Michael T. Coyle
Vice President

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U-603367
8E.100a
June 19, 2000

Docket No. 50-461

10CFR50.90

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Clinton Power Station Proposed Amendment of Facility Operating License No. NPF-62 to Remove Operating Mode Restrictions for Performing Emergency Diesel Generator Testing (LS-96-008)

Dear Madam or Sir:

Pursuant to 10 CFR 50.90, AmerGen Energy Company, LLC (AmerGen) hereby requests amendment of Facility Operating License No. NPF-62 for Clinton Power Station (CPS). Specifically, AmerGen requests modification of the CPS Technical Specifications to revise several of the Surveillance Requirements (SRs) pertaining to testing of the standby emergency diesel generators (DGs). The proposed change would remove the restriction associated with these SRs that prohibits performing the required testing during Modes 1 and 2. The affected SRs are as follows:

- SR 3.8.1.9: This SR requires demonstrating that the diesel generator (DG) can reject its largest load while maintaining margin to the overspeed trip.

- SR 3.8.1.10: This SR requires demonstrating that the DG can reject its full load without the DG output voltage exceeding a specific limit.

- SR 3.8.1.13: This SR requires demonstrating that the DG non-emergency (non-critical) automatic trips are bypassed on a loss of bus voltage (loss of offsite power) concurrent with an ESF actuation signal.

- SR 3.8.1.14: This SR requires starting and then running the DG continuously at or near full-load capability for greater than or equal to 24 hours.

- SR 3.8.1.17: This SR requires demonstrating that the DG automatic switchover from the test mode to ready-to-load operation is attained upon receipt of an ECCS initiation signal (while maintaining availability of the offsite source).

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The requested changes would provide operational flexibility to allow the above tests to be performed during Modes 1 and 2. This would provide flexibility in outage scheduling and reduce outage critical path time since these DG surveillance tests would no longer be required to be performed during an outage. It should be noted that the NRC has approved similar Technical Specification changes for other plants. Specifically, similar changes were approved for the Perry plant, and nearly identical changes were approved for the McGuire Station (via amendments 192 and 173 to the McGuire Units 1 & 2 Operating Licenses).

Essential details and information to support this request are provided in the Attachments to this letter. Attachment 2 provides a description and justification for the requested TS changes. Attachment 2 also contains the evaluation for no significant hazards consideration, wherein it is concluded that, based on an evaluation of the proposed changes against the criteria of 10CFR50.92, no significant hazards consideration is involved. Attachment 2 also provides an evaluation against the 10 CFR 51.22 criteria for environmental considerations. The Technical Specification pages annotating the proposed changes are provided in Attachment 3, and the marked-up Technical Specification Bases pages are provided for information in Attachment 4. An affidavit supporting the facts set forth in this letter and its attachments is provided as Attachment 1.

Since the proposed changes can provide significant reductions in outage critical path time, CPS is respectfully requesting review and approval of these amendments by September 01, 2000, so that they would be effective prior to the beginning of the next refueling outage, which is scheduled to begin on October 15, 2000. This would support scheduling of the SRs before or after the outage (based on the due dates for the SRs) such that planning for the outage can be finalized with the noted SRs removed from the outage scope.

This application for amendment of the CPS Operating License was reviewed by the site Facility Review Group and the AmerGen Nuclear Review Board.

Sincerely yours,

Michael T. Coyle
Vice President

JLP/blf

Attachments

cc: NRC Clinton Licensing Project Manager
Regional Administrator, USNRC Region III
NRC Resident Office, V-690
Illinois Department of Nuclear Safety

Attachment 1
to U-603367
LS-96-008

AFFIRMATION

Michael T. Coyle, being first duly sworn, deposes and says: That he is Vice President for Clinton Power Station; that this application for amendment of Facility Operating License No. NPF-62 has been prepared under his supervision and direction; that he knows the contents thereof; and that the letter and the statements made and the facts contained therein are true and correct to the best of his knowledge and belief.

Date: This 19TH day of June 2000.

Signed: Michael T Coyle
Michael T. Coyle
Vice President

STATE OF ILLINOIS)
) SS.
DeWitt COUNTY)

Subscribed and sworn to before me this 19 day of June 2000.

Jacqueline S. Matthias
(Notary Public)

* OFFICIAL SEAL *
Jacqueline S. Matthias
Notary Public, State of Illinois
My Commission Expires 11/24/2001

BACKGROUND

CPS Technical Specification (TS) 3.8.1, "AC Sources - Operating," specifies requirements for the Electrical Power Distribution System AC sources. The Class 1E AC Electrical Power Distribution System AC sources at CPS consist of the offsite power sources and the onsite standby power sources, i.e., diesel generators (DGs) 1A, 1B, and 1C. As required by 10 CFR 50, Appendix A, GDC 17, the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the Engineered Safety Feature (ESF) systems.

The Class 1E AC distribution system at Clinton Power Station (CPS) supplies electrical power to three divisional load groups, with each division powered by an independent Class 1E 4.16 kV ESF bus. Each ESF bus is capable of being supplied by either of two separate and independent offsite sources of power. Each ESF bus also has a dedicated onsite DG. The ESF systems of any two of the three divisions provide for the minimum safety functions necessary to shut down the unit and maintain it in a safe shutdown condition.

