

ATTACHMENT 1

DUKE POWER COMPANY
MCGUIRE NUCLEAR STATION

PROPOSED TECHNICAL SPECIFICATION CHANGES

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ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b) A kinematic viscosity at 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes (alternatively, Saybolt viscosity, SUS at 100°F of greater than or equal to 32.6, but less than or equal to 40.1), if gravity was not determined by comparison with the supplier's certification.
 - c) A flash point equal to or greater than 125°F, and
 - d) A clear and bright appearance with proper color when tested in accordance with ASTM D4176-82.
- 2) By verifying within 31 days of obtaining the sample that the other properties specified in Table 1 of ASTM D975-81 are met when tested in accordance with ASTM D975-81 except that the analysis for sulfur may be performed in accordance with ASTM D1552-79 or ASTM D2622-82.
- d. At least once every 31 days by obtaining a sample of fuel oil from the storage tanks in accordance with ASTM D2276-78, and verifying that total particulate contamination is less than 10 mg/liter when checked in accordance with ASTM D2276-78, Method A.
- e. At least once per 18 months, ~~during shutdown~~, by: during Shutdown,
- 1) Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service;
 - during Shutdown, 2) Verifying the generator capability to reject a load of greater than or equal to 576 kW while maintaining voltage at 4160 ± 20 volts and frequency at 60 ± 1.2 Hz;
 - 3) Verifying the generator capability to reject a load of 4000 kW without tripping. The generator voltage shall not exceed 4784 volts during and following the load rejection;
 - 4) Simulating a loss-of-offsite power by itself, and:
 - a) Verifying deenergization of the emergency busses and load shedding from the emergency busses, and
 - b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 11 seconds, energizes the auto-connected blackout loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the blackout loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and 60 ± 1.2 Hz during this test.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- 5) Verifying that on an ESF actuation test signal, without loss-of-offsite power, the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes. The generator voltage and frequency shall be at least 4160 volts and 57 Hz within 11 seconds after the auto-start signal; the steady-state generator voltage and frequency shall be maintained within 4160 ± 420 volts and 60 ± 1.2 Hz during this test;

- 6) Simulating a loss-of-offsite power in conjunction with an ESF actuation test signal, and

- a) Verifying, *during Shutdown,* deenergization of the emergency busses and load shedding from the emergency busses;

- b) Verifying, *during Shutdown,** the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 11 seconds, energizes the auto-connected emergency (accident) loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After energization, the steady-state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and 60 ± 1.2 Hz during this test; and

- c) Verifying, that all automatic diesel generator trips, except engine overspeed, lube oil pressure, generator time over-current and generator differential are automatically bypassed upon loss of voltage on the emergency bus concurrent with a Safety Injection Actuation signal.

~~[Deleted, LEFT BLANK]~~

- 7) ~~Operating for one hour at 4000 kW to achieve temperature stability. Within 5 minutes, restart and perform Surveillance Requirement 4.8.1.1.2e.6)b).~~

- 8) Verifying, *during Shutdown,* the diesel generator operates for at least 24 hours. During the first 2 hours of this test, the diesel generator shall be loaded *between 4200 Kw and* ~~to greater than or equal to 4400 kW~~ and during the remaining 22 hours of this test, the diesel generator shall be loaded *between 3800 Kw and* ~~to greater than or equal to 4000 kW~~. The generator voltage and frequency shall be at least 4160 volts and 57 Hz within 11 seconds after the start signal. The steady-state generator voltage and frequency shall be maintained within 4160 ± 420 volts and 60 ± 1.2 Hz during this test. Within 5 minutes of Shutting down the diesel generator, restart the diesel generator and verify that the generator voltage and frequency reaches at least 4160 Volts and 57 Hz within 11 seconds ***

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

9) Verifying that the auto-connected loads to each diesel generator do not exceed the 2-hour rating of 4400 kW;

10) Verifying the diesel generator's capability to:

during Shutdown,

a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,

b) Transfer its loads to the offsite power source, and

c) Be restored to its standby status.

11) Verifying that with the diesel generator operating in a test mode, connected to its bus, a simulated Safety Injection signal overrides the test mode by: (1) returning the diesel generator to standby operation, and (2) automatically energizing the emergency loads with offsite power;

12) Verifying that the fuel transfer pump transfers fuel from each fuel storage tank to the day tank of each diesel via the installed cross-connection lines;

13) Verifying that the automatic load sequence timer is OPERABLE with the interval between each load block are within the tolerances shown in Table 4.8-2;

during Shutdown,*

14) Verifying that the following diesel generator lockout features prevent diesel generator starting only when required:

a) Turning gear engaged, and

b) Emergency stop.

