3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

INFORMATION ONLY

OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the onsite Class 1E A.C. electrical power distribution system, and

b. Two separate and independent diesel generators each with:

1. A separate day fuel tank containing a minimum volume of 4000 gallons of fuel,

2. A separate fuel storage system containing a minimum volume of 32,000 gallons of fuel, and

3. A separate fuel transfer pump.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one offsite circuit of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter and by performing Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours. Restore at least two offsite circuits to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter and by performing Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours. Restore at least two diesel generators to OPERABLE status within 7 days or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With one offsite circuit and one diesel generator of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining A.C. sources by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter and by performing Surveillance

ELECTRICAL POWER SYSTEMS

ACTION (Continued)

Requirement 4.8.1.1.2.a.4 within 8 hours. Restore at least one of the inoperable sources to OPERABLE status within 12 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. With the inoperable offsite source restored, restore two diesel generators to OPERABLE status within 7 days from the time of the initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. With the inoperable diesel generator restored, restore two offsite power sources to OPERABLE status within 72 hours from the time of the initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With two of the above required offsite A.C. circuits inoperable, demonstrate the OPERABILITY of two diesel generators by performing Surveillance Requirement 4.8.1.1.2.a.4 within 8 hours and at least once per 8 hours thereafter, unless the diesel generators are already operating; restore at least one of the inoperable offsite sources to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours. With only one offsite source restored, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With two of the above required diesel generators inoperable, demonstrate the OPERABILITY of two offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within one hour and at least once per 8 hours thereafter; restore at least one of the inoperable diesel generators to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore at least two diesel generators to OPERABLE status within 7 days from time of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required qualified circuits between the offsite transmission network and the onsite Class 1E A.C. electrical power distribution system shall be:

a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments and indicated power availability, and

b. Demonstrated OPERABLE at least once ~~per 18 months during shutdown~~ by transferring (manually and automatically) unit power supply to each of the offsite circuits.

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

a. At least once per 31 days, if Surveillance Requirement 4.8.1.1.2.c has not been performed within the previous 31 days, by:

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ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

1. Verifying the fuel level in the day fuel tank.
2. Verifying the fuel level in the fuel storage tank.
3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.
4. Verifying the diesel starts and accelerates up to 900 rpm, preceded by an engine prelube and/or appropriate other warmup procedures.
5. Verifying the generator is synchronized, loaded to $\geq$ 1000 kw, and operates for $\geq$ 60 minutes.
6. Verifying the diesel generator is aligned to provide standby power to the associated essential busses.
7. Verifying that the automatic load sequence timer is OPERABLE with each load sequence time within ± 10% of its required value.

b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank is within the acceptable limits specified in Table 1 of ASTM D975-68 when checked for viscosity, water and sediment.

c. At least once per 184 days by:

1. Verifying the fuel level in the day fuel tank.
2. Verifying the fuel level in the fuel storage tank.
3. Verifying the fuel transfer pump can be started and transfers fuel from the storage system to the day tank.
4. Verifying the diesel starts from ambient condition and accelerates to at least 900 rpm in $\leq$ 10 seconds.
5. Verifying the generator is synchronized, loaded to $\geq$ 1000 kw, and operates for $\geq$ 60 minutes.
6. Verifying the diesel generator is aligned to provide standby power to the associated essential busses.
7. Verifying that the automatic load sequence timer is OPERABLE with each load sequence time within ± 10% of its required value.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

d. At least once ~~each REFUELING INTERVAL per 18 months during shutdown~~ by:

1. Verifying the generator capability to reject a load equal to the largest single emergency load supplied by the generator without tripping.

2. Simulating a loss of offsite power in conjunction with a safety features actuation system (SFAS) test signal, and:

   (a) Verifying de-energization of the essential busses and load shedding from the essential busses.