Offsite power is supplied to the CPS switchyard from the transmission network. From the switchyard, and via the on-site reserve auxiliary transformer (RAT), the 345 kV circuit provides AC power to each of the 4.16 kV ESF buses. Alternatively, an electrically and physically independent 138 kV power source can provide AC power to each of the 4.16 kV ESF buses via the emergency reserve auxiliary transformer (ERAT). The unit auxiliary transformers supply power to the non-safety related loads using the main generator as a power source. (See attached figure.) The offsite AC electrical power sources are designed and located so as to minimize to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions. A detailed description of the offsite power network and circuits to the onsite Class 1E ESF buses is found in Updated Safety Analysis Report, Chapter 8.

An offsite circuit consists of all breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the offsite transmission network to the onsite Class 1E ESF bus(es). A permanently installed static VAR compensator (SVC) is also available (onsite) for connection to each offsite circuit to support required voltage for the ESF buses.

The onsite standby power source for each 4.16 kV ESF bus is a dedicated DG. A DG starts automatically upon receipt of a loss of coolant accident (LOCA) signal (i.e., low reactor water level signal or high drywell pressure signal) or an ESF bus degraded voltage or undervoltage signal. In the event of a loss of offsite power (LOOP), the ESF electrical loads are automatically connected to the DGs in sufficient time to provide for safe reactor shutdown and to mitigate the consequences of a Design Basis Accident such as a LOCA.

DESCRIPTION OF PROPOSED CHANGE

TS 3.8.1 delineates requirements for AC power sources, including the DGs, while in Modes 1, 2, and 3. The proposed change concerns several of the Surveillance Requirements (SRs) pertaining to the DGs. In particular, SR 3.8.1.9 (largest load rejection test) governs the test which demonstrates that the DG can reject its associated single largest post-accident load without the engine speed exceeding specified limits. SR 3.8.1.10 (full load rejection test) governs the test which demonstrates that the DG can reject its full load without the DG output voltage exceeding a specified limit. SR 3.8.1.13 (non-emergency automatic trip bypass test) governs the test which demonstrates that all DG non-emergency (non-critical) automatic trips are bypassed in response to an ESF actuation signal. SR 3.8.1.14 (24-hour run) governs the test whereby the DG is started and run loaded continuously for greater than or equal to 24 hours. SR 3.8.1.17 (test mode override) governs the test whereby, with the DG operating in the test mode, the DG is verified to automatically return to a ready-to-load condition in response to an ESF actuation signal.

Presently, the above SRs are required to be performed while the plant is shut down. For SRs 3.8.1.9, 3.8.1.10, and 3.8.1.14, this is enforced by a note preceding each of the SRs in the Technical Specifications, which states in part that the surveillance shall not be performed in Mode 1 or 2. The TS Bases state that the reason for this restriction is to prevent unnecessary perturbations to the electrical distribution systems which could challenge steady state operation and thus plant safety systems if the SR was performed with the reactor in Mode 1 or 2. SRs 3.8.1.13 and 3.8.1.17 are restricted from being performed in Modes 1, 2 or 3, as these surveillances are preceded by a similar note. The TS Bases for SR 3.8.1.13 state that the reason for the Note is to prevent the DG from unnecessarily being removed from service with the reactor in Mode 1 or Mode 2. The TS Bases for SR 3.8.1.17 state that performing the surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems.

Based on reconsideration of the need and reason for the SR notes, CPS is proposing to modify the note to remove the Mode 1 and Mode 2 restrictions for performance of SR 3.8.1.9, SR 3.8.1.10, and SR 3.8.1.14, and to remove the Mode 1, Mode 2 and Mode 3 restrictions from SR 3.8.1.13 and SR 3.8.1.17. The proposed changes will allow performance of the testing required by these SRs during Modes 1 and 2 (or Mode 3) such that the testing will no longer have to be performed during plant outages. This will help to reduce the complexity of work and testing activities during refueling outages and potentially will reduce outage critical path time. CPS is also proposing to revise the TS Bases associated with SR 3.8.1.9, SR 3.8.1.10, SR 3.8.1.13, SR 3.8.1.14, and SR 3.8.1.17 to state that these surveillances should be conducted on only one DG at a time with the DG on a separate source from the rest of the unit's distribution systems. This is to preclude the remote possibility of common cause failures from offsite grid perturbations that could affect DG performance while the DG(s) is connected (paralleled) to the offsite power source, and to minimize perturbations to the unit's other distribution systems.

Specifically, Note 1 for SR 3.8.1.9 and SR 3.8.1.10, and Note 2 for SR 3.8.1.14 currently read as follows: "This surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR." The Notes for SR 3.8.1.13 and 3.8.1.17 are identical except they also include MODE 3. The Note for each of these SRs will be revised to remove the mode restrictions from the first part of the note such that the Note (or the affected portion of the Note) would be reduced to the following: "Credit may be taken for unplanned events that satisfy this SR."