15) Verifying that with all diesel generator air start receivers pressurized to less than or equal to 220 psig and the compressors secured, the diesel generator starts at least 2 times from ambient conditions and accelerates to at least 488 rpm in less than or equal to 11 seconds.

INSERT
Footnotes

f. At least once per 10 years or after any modifications which could affect diesel generator interdependence by starting both diesel generators simultaneously, during shutdown, and verifying that both diesel generators accelerate to at least 488 rpm in less than or equal to 11 seconds; and

g. At least once per 10 years by:

Footnote INSERTs

- * This Surveillance Requirement may be Performed In conjunction with Periodic PrePlanned Preventative maintenance activity That causes the diesel generator to be Inoperable Provided that performance of The Surveillance requirement does not increase The time The diesel generator would be Inoperable for the Pm activity alone.
- ** Diesel generator loadings for the purpose of This Surveillance may be In accordance with vendor recommendations. The purpose of the load range is to prevent overloading The engine and momentary excursions outside of The range Shall not invalidate The test.
- *** If There is a test failure during The 24 hour test run, The Hot restart test can be performed Prior to completing The 24 hour test provided The diesel generator had operated for at least for 2 hours loaded between 3800 and 4000 kw**

3/4.8 ELECTRICAL POWER SYSTEMS

DO NOT WRITE IN THESE SPACES
FOR INFORMATION ONLY

BASES

3/4.8.1, 3/4.8.2 AND 3/4.8.3 A.C. SOURCES, D.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for: (1) the safe shutdown of the facility, and (2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix A to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the safety analyses and are based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss-of-offsite power and single failure of the other onsite A.C. source. The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources", December 1974. When one diesel generator is inoperable, there is an additional ACTION requirement to verify that all required systems, subsystems, trains, components and devices, that depend on the remaining OPERABLE diesel generator as a source of emergency power, are also OPERABLE, and that the steam-driven auxiliary feedwater pump is OPERABLE. This requirement is intended to provide assurance that a loss-of-offsite power event will not result in a complete loss of safety function of critical systems during the period one of the diesel generators is inoperable. The term verify as used in this context means to administratively check by examining logs or other information to determine if certain components are out-of-service for maintenance or other reasons. It does not mean to perform the Surveillance Requirements needed to demonstrate the OPERABILITY of the component. The ACTION requirements for diesel generator testing in the event of the inoperability of other electric power sources also reflect the potential for degradation of the diesel generator due to excessive testing. This concern has developed, concurrently with increased industry experience with diesel generators, and has been acknowledged by the NRC staff in Generic Letter 84-15.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that: (1) the facility can be maintained in the shutdown or refueling condition for extended time periods, and (2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants" Revision 1, August 1977, and 1.137, "Fuel-Oil Systems for Standby Diesel Generators," Revision 1, October 1979; also, Generic Letter 84-15, which modified the testing frequencies specified in Regulatory Guide 1.108.

ELECTRICAL POWER SYSTEMS

BASES

Some of the Surveillance Requirements for demonstrating the operability of the diesel generators are modified by a footnote. The Specifications state the Surveillance Requirements are to be performed during shutdown, with the unit in mode 3 or higher. The footnote allows the particular surveillance to be performed during a preplanned Preventative Maintenance (PM) activities that would result in the diesel generator being inoperable. The surveillance can be performed at that time as long as it does not increase the time the diesel generator is inoperable for the PM activity that is being performed. The footnote is only applicable at that time. The provision of the footnote shall not be utilized for operational convenience.

ELECTRIC POWER SYSTEMS

BASES

A.C. SOURCES, D.C. SOURCES AND ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

The Surveillance requirement for demonstrating the OPERABILITY of the station batteries are based on the recommendations of Regulatory Guide 1.129, "Maintenance Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," February 1978, and IEEE Std 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage onfloat charge, connection resistance values and the performance of battery service and discharge tests ensures the effectiveness of the charging system, the ability to handle high discharge rates and compares the battery capacity at that time with the rated capacity.