   (b) Verifying the diesel starts from ambient condition on the auto-start signal, energizes the essential busses with permanently connected loads, energizes the auto-connected essential loads through the load sequencer and operates for $\geq$ 5 minutes while its generator is loaded with the essential loads.

   (c) Verifying that all diesel generator trips, except engine overspeed and generator differential, are automatically bypassed upon loss of voltage on the essential bus and/or an SFAS test signal.

3. Verifying the diesel generator operates for $\geq$ 60 minutes while loaded to $\geq$ 2000 kw.

4. Verifying that the auto-connected loads to each diesel generator do not exceed the 2000 hour rating of 2838 kw.

e. At least once per 30 months by subjecting the diesels to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendation for this class of standby service.*

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* The provisions of Specification 4.0.2 are not applicable.

ELECTRICAL POWER SYSTEMS

A.C. SOURCES

INFORMATION ONLY

SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.1.2 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. One qualified circuit between the offsite transmission network and the onsite Class 1E A.C. electrical power distribution system, and

b. One diesel generator with:

1. Day fuel tank containing a minimum volume of 4000 gallons of fuel,

2. A fuel storage system containing a minimum volume of 32,000 gallons of fuel, and

3. A fuel transfer pump.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above minimum required A.C. electrical power sources OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes until the minimum required A.C. electrical power sources are restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.8.1.2 The above required A.C. electrical power sources shall be demonstrated OPERABLE by the performance of each of the Surveillance Requirements of 4.8.1.1.1 and 4.8.1.1.2 except for requirements 4.8.1.1.2.a.5, 4.8.1.1.2.a.7, 4.8.1.1.2.c.5 and 4.8.1.1.2.c.7.

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ELECTRICAL POWER SYSTEMS

D.C. DISTRIBUTION - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.3 The following D.C. bus trains shall be energized and OPERABLE with disconnect switches between bus trains open:

TRAIN "A" consisting of 250/125-volt D.C. MCC 1, 125-volt D.C. station batteries 1P and 1N and 2 full capacity chargers.

TRAIN "B" consisting of 250/125-volt D.C. MCC 2, 125-volt D.C. station batteries 2P and 2N and 2 full capacity chargers.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With only one 125-volt D.C. bus of a 250/125 volt D.C. MCC OPERABLE, restore the inoperable bus to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With only one 125-volt D.C. battery or only one charger of one MCC OPERABLE, restore the inoperable battery or charger to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.3.1 Each D.C. bus train shall be determined OPERABLE and energized with disconnect switches open between redundant busses at least once per 7 days by verifying correct disconnect switch/breaker alignment, indicated power availability from the charger and battery, and voltage on the bus of greater than or equal to 125 volts D.C.

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

a. At least once per 7 days by:

1. Verifying that the parameters in Table 4.8-1 meet the Category A limits, and

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

2. Verifying total battery terminal voltage is greater than or equal to 129 volts on float charge.

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

1. Verifying that the parameters in Table 4.8-1 meet the Category B limits,

2. Verifying that there is no visible corrosion at either terminals or connectors, or the connection resistance of these items is less than 150 x 10^{-6} ohms, and

3. Verifying that the average electrolyte temperature of every sixth connected cell is above 60°F.

c. At least once per 18 months by verifying that the battery charger will supply at least 475 amperes at a minimum of 130 volts for at least 8 hours; and at least once each REFUELING INTERVAL by verifying that:

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

2. The cell-to-cell and terminal connections are clean, tight and coated with anti-corrosion material, and

3. The resistance of each cell-to-cell and terminal connection is less than or equal to 150 x 10^{-6} Ohms~~; and~~;

~~4. The battery charger will supply at least 475 amperes at a minimum of 130 volts for at least 8 hours.~~

d. At least once each REFUELING INTERVAL ~~per 18 months, during shutdown,~~ by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test.