The TS Bases for SR 3.8.1.9, SR 3.8.1.10, and SR 3.8.1.14 will also be revised to remove the sentence that states: "The reason for [the Note] is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems." The TS Bases for SR 3.8.1.17 will be revised to remove the statement that states: "The reason for the Note is that performing the surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems."

The following statement will be added to the TS Bases for each of the above SRs: "Testing performed for this SR is normally conducted with the DG being tested (and the associated safety-related distribution subsystem) connected to one offsite source, while the remaining safety-related (and non-safety related) distribution systems are aligned to the other offsite source (or unit auxiliary transformers). This minimizes the possibility of common cause failures resulting from offsite/grid voltage perturbations." The TS Bases for SR 3.8.1.13 will be revised to remove the statement, "The reason for the Note is that performing the Surveillance removes a required DG from service."

The proposed changes to the Technical Specifications are reflected in the annotated TS pages provided in Attachment 3. Associated changes to the TS Bases are indicated in Attachment 4. The proposed TS Bases changes are for information only and will be controlled by TS 5.5.11, "Technical Specifications Bases Control Program."

JUSTIFICATION FOR PROPOSED CHANGES

Although the TS Bases, as currently written, state that the reason for the SR Note (for SRs 3.8.1.9, 3.8.1.10 and 3.8.1.14) is to preclude the potential for perturbations of the electrical distribution system during plant operation, reconsideration of this basis has determined that the noted concern is unwarranted with respect to requiring the affected SRs to be performed only during shutdown conditions. This conclusion is based on industry and plant experience with the performance of testing required per the affected SRs, realistic consideration of the conditions typically present during performance of the affected testing, and the low probability of a significant voltage perturbation during such testing. Such testing does not make the DG(s) unavailable for responding to an accident during the testing, and the risk of performing the noted required surveillances during plant operation is not significantly greater than the risk associated with the performance of other DG surveillances required by the Technical Specifications but which are not prohibited from being performed during plant operation.

Except as noted below for SR 3.8.1.13, performance of the affected SRs does not result in any unavailability of the DGs. (Performance of some of portions of these SRs may result in momentary DG inoperability, but in general, DG availability is not significantly affected.) Also, no other safety-related equipment is rendered inoperable by the performance of these SRs. SRs 3.8.1.9, 3.8.1.10, 3.8.1.14, and 3.8.1.17 are performed by paralleling the DG in test with offsite power, similar to the existing monthly run of the DG, which is conducted with the plant on line. In the event of any occurrence that would cause DG protective devices to actuate during the performance of these SRs, the DG will separate from its respective emergency bus, allowing the offsite circuit to continue to supply the bus. Further, performance of the required testing at power would not result in the inoperability of any other safety related equipment, nor would it result in a challenge to any plant safety system.

Testing Pursuant to SR 3.8.1.9 and SR 3.8.1.10

For performance of the load rejection tests per SRs 3.8.1.9 and 3.8.1.10, the typical approach taken is to load the tested DG to the required load (via offsite power) and then open the DG output breaker. Opening of the DG output breaker separates the DG from its associated emergency bus and allows the offsite circuit to continue to supply the bus. This evolution has little impact on plant loads. The power system loading during such testing is within the rating of all transformers, switchgear, and breakers, both before and after the load rejection, and as further explained below, performance of the load rejection SRs does not cause any significant perturbations to the electrical distribution systems as the DG is separated from the bus.

Data from testing performed pursuant to these SRs is recorded via the General Electric Transient and Recording System (GETARS) at Clinton. Analysis of bus voltage traces taken from GETARS for previous tests shows that the voltage drop which occurs is such that voltage during the "transient" remains well above the minimum required voltage for plant loads, and typically recovers well within two seconds. Thus, the voltage "transient" experienced by loads on the affected bus is minor. It may be noted, too, that with the associated SVC in service, voltage perturbations are further minimized due to the compensating effect of the SVC.

In addition, the potential for a compounding grid disturbance to occur during the timeframe of a test performed per SR 3.8.1.9 or SR 3.8.1.10 is remote, as the probability for a sustained low voltage condition to occur on the grid is independent of testing performed pursuant to these SRs. (That is, there is no credible consequential connection between the occurrence of a grid low-voltage condition and the performance of testing to satisfy SRs 3.8.1.9 and 3.8.1.10.) Regardless, protective relaying for the diesel generator would be available to protect the diesel generator while it is connected to the grid. In addition, with respect to plant loads connected to the safety bus, the protection instrumentation (required to be Operable per TS 3.3.8.1, "Loss of Power (LOP) Instrumentation") for sustained grid low-voltage conditions would be available to respond to such a condition for protection of the plant loads, irrespective of the testing performed per SRs 3.8.1.9 and 3.8.1.10.