Table 4.8-3 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and 0.015 below the manufacturer's full charge specific gravity or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than 0.020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than 0.010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-3 is permitted for up to 7 days. During this 7-day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates with an adequate electron transfer capability; (2) the allowable value for the average specific gravity of all the cells, not more than 0.020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity, ensures that an individual cell's specific gravity will not be more than 0.040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

ATTACHMENT 2

DUIE POWER COMPANY
MCGUIRE NUCLEAR STATION

DISCUSSION OF CHANGES AND JUSTIFICATION

INTRODUCTION

By a February 10, 1989 letter, Duke Power Company submitted a proposed license amendment to Facility Operating Licenses NPF-9 and NPF-17 for McGuire Nuclear Station Units 1 and 2 respectively, pursuant to 10 CFR 50.90. The proposed amendment would allow certain 18 month diesel generator (D/G) Technical Specification (TS) surveillance tests currently required to be performed during unit shutdown only, to be able to conduct these surveillance tests during unit operation as well (i.e. not restricted to a specific mode). These changes were requested to provide additional flexibility in scheduling surveillances.

Specifically, the requested changes involved TS 4.8.1.1.2.e, which lists 15 surveillances to be performed on an 18-month basis, during shutdown to demonstrate the operability of each D/G. The proposed changes would have deleted the "During Shutdown" provision from the opening general requirements and add them only to the specific individual surveillance that either actually technically require the test to be performed during a shutdown or is desired to be performed during a shutdown. This would have allowed certain individual surveillances for which the words "During Shutdown" were not added, to be performed regardless of the unit's mode of operation, including power operation.

Subsequent to the February 10, 1989 submittal, conference calls were held on August 15 and 20, 1991 between representatives of Duke Power Company and the NRC staff. The NRC staff discussed the concerns that they had regarding the performance of certain surveillance requirements while at power. Based on these discussions, the TS amendment request submitted February 10, 1989 was supplemented by a letter dated April 30, 1992.

Subsequent to the April 30, 1992 supplemental letter, a meeting between NRC staff personnel and representatives from Duke Power was held at McGuire Nuclear Station on July 28, 1992. A summary of the meeting is documented within an NRC letter dated September 1, 1992. Briefly, as a result of the July 28, 1992 meeting, an additional supplement to the proposed TS amendment request was warranted. To assure clarity and to simplify NRC's review, the revisions provided by this submittal (Attachment 1) supersede in its entirety all previously provided TS amendment requests on this subject matter. The following paragraphs discuss the changes made and the actions taken as a result of the July 28, 1992 meeting and the September 1, 1992 NRC letter documenting the meeting.

DISCUSSION OF CHANGES

TS 4.8.1.1.2e.6)

Proposed Change: reinstated the phrase "During Shutdown" for TS 4.8.1.1.2e.6)c), thus this Surveillance Requirement (SR) will continue to be performed during a shutdown. A footnote was also added that will enable this portion of the surveillance to be performed in conjunction with the regularly scheduled Diesel Generator (DG) Preventative Maintenance (PM) activities.

Justification: Currently, this TS specifies that this test be performed during a shutdown. The change provided by this supplement reinstates this requirement, thus there is no change.

A footnote was added that will enable the performance of this surveillance requirement to be done during the regularly scheduled PM activities for that particular DG. The basic intent of the DG PM program is to ensure the continued reliability of the DG. The implementation of some of the elements of our PM program does require that the DG be removed from service on a periodic basis. The footnote will allow for the performance of this SR to be done during the times in which the DG will be out of service for PM related activities. The footnote also has a restriction so that the time the DG is out of service for performing PM related activities can not be extended in order to complete this surveillance requirement. The intent is that the provision of the footnote can not be implemented for operational convenience.

Although the Unit is still at power, because of PM related activities, the DG is rendered inoperable. The performance of these PM activities does enhance the overall reliability of the DG beyond the impact associated with the temporary unavailability of the DG. The performance of the SR associated with TS 4.8.1.1.2e.6)c), during the time the DG is inoperable, as specified by the footnote, will not adversely impact plant operation and can be done safely in conjunction with the regularly scheduled PM activities. This should result in an overall increase in the reliability of the DG, thereby enhancing plant safety.

TS 4.8.1.1.2e.7) and 8)

Proposed Change: The SR specified by TS 4.8.1.1.2e.7) has been relocated to the end of TS 4.8.1.1.2e.8). A footnote was also added so that a re-run of the 24 hour test prior to the hot restart test would not have to be performed if there was a failure during the 24 hour test, provided that the DG had been operated for 2 hours before performing the hot restart test. In addition, the 5 minute restart criterion was reinstated in conjunction with the hot restart test. Finally, the requirement to perform testing in accordance with the requirements specified by TS 4.8.1.1.2e.6)b) was replaced by the phrase "... verify that the generator voltage and frequency reaches at least 4160 volts and 57 Hz within 11 seconds."