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

f. Every REFUELING INTERVAL ~~18 months, during shutdown,~~ performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

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TABLE 4.8-1

BATTERY SURVEILLANCE REQUIREMENTS

Parameter	CATEGORY A(1)	CATEGORY B(2)	
	Limits for each designated pilot cell	Limits for each connected cell	Allowable(3) value for each connected cell
Electrolyte Level	>Minimum level indication mark, and ≤ ¼" above maximum level indication mark	>Minimum level indication mark, and ≤ ¼" above maximum level indication mark	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 volts	≥ 2.13 volts(b)	> 2.07 volts
Specific Gravity(a)	≥ 1.200(c)	≥ 1.195	Not more than .020 below the average of all connected cells
		Average of all connected cells > 1.205	Average of all connected cells ≥ 1.195(c)

(a) Corrected for electrolyte temperature and level.
(b) Corrected for average electrolyte temperature.
(c) Or battery charging current, following a service or performance discharge test, is less than two amps, when on a float charge.
(1) For any Category A parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their allowable values, and provided all parameter(s) are restored to within limits within the next 6 days.
(2) For any Category B parameter(s) outside the limit(s) shown, the battery may be considered OPERABLE provided that they are within their allowable values and provided the parameter(s) are restored to within limits within 7 days.
(3) Any Category B parameter not within its allowable value indicates an inoperable battery.

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ELECTRICAL POWER SYSTEMS

D.C. DISTRIBUTION - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.8.2.4 As a minimum, the following D.C. electrical equipment and bus shall be energized and OPERABLE:

1 - 250/125-volt D.C. MCC, and

2 - 125-volt battery banks and chargers supplying the above D.C. MCC.

APPLICABILITY: MODES 5 and 6.

ACTION:

With less than the above complement of D.C. equipment and bus OPERABLE, establish CONTAINMENT INTEGRITY within 8 hours.

SURVEILLANCE REQUIREMENTS

4.8.2.4.1 The above required 250/125-volt D.C. MCC shall be determined OPERABLE and energized at least once per 7 days by verifying correct disconnect switch/breaker alignment, indicated power availability from the charger and battery, and voltage on the bus of greater than or equal to 125 volts D.C.

4.8.2.4.2 The above required 125-volt battery banks and chargers shall be demonstrated OPERABLE per Surveillance Requirement 4.8.2.3.2.

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3/4.8 ELECTRICAL POWER SYSTEMS

BASES

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.

Qualified offsite to onsite circuits are those that are described in the USAR and are part of the licensing basis for the plant.

An OPERABLE qualified offsite to onsite 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 essential buses.

An OPERABLE qualified offsite to onsite circuit consists of:

1. One OPERABLE 345 kV transmission line
2. One OPERABLE 345 - 13.8 kV startup transformer
3. One OPERABLE 13.8 kV bus, and
4. One OPERABLE 13.8 - 4.16 kV bus tie transformer.

Typically, the electrical power reserve source selector switches are selected to the two different startup transformers. However, under certain conditions it is appropriate to select both switches to the same startup transformer. The circuit in which the startup transformer does not have a reserve source selector switch pre-selected to it must still meet the requirements of having its 345 kV transmission line, startup transformer, 13.8 kV bus and bus tie transformer OPERABLE.

In the case where a 13.8 kV bus is powered from a startup transformer, the reserve source selector switch should be selected to the opposite startup transformer.

In MODES 1-4, if one of the required 13.8 kV - 4.16 kV bus tie transformers is inoperable, then one qualified offsite to onsite circuit is inoperable and the requirement of LCO 3.8.1.1.a is not met. The appropriate corresponding ACTION statement must be entered. The essential 4.16 kV buses remain OPERABLE while energized with one 13.8 kV - 4.16 kV bus tie transformer inoperable.

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 of each of the 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.

3/8 ELECTRICAL POWER SYSTEMS

BASES

Surveillance Requirements 4.8.1.1.2.a.4 and 4.8.1.1.2.c.4 verify proper starting of the Emergency Diesel Generators from standby conditions. Verification that an Emergency Diesel Generator has achieved a frequency of 60 Hz within the required time constraints meets the requirement for verifying the Emergency Diesel Generator has accelerated to 900 RPM.