Testing Pursuant to SR 3.8.1.17

For the performance of the test mode override test per SR 3.8.1.17, this test ensures that the availability of the DG under accident conditions is unaffected during the performance of the surveillance test. This test is typically performed in conjunction with the load rejection tests (while the DG is paralleled with the offsite source) by simulating a LOCA signal to the DG start circuitry, which causes the DG output breaker to open, as the DG is returned to a ready-to-load condition. Similar to the tests performed for SRs 3.8.1.9 and 3.8.1.10, opening the DG output breaker separates the DG from its associated emergency bus and allows the offsite circuit to continue to supply the bus. Consequently, performance of testing pursuant to SR 3.8.1.17 does not cause any significant perturbations to the electrical distribution systems as the DG is separated from the bus.* In addition, similar to testing performed for SRs 3.8.1.9 and 3.8.1.10, the power system loading for this test is within the rating of the affected transformers, switchgear, and breakers, both before and after the load rejection.

Testing Pursuant to SR 3.8.1.13

Performance of testing required per SR 3.8.1.13 to verify that non-emergency automatic trips are bypassed and that emergency automatic trips will trip the DG in an emergency, while at power, is justified on the basis that: (1) this SR is not performed with the DG paralleled to offsite power, and (2) unavailability of the DG during the conduct of this test is minimal. DG unavailability mainly occurs when the DG is tripped in response to the emergency trips and then verified to be tripped prior to resetting the trips. Manual action is required to reset the emergency trips so that the DG can then be available to start in an actual emergency situation. Since the test is conducted with the DG unloaded and isolated from its respective emergency bus, there is no impact to the electrical distribution system. Therefore, there is no mechanism for challenging continued steady state operation.

The test is performed by verifying that the non-emergency automatic trips do not trip the DG (i.e., the associated lockout relay is not tripped). The only jumpering and signal simulation required is executed at the relay level in the DG control circuitry such that only the associated DG is affected during this surveillance. Based on test experience to date, DG inoperability for performance of this testing during plant operation would be on the order of one hour per diesel generator per operating cycle.

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* As noted in the Bases for this SR, the intent in the requirement associated with SR 3.8.1.17.b is to show that the emergency loading is not affected by DG operation in the test mode. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the emergency loads to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified. On this basis, performance of routine testing required pursuant to SR 3.8.1.17 does not require separating the bus from offsite power. Consequently, performance of this surveillance does not require removing an offsite circuit from service, as currently implied in the Bases for this SR. Therefore, as noted previously, the Bases will be revised accordingly.

Testing Pursuant to SR 3.8.1.14

Performance of the 24-hour run per SR 3.8.1.14 while at power is justified, in part, by the fact that CPS currently tests its DGs paralleled to offsite power on a monthly basis, with the reactor critical, for a duration of approximately one to two hours. The intent of the 24-hour run, which is to demonstrate the ultimate load carrying capability of the DG, is met whether the test is conducted with the plant on line or shut down. Protective device reliability is unaffected by this proposed change.

Normal practices of risk management would ensure that this SR would not be scheduled during periods where the potential for grid or bus disturbances exists (such as during severe weather conditions or maintenance activities affecting the bus). Also, during the conduct of this test during plant operations, the other two remaining DGs, including their support systems, would remain operable during the conduct of the 24-hour run. It is acknowledged that when the DG is paralleled to offsite power, the affected train of the emergency power system is not independent of disturbances on the offsite power system and any potential interaction with the DG (e.g., a DG trip may result due to overcurrent or reverse power, or a lockout device may be actuated). The primary concern of DG operation in parallel with offsite power is that loss of the offsite source could result in the loss or unavailability of a DG (though this loss or unavailability would be temporary if it merely involved resetting the DG lockout relay). However, the probability of a DG being rendered unavailable due to a grid disturbance, coupled with the probability of such a disturbance (concurrent with DG testing) is quite remote.

CPS procedures contain precautions to minimize risk associated with surveillance testing, maintenance activities and degraded grid conditions, when paralleling a DG with offsite power. For example, during testing, only one DG is operated in parallel with offsite power at a time. This configuration provides for sufficient independence of the onsite power sources from offsite power while still enabling testing to demonstrate DG operability. In this configuration, it is possible for only one DG to be affected by an unstable offsite power system. (Even then, it may be possible for operator action to be taken to manually reset the affected lockout relay so that the DG can be restarted.) Even if this unlikely scenario were to occur, plant safe shutdown capability would still be assured with the two remaining DGs.

Collectively, the proposed changes to the CPS Technical Specifications are similar to proposed license amendments previously approved by the NRC. For example, Sequoyah (July 22, 1998), Perry (February 24, 1999), Hatch (March 15, 2000), Salem (March 30, 2000), McGuire (March 15, 2000) and Catawba (March 16, 2000) each received similar license amendments.

BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

In accordance with 10CFR 50.92, a proposed change to the operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed change would not: (1) involve a significant increase in the probability or consequences of any accident previously evaluated, (2) create the possibility of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of

from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety. The proposed change has been evaluated against each of these criteria, and it has been determined that the change does not involve a significant hazard because:

(1) The proposed change does not involve a significant increase in the probability or consequences of any accident previously evaluated.

The DGs and their associated emergency loads are accident mitigating features, not accident initiating equipment. Therefore, there will be no impact on any accident probabilities by the approval of the requested amendment.

