are designed with redundant safety related divisions (i.e., single division features are excluded, although, for this Required Action, Division 3 must be included, and must be considered redundant to Division 1 and 2 Emergency Core Cooling System (ECCS)). Redundant required features failures consist of inoperable features associated with a division redundant to the division that has an inoperable DG. When performing the ECCS portion of this cross-division check, if any ECCS system(s)/subsystem(s) in either of the other two redundant divisions are discovered to be inoperable, the Completion Time begins; when it expires, all ECCS supported by the inoperable DG are declared inoperable.

The Completion Time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

a. An inoperable DG exists; and

b. A required feature on another division is inoperable.

(continued)

BASES

ACTIONS

B.4 (continued)

As in Required Action B.2, the Completion Time allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This exception results in establishing the "time zero" at the time the LCO was initially not met, instead of the time Condition B was entered.

C.1 and C.2

Required Action C.1 addresses actions to be taken in the event of concurrent failure of redundant required features (systems, subsystems, components, or devices). Required Action C.1 reduces the vulnerability to a loss of function. The rationale for the 12 hours is that Regulatory Guide 1.93 (Ref. 6) allows a Completion Time of 24 hours for two required offsite circuits inoperable, based upon the assumption that two complete safety divisions are OPERABLE. When a concurrent redundant required feature failure exists, this assumption is not the case, and a shorter Completion Time of 12 hours is appropriate. These features are designed with redundant safety related divisions (i.e., single division systems are excluded, although, for this Required Action, Division 3 must be included, and must be considered redundant to Division 1 and 2 ECCS). Redundant required features failures consist of any of these features that are inoperable, because any inoperability is on a division redundant to a division with inoperable offsite circuits.

The Completion Time for Required Action C.1 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action, the Completion Time only begins on discovery that both:

a. All required offsite circuits are inoperable; and

b. A required feature is inoperable.

If, at any time during the existence of this Condition (two offsite circuits inoperable), a required feature subsequently becomes inoperable, this Completion Time begins to be tracked.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.1 (continued)

position to ensure that distribution buses and loads are connected to their preferred power source and that appropriate independence of offsite circuits is maintained. The 7 day Frequency is adequate since breaker position is not likely to change without the operator being aware of it and because its status is displayed in the control room.

SR 3.8.1.2 and SR 3.8.1.7

These SRs help to ensure the availability of the standby electrical power supply to mitigate DBAs and transients and maintain the unit in a safe shutdown condition.

To minimize the wear on moving parts that do not get lubricated when the engine is not running, these SRs have been modified by Notes (Note 2 for SR 3.8.1.2 and Note 1 for SR 3.8.1.7) to indicate that all DG starts for these Surveillances may be preceded by an engine prelube period and followed by a warmup period prior to loading.

For the purposes of this testing, the DGs are started from standby conditions. Standby conditions for a DG mean that the diesel engine coolant and oil are being continuously circulated and temperature is being maintained consistent with manufacturer recommendations for Division 1 and 2 DGs. For the Division 3 DG, standby conditions mean that the lube oil is heated by the jacket water and continuously circulated through a portion of the system as recommended by the vendor. Engine jacket water is heated by an immersion heater and circulates through the system by natural circulation.

In order to reduce stress and wear on diesel engines, some manufacturers recommend that the starting speed of DGs be limited, that warmup be limited to this lower speed, and that DGs be gradually accelerated to synchronous speed prior to loading. These start procedures are the intent of Note 3. This capability is not yet available on the Perry Divisions 1 and 3 DGs. The Division 2 Slow/Fast switch is maintained in 'fast' until slow start switch position and associated circuit is fully tested and functional.

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.2 and SR 3.8.1.7 (continued)

SR 3.8.1.7 requires that, at a 184 day Frequency, the Division 1 and 2 DGs start from standby conditions and achieves required voltage and frequency within 10 seconds. Also, this SR requires that the Division 3 DG starts from standby conditions and achieves a minimum required frequency within 10 seconds and required voltage and frequency within 13 seconds. The start time requirements support the assumptions in the design basis LOCA analysis (Ref. 5). The start time requirements are not applicable to SR 3.8.1.2 (see Note 3 of SR 3.8.1.2). Since SR 3.8.1.7 does require timed starts, it is more restrictive than SR 3.8.1.2, and it may be performed in lieu of SR 3.8.1.2. This procedure is the intent of Note 1 of SR 3.8.1.2. Similarly, the performance of SR 3.8.1.12 or SR 3.8.1.19 also satisfies the requirements of SR 3.8.1.2 and SR 3.8.1.7.

In addition to the SR requirements, the time for the DG to reach steady state operation, unless the modified DG start method is employed, is periodically monitored and the trend evaluated to identify degradation of governor and voltage regulator performance.

The 31 day Frequency for SR 3.8.1.2 is consistent with the industry guidelines for assessment of diesel generator performance (Ref. 14). The 184 day Frequency for SR 3.8.1.7 is a reduction in cold testing consistent with Generic Letter 84-15 (Ref. 7). These Frequencies provide adequate assurance of DG OPERABILITY, while minimizing degradation resulting from testing.

SR 3.8.1.3

This Surveillance demonstrates that the DGs are capable of synchronizing and accepting greater than or equal to the equivalent of the maximum expected accident loads. A minimum run time of 60 minutes is required to stabilize engine temperatures, while minimizing the time that the DG is connected to the offsite source.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.3 (continued)

Although no power factor requirements are established by this SR, the DG is normally operated at a power factor between 0.8 lagging and 1.0. The 0.8 value is the design rating of the machine, while 1.0 is an operational limitation to ensure circulating currents are minimized. The load band for the Division 1 and 2 DGs is provided to avoid routine overloading of these DGs. While this Surveillance allows operation of the Division 1 and 2 DGs in the band of 5600 kW to 7000 kW, a range of 5600 kW to 5800 kW will normally be used in order to minimize wear on the DGs. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.3 (continued)

The 31 day Frequency for this Surveillance is consistent with the industry guidelines for assessment of diesel generator performance (Ref. 14).

Note 1 modifies this Surveillance to indicate that diesel engine runs for this Surveillance may include gradual loading, as recommended by the manufacturer, so that mechanical stress and wear on the diesel engine are minimized.

Note 2 modifies this Surveillance by stating that momentary transients because of changing bus loads do not invalidate this test.

Note 3 indicates that this Surveillance shall be conducted on only one DG at a time in order to avoid common cause failures that might result from offsite circuit or grid perturbations.

Note 4 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

SR 3.8.1.4

This SR provides verification that the level of fuel oil in the day tank is at or above the level that will ensure transfer pump operation and availability. This level is expressed as an equivalent volume in gallons, and will ensure fuel oil transfer pump suction requirements are satisfied for all pump operating transients, including normal tank draw down during a secondary pump start.

The 31 day frequency is adequate to ensure that a sufficient supply of fuel oil is available. Subsequent to receipt of a diesel generator auto-initiation alarm, plant operators would be able to verify proper primary and secondary

(continued)