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 facility status.

The Surveillance Requirements 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", except that certain tests will be performed at least once each REFUELING INTERVAL.

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage on float 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 4.8-1 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 .015 below the manufacturer's full charge specific gravity or a battery charger current of less than two amps 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 .020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than .010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery. Exceptions to the specific gravity requirements are taken to allow for the normal deviations experienced after a battery discharge and subsequent recharge associated with a service or performance discharge test. The specific gravity deviations are recognized and discussed in IEEE 450-1980.

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BASES

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8-1 is permitted for up to seven days. During this seven-day period: (1) the allowable value 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 .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 .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.

Summary of Licensing Basis, Surveillance Data, and Maintenance Records Review for Surveillance Requirement 4.8.1.1.1.b

1. A. Technical Specification (TS): 3/4.8.1.1, "Electrical Power Systems - A.C. Sources - Operating," Surveillance Requirement (SR) 4.8.1.1.1.b

   Note: SR 4.8.1.2 for Modes 5 and 6 references the performance of SR 4.8.1.1.1.

   B. Systems or Components:

   Offsite 345 kV Transmission Lines
   Startup Transformer 01
   Startup Transformer 02
   13.8 kV Bus A
   13.8 kV Bus B
   Bus Tie Transformer AC
   Bus Tie Transformer BD

   C. USAR Sections: 3D.1.13, Criterion 17 - Electric Power Systems
   3D.1.14, Criterion 18 - Inspection and Testing of Electric Power Systems
   8.0, Electrical Power

2. Licensing Basis Review:

   A. Technical Specification SR 4.8.1.1.1.b (4.8.1.2) requires that at least once per 18 months, during shutdown, each required qualified circuit between the offsite transmission network and the onsite Class 1E A.C. electrical power distribution system be demonstrated operable by transferring (manually and automatically) unit power supply to each of the offsite circuits. TS 4.0.2 is applicable which allows increasing the surveillance interval on a non-routine basis from 18 months to 22.5 months.

   It is proposed that in SR 4.8.1.1.1.b (4.8.1.2) the words "at least once per 18 months, during shutdown" be replaced with "at least once each REFUELING INTERVAL." A separate License Amendment Request (LAR 95-0018; DBNPS letter Serial Number 2342, dated August 7, 1996) proposes that "REFUELING INTERVAL" be defined as "a period of time $\leq$ 730 days" for the 24 month fuel cycle this is consistent with the guidance provided by Generic Letter 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. Technical Specification 4.0.2 would continue to apply which would allow increasing the new surveillance interval on a non-routine basis from 24 months to 30 months.

B. The onsite and offsite electric power systems are provided to permit functioning of structures, systems, and components important to safety. The safety function for each system, assuming the other system is not functioning, is to provide sufficient capacity and capability to assure that: (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences, and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

Each of the offsite circuits is designed to be available in sufficient time following a loss of all normal onsite alternating current power supplies and the other offsite electric power circuit, to assure that specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded. One of these circuits is designed to be available within a few seconds following a loss-of-coolant accident to assure that core cooling, containment integrity, and other vital safety functions are maintained.

Three offsite powered 345 kV lines connect the Toledo Edison transmission grid to the switchyard. The three 345 kV transmission lines access the site by two different right-of-ways. The two 345 kV transmission lines located on the same right-of-way are supported on structures set far enough apart to avoid the possibility of structural collapse of one causing an outage of both lines. The 345 kV switchyard design is a ring bus scheme with ultimate transition to a breaker-and-a-half scheme. Three overhead 345 kV lines are provided from the switchyard to the onsite station distribution system, one line to each of the two startup transformers and a third line to the main transformer. Each circuit is capable of carrying full station auxiliary loads assuming the other two circuits are not functioning.