The design of plant equipment is not being modified by these proposed changes. As such, the ability of the DGs to respond to a design basis accident will not be adversely impacted by these proposed changes. In addition, experience and further evaluation of the probability of a DG being rendered inoperable concurrent with or due to a significant grid disturbance support the conclusion that the proposed changes do not involve any significant increase in the likelihood of a safety bus blackout. Therefore, there would be no significant impact on any accident consequences.

Based on the above, the proposed change to permit certain DG surveillance tests to be performed during plant operation will have no effect on accident probabilities or consequences.

(2) The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

No new accident causal mechanisms would be created as a result of NRC approval of this amendment request since no changes are being made to the plant that would introduce any new accident causal mechanisms. Equipment will be operated in the same configuration with the exception of the plant mode in which the testing is conducted. (An interaction between the DG under test and the offsite power system that could lead to a consequential bus blackout during a grid disturbance is not deemed to be credible.) This amendment request does not impact any plant systems that are accident initiators; neither does it adversely impact any accident mitigating systems.

Based on the above, implementation of the proposed changes would not create the possibility of a new or different kind of accident from any accident previously evaluated.

(3) The proposed change does not involve a significant reduction in the margin of safety.

Margin of safety is related to the confidence in the ability of the fission product barriers to perform their design functions during and following an accident situation. These barriers include the fuel cladding, the reactor coolant system, and the

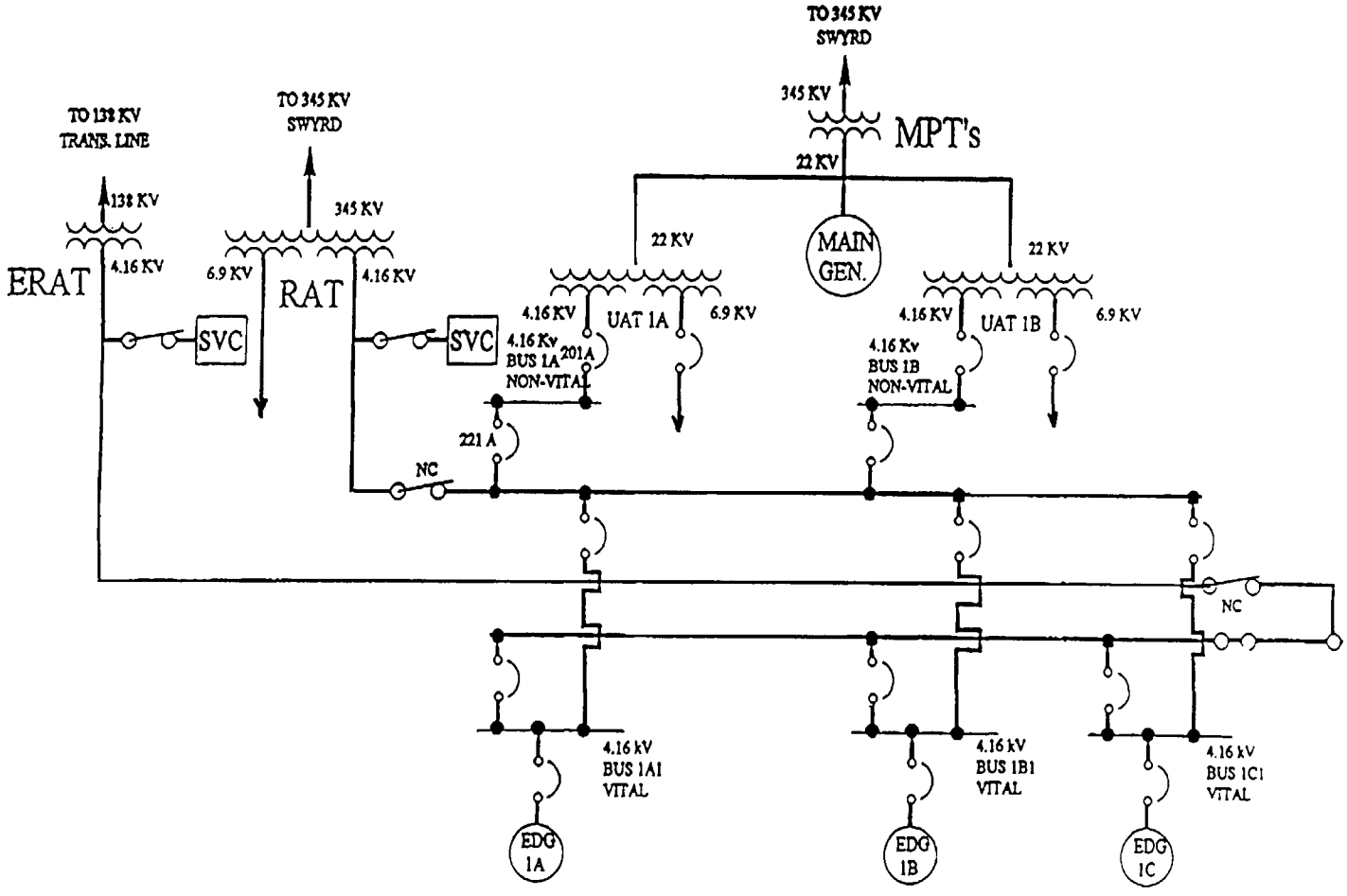
containment system. The proposed changes to the testing requirements for the plant DGs do not affect the operability requirements for the DGs, as verification of such operability will continue to be performed as required (except during different allowed Modes). Continued verification of operability supports the capability of the DGs to perform their required function of providing emergency power to plant equipment that supports or constitutes the fission product barriers. Consequently, the performance of these fission product barriers will not be impacted by implementation of this proposed amendment.