Justification: The relocation of the TS requirement to another section of the TSs is an administrative change. The requirement to perform the hot restart test is still required. The hot restart test is now coupled with the 24 hour testing requirements specified by TS 4.8.1.1.2e.8). The operation of the DG for 24 hours will ensure that temperature stability of the DG is achieved and that the DG is sufficiently hot prior to performing the hot restart test. By coupling the hot restart test to the 24 hour test, results in an increased restriction and is more conservative than what is currently allowed. The TS now only requires that the DG be operated for 1 hour before the hot restart test is performed.

The change to reinstate the 5 minute criterion, re-establishes the same restriction that currently exists in the TS now. Thus, the previous TS change is withdrawn.

A footnote was added to address the situation when there is a failure during the 24 hour test. For this situation, the hot restart test could be performed, prior to completing the 24 hour test, provided that the DG has operated for at least 2 hours. This will ensure that temperature stability of the DG has been achieved and that the DG is hot. The completion of the 24 hour test is not an essential prerequisite for the performance of the hot restart test. What is important is that the temperature of the DG be stable and that the DG be sufficiently hot.

The primary purpose of this surveillance is to demonstrate that the DG can be restarted from a hot condition, such as subsequent to shutdown from normal surveillance. This would demonstrate that the DG is capable of responding to a signal to start while hot. The change provided by this supplement continues to accomplish this fundamental intent of the SR. In addition, this change is consistent with the language used in NUREG-1431 for this particular TS.

TS 4.8.1.1.2e.9)

Proposed Change: The change provided by this supplement deletes the requirement to perform this SR during a plant shutdown.

Justification: Actual testing, startup or operation of the DG is not necessary in order to comply with this SR. An engineering calculation is all that is required to verify that the auto-connect loads do not exceed the 2-hour rating of 4400 KW. This calculation can be performed during any operational mode without impacting the Unit or plant safety. The proposed change eliminates an unnecessary restriction and thus reduces the associated regulatory burden without impacting the health and safety of the public.

TS 4.8.1.1.2e.14)

Proposed change: The change provided by this supplement reinstates the shutdown requirement, thus this SR will continue to be performed during a shutdown. A footnote was also added that will enable this portion of the surveillance to be performed in conjunction with the regularly scheduled DG PM activities.

Justification: Currently, this TS specifies that this test be performed during a shutdown. The change provided by this supplement reinstates this requirement, thus there is no change.

A footnote was added that will enable the performance of this SR to be done during the regularly scheduled PM activities for that particular DG. The basic intent of the DG PM program is to ensure the continued reliability of the DG. The implementation of some of the elements of our PM program does require that the DG be removed from service on a periodic basis. The footnote will allow for the performance of this surveillance requirement to be done during the times in which the DG will be out of service for PM related activities. The footnote also has a restriction so that the time the DG is out of service for performing PM related activities can not be extended in order to complete this surveillance requirement. The intent is that the provision of the footnote can not be implemented for operational convenience.

Although the Unit is still at power, because of PM related activities, the DG is rendered inoperable. The performance of these PM activities does enhance the overall reliability of the DG beyond the impact associated with the temporary unavailability

of the DG. The performance of the SR associated with TS 4.8.1.1.2e.14), during the time the DG is inoperable, as specified by the footnote, will not adversely impact plant operation and can be done safely in conjunction with the regularly scheduled PM activities. This should result in an overall increase in the reliability of the DG, thereby enhancing plant safety.

TS 4.8.1.1.2e.15)

Proposed change: The change provided by this supplement, reinstates the shutdown requirement, thus this surveillance requirement will continue to be performed during a shutdown.

Justification: Currently, this TS specifies that this test be performed during a shutdown. The change provided by this supplement reinstates this requirement, thus there is no change.

BASES

Proposed Change: The bases was updated to add a discussion about the applicability and interpretation of the footnote which allows for testing to be performed in conjunction with the regularly scheduled DG PM activities.

Justification: The footnote that was added will allow for the performance of the surveillance requirement to be done during the regularly scheduled PM activities for that particular DG. The basic intent of the DG PM program is to ensure the continued reliability of the DG. Although the Unit is still at power, the DG is rendered inoperable because of PM related activities. The performance of these PM activities does enhance the overall reliability of the DG beyond the impact associated with the temporary unavailability of the DG. The performance of the surveillance requirements associated with the footnote during the time the DG is inoperable due to PM activities, will not adversely impact plant operation and can be done safely in conjunction with the regularly scheduled PM activities. This should result in an overall increase in the reliability of the DG, thereby enhancing plant safety. The changes to the bases only provides additional information in regard to the correct application and interpretation of the footnote.