In addition, the proposed changes involve no changes to setpoints or limits established or assumed by the accident analysis. On this and the above basis, no safety margins will be impacted. Therefore, implementation of the proposed changes would not involve a significant reduction in a margin of safety.

Based upon the above analysis, the proposed change will not increase the probability or consequences of any accident previously evaluated, create the possibility of a new or different kind of accident from any accident previously evaluated, or involve a significant reduction in the margin of safety. Therefore, the proposed change meets the requirements of 10 CFR 50.92(c) and involves no significant hazard consideration.

ENVIRONMENTAL IMPACT CONSIDERATION

The proposed license amendment was evaluated against the criteria of 10 CFR 51.22 for environmental considerations. Since the proposed change involves no change to the design or operation of the facility, the proposed change (1) does not significantly increase individual or cumulative occupational radiation exposures, (2) does not significantly change the types or significantly increase the amount of effluents that may be released offsite, and (3) as discussed in this enclosure, does not involve a significant hazards consideration. Based on the foregoing, it has been concluded that the proposed Technical Specification change meets the criteria given in 10 CFR 51.22(c)(9) for categorical exclusion from the requirement for an Environmental Impact Statement.


TO 345 KV
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MPT's
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TO 138 KV
TRANS. LINE
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BUS 1A
NON-VITAL
201A
4.16 Kv
BUS 1B
NON-VITAL
221 A
NC
NC
4.16 kV
BUS 1A1
VITAL
4.16 kV
BUS 1B1
VITAL
4.16 kV
BUS 1C1
VITAL
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1A
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Marked-Up Pages of the Technical Specifications

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.9	----------NOTE---------- 1. ~~This Surveillance shall not be performed in MODE 1 or 2. However,~~ credit may be taken for unplanned events that satisfy this SR. 2. If performed with DG synchronized with offsite power, it shall be performed at a power factor $\leq$ 0.9. ---------- Verify each DG rejects a load greater than or equal to its associated single largest post accident load and following load rejection, the engine speed is maintained less than nominal plus 75% of the difference between nominal speed and the overspeed trip setpoint or 15% above nominal, whichever is lower.	18 months

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.10	----------NOTE---------- ~~This Surveillance shall not be performed in MODE 1 or 2. However,~~ credit may be taken for unplanned events that satisfy this SR. ---------- Verify each DG operating at a power factor $\leq$ 0.9 does not trip and voltage is maintained $\leq$ 5000 V for DG 1A and DG 1B and $\leq$ 5824 V for DG 1C during and following a load rejection of a load $\geq$ 3482 kW for DG 1A, $\geq$ 3488 kW for DG 1B, and $\geq$ 1980 kW for DG 1C.	18 months

(continued)

No changes to this page.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.11	----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify on an actual or simulated loss of offsite power signal: a. De-energization of emergency buses; b. Load shedding from emergency buses for Divisions 1 and 2; and c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in $\leq$ 12 seconds, 2. energizes auto-connected shutdown loads, 3. maintains steady state voltage $\geq$ 4084 V and $\leq$ 4580 V, 4. maintains steady state frequency $\geq$ 58.8 Hz and $\leq$ 61.2 Hz, and 5. supplies permanently connected and auto-connected shutdown loads for $\geq$ 5 minutes.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.12	----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and: a. In $\leq$ 12 seconds after auto-start and during tests, achieves voltage $\geq$ 4084 V and frequency $\geq$ 58.8 Hz; b. Achieves steady state voltage $\geq$ 4084 V and $\leq$ 4580 V and frequency $\geq$ 58.8 Hz and $\leq$ 61.2 Hz; and c. Operates for $\geq$ 5 minutes.	18 months
SR 3.8.1.13	----------NOTE---------- ~~This Surveillance shall not be performed in MODE 1, 2, or 3. However,~~ credit may be ~~taken~~ for unplanned events that satisfy this SR. ---------- Verify each DG's automatic trips are bypassed on an actual or simulated ECCS initiation signal except: a. Engine overspeed; b. Generator differential current; and c. Overcrank for DG 1A and DG 1B.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.14	----------NOTES---------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. ~~This Surveillance shall not be performed in MODE 1 or 2. However,~~ credit may be taken for unplanned events that satisfy this SR. ---------- Verify each DG operating at a power factor $\leq$ 0.9 operates for $\geq$ 24 hours: a. For $\geq$ 2 hours loaded $\geq$ 4062 kW for DG 1A, $\geq$ 4069 kW for DG 1B, and $\geq$ 2310 kW for DG 1C; and b. For the remaining hours of the test loaded $\geq$ 3482 kW for DG 1A, $\geq$ 3488 kW for DG 1B, and $\geq$ 1980 kW for DG 1C.	18 months

(continued)

No changes to this page.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.15	----------NOTE---------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 2 hours loaded ≥ 3482 kW for DG 1A, ≥ 3488 kW for DG 1B, and ≥ 1980 kW for DG 1C. Momentary transients outside of the load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. ---------- Verify each DG starts and achieves: a. In ≤ 12 seconds, voltage ≥ 4084 V and frequency ≥ 58.8 Hz; and b. Steady state voltage ≥ 4084 V and ≤ 4580 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	18 months

(continued)

No changes to this page.

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.16	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify each DG: a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power; b. Transfers loads to offsite power source; and c. Returns to ready-to-load operation.	18 months
SR 3.8.1.17	----------NOTE---------- ~~This Surveillance shall not be performed in MODE 1, 2, or 3. However,~~ credit may be taken for unplanned events that satisfy this SR. ---------- Verify, with a DG operating in test mode and connected to its bus, an actual or simulated ECCS initiation signal overrides the test mode by: a. Returning DG to ready-to-load operation; and b. Automatically energizing the emergency loads from offsite power.	18 months

(continued)

Associated Pages of the Technical Specifications Bases

SURVEILLANCE REQUIREMENTS

SR 3.8.1.8

Transfer of each 4.16 kV ESF bus power supply from the normal offsite circuit to the alternate offsite circuit demonstrates the OPERABILITY of the alternate circuit. The 18 month Frequency of the Surveillance is based on engineering judgment taking into consideration the plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed on the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

This SR is modified by a Note. The reason for the Note is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

1) Unexpected operational events which cause the equipment to perform the function specified by this surveillance, for which adequate documentation of the required performance is available; and

2) Post maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1.9

Each DG is provided with an engine overspeed trip to prevent damage to the engine. Recovery from the transient caused by the loss of a large load could cause diesel engine overspeed, which, if excessive, might result in a trip of the engine. This Surveillance demonstrates the DG load response characteristics and capability to reject a load equivalent to at least as large as the largest single load while maintaining a specified margin to the overspeed trip.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.9 (continued)

The referenced load for DG 1A is the low pressure core spray pump; for DG 1B, the residual heat removal (RHR) pump; and for DG 1C the HPCS pump. The Shutdown Service Water (SX) pump values are not used as the largest load since the SX supplies cooling to the associated DG. If this load were to trip, it would result in the loss of the DG. The use of larger loads for reference purposes is acceptable. This Surveillance may be accomplished by:

1) Tripping the DG output breaker with the DG carrying greater than or equal to its associated single largest load while paralleled to offsite power, or while supplying the bus, or

2) Tripping its associated single largest load with the DG supplying the bus.

As required by IEEE-308 (Ref. 13), the load rejection test is acceptable if the increase in diesel speed does not exceed 75% of the difference between synchronous speed and the overspeed trip setpoint, or 15% above synchronous speed, whichever is lower.

The 18 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9).

This SR has been modified by two Notes. ~~The reason for Note 1 is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems.~~ Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

The intent of Note 1 is to indicate that

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.9 (continued)

2) Post maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, Note 2 requires that, if synchronized to offsite power, testing be performed using a power factor ≤ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the DG could experience.

Insert A

With regard to diesel speed values obtained pursuant to this SR, as read from plant indication instrumentation, the specified limit is considered to be a nominal value and therefore does not require compensation for instrument indication uncertainties (Ref. 23).

SR 3.8.1.10

This Surveillance demonstrates the DG capability to reject a full load, i.e., maximum expected accident load, without overspeed tripping or exceeding the predetermined voltage limits. However, consistent with the recommendations of Regulatory Guide 1.9, Revision 3 (Ref. 15), this surveillance is performed with a DG load equal to or greater than 90 percent of its continuous rating.

The DG full load rejection may occur because of a system fault or inadvertent breaker tripping. This Surveillance ensures proper engine generator load response under the simulated test conditions.

This test simulates the loss of the total connected load that the DG experiences following a full load rejection and verifies that the DG does not trip upon loss of the load. These acceptance criteria provide DG damage protection.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.10 (continued)

While the DG is not expected to experience this transient during an event and continue to be available, this response ensures that the DG is not degraded for future application, including reconnection to the bus if the trip initiator can be corrected or isolated.

In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, testing must be performed using a power factor ≤ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience.

The 18 month Frequency is consistent with the recommendation of Regulatory Guide 1.108 (Ref. 9) and is intended to be consistent with expected fuel cycle lengths.

This SR has been modified by a Note. ~~The reason for the Note is that during operation with the reactor critical, performance of this SR could cause perturbation to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems.~~ Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

The intent of the Note is to indicate that

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

2) Post maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

Insert A

With regard to DG load and voltage values obtained pursuant to this SR, as read from plant indication instrumentation, the specified limit is considered to be a nominal value and therefore does not require compensation for instrument indication uncertainties (Ref. 23).

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.12 (continued)

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

2) Post maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1.13

This Surveillance demonstrates that DG non-critical protective functions (e.g., high jacket water temperature) are bypassed on an ECCS initiation test signal and critical protective functions trip the DG to avert substantial damage to the DG unit. The non-critical trips are bypassed during DBAs and provide alarms on abnormal engine conditions. These alarms provide the operator with necessary information to react appropriately. The DG availability to mitigate the DBA is more critical than protecting the engine against minor problems that are not immediately detrimental to emergency operation of the DG.

The 18 month Frequency is based on engineering judgment, taking into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

The SR is modified by a Note. ~~The reason for the Note is that performing the Surveillance removes a required DG from service.~~ Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

The intent of the Note is to indicate that

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.13 (continued)

2) Post maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1.14

Regulatory Guide 1.9, Revision 3 (Ref. 15) requires demonstration once per 18 months that the DGs can start and run continuously at or near full-load capability for an interval of not less than 24 hours. The DGs are to be loaded equal to or greater than 105 percent of the continuous rating for at least 2 hours and equal to or greater than 90 percent of the continuous rating for the remaining hours of the test (i.e., 22 hours) (Ref. 15). The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelube and warmup, discussed in SR 3.8.1.2, and for gradual loading, discussed in SR 3.8.1.3, are applicable to this SR.

In order to ensure that the DG is tested under load conditions that are as close to design conditions as possible, testing must be performed using a power factor ≤ 0.9. This power factor is chosen to be representative of the actual design basis inductive loading that the DG could experience.

The 18 month Frequency is consistent with the recommendations of Regulatory Guide 1.9, Revision 3 (Ref. 15); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.

The intent of Note 2 is to indicate that

This Surveillance is modified by two Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the limit do not invalidate the test. ~~The reason for Note 2 is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that would challenge continued steady state operation and, as a result, plant safety systems.~~ Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.14 (continued)

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

2) Post maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

Insert A

With regard to DG loading capability values obtained pursuant to this SR, as read from plant indication instrumentation, the specified limit is considered to be a nominal value and therefore does not require compensation for instrument indication uncertainties (Ref. 19).

SR 3.8.1.15

This Surveillance demonstrates that the diesel engine can restart from a hot condition, such as subsequent to shutdown from normal Surveillances, and achieve the required voltage and frequency within 12 seconds. The 12 second time is derived from the requirements of the accident analysis to respond to a design basis large break LOCA.

With regard to DG loading values obtained pursuant to this SR, as read from plant indication instrumentation, the specified limit is considered to be a nominal value and therefore does not require compensation for instrument indication uncertainties (Ref. 19).

With regard to DG start time, frequency and voltage values obtained pursuant to this SR, as read from plant indication instrumentation, the specified limit is not considered to be a nominal value with respect to instrument uncertainties. This requires additional margin to be added to the limit to compensate for instrument uncertainties, for implementation in the associated plant procedures (Ref. 16, 17, 18, 21, 22).

The 18 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(5).

(continued)

BASES

No changes to this page.

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.16 (continued)

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

2) Post maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1.17

Demonstration of the test mode override ensures that the DG availability under accident conditions is not compromised as the result of testing. Except as clarified below for the Division 3 DG, interlocks to the LOCA sensing circuits cause the DG to automatically reset to ready-to-load operation if an ECCS initiation signal is received during operation in the test mode. Ready-to-load operation is defined as the DG running at rated speed and voltage with the DG output breaker open. These provisions for automatic switchover are required by IEEE-308 (Ref. 13), paragraph 6.2.6(2), as further amplified by IEEE 387, sections 5.6.1 and 5.6.2. (Clarification regarding conformance of the Division 3 DG design to these standards is provided in the USAR, Chapter 8 (Reference 2).)

Automatic switchover from the test mode to ready-to-load operation for the Division 3 DG is also demonstrated, as described above, by ensuring that DG control logic automatically resets in response to a LOCA signal during the test mode and confirming that ready-to-load operation is attained (as evidenced by the DG running with the output breaker open). However, with the DG governor initially operating in a "droop" condition during the test mode, operator action may be required to reset the governor for

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.17 (continued)

ready-to-load operation in order to complete the surveillance for the Division 3 DG. Resetting the governor ensures that the DG will supply the Division 3 bus at the required frequency in the event of a LOCA and a loss of offsite power while the DG is in a droop condition during the test mode.

The requirement to automatically energize the emergency loads with offsite power is essentially identical to that of SR 3.8.1.12. The intent in the requirement associated with SR 3.8.1.17.b is to show that the emergency loading is not affected by the DG operation in test mode. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the emergency loads to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

The intent of this note is to indicate that

The 18 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(8); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.

This SR has been modified by a Note. ~~The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems.~~ Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

2) Post maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

Insert A →

(continued)

Insert A (to B3.8.1.9, B3.8.1.10, B3.8.1.14, and B3.8.1.17):

Testing performed for this SR is normally conducted with the DG being tested (and the associated safety-related distribution subsystem) connected to one offsite source, while the remaining safety-related (and non-safety related) distribution systems are aligned to the other offsite source (or unit auxiliary transformers). This minimizes the possibility of common cause failures resulting from offsite/grid voltage perturbations.