The normal supply to the onsite distribution system during reactor power operation is the main generator via the unit auxiliary transformer. The reserve electrical power supply and the startup electrical power sources are the two startup transformers. Normally each startup transformer is the reserve power source to one of the two 13.8 kV busses of the onsite distribution system. The transfer of a 13.8 kV bus between the three sources can be accomplished either manually or automatically. If either startup transformer is out-of-service the remaining transformer will be available, by manual pre-selection via the reserve source selector switches, to automatically supply both busses should the normal source fail. Offsite power is also available by manually removing the generator disconnect links permitting backfeed through the main transformer to the unit auxiliary transformer. The standby emergency power supply is provided by the two Emergency Diesel Generators (EDGs).

Power supply to the 4.16 kV system is from two 12/16 MVA bus tie transformers (XFMR AC and XFMR BD) which step down the voltage from 13.8 kV to 4.16 kV. Each bus tie transformer normally supplies one essential and one nonessential 4.16 kV bus and is available as a reserve source for the other two 4.16 kV busses.

The capacities of the transformers and circuit breakers are sufficient to permit full station operation with one bus tie transformer out of service. Each essential 4.16 kV bus is provided with a fast bus transfer scheme which will transfer the bus from its normal source to an alternate source of power.

The loss of all A.C. power or station blackout accident has been analyzed in USAR Section 14.2.9, "Loss of all AC Power to the Station Auxiliaries (Station Blackout)." The accident analysis shows that the loss of all A.C. power does not result in excessive pressure in the Reactor Coolant System (RCS) and the natural circulation characteristics of the RCS will assure core decay heat removal and a minimum core DNBR greater than 1.30.

C. The current surveillance interval of 18 months was based on the guidance of NUREG-0103, Revision 0, June 1, 1976, "Standard Technical Specifications for Babcock and Wilcox Pressurized Water Reactors," during the initial licensing of the DBNPS. As discussed above the proposed changes follow the guidance of Generic Letter 91-04.

D. As a result of the above review, it is concluded that the licensing basis for SR 4.8.1.1.1.b (4.8.1.2)will not be invalidated by increasing the surveillance interval for SR 4.8.1.1.1.b (4.8.1.2) from 18 months to 24 months and by continuing to allow the application of TS 4.0.2 on a non-routine basis.

E. References:

i. Davis-Besse Nuclear Power Station (DBNPS) Unit No. 1, Operating License NPF-3, Appendix A, Technical Specifications, through Amendment 21.

ii. Generic Letter 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991.

iii. "Standard Technical Specifications for Babcock and Wilcox Pressurized Water Reactors," NUREG-0103, Revision 0, dated June 1, 1976.

iv. NUREG-0136, Safety Evaluation Report for the Davis-Besse Nuclear Power Station, dated December 1976 and Supplement No. 1.

v. DBNPS Updated Safety Analysis Report Section 3D.1.13.

vi. DBNPS Updated Safety Analysis Report Section 3D...14.

vii. DBNPS Updated Safety Analysis Report Section 8.0.

viii. DBNPS Updated Safety Analysis Report Section 15.2.9.

3. Surveillance Data Review:

A. The 18 month surveillance test results for the subject surveillance requirement were reviewed for the period of the Fifth Refueling Outage (5RFO) through the Ninth Refueling Outage (9RF0). This time period was selected because it reflects the major plant improvements after June 1985, and covers five refueling outages and four operating cycles of test results.

B. The 18 month surveillance test results indicate no failures that resulted in the equipment being Technical Specification inoperable over the time period of the review.

C. Based on the review of the 18 month surveillance test results, no additional actions are necessary or recommended to support the increase in the present surveillance interval. As a means of demonstrating operability more frequently existing SR 4.8.1.1.1.a requires that the correct breaker alignments and indicated power availability be verified every 7 days for the qualified circuits between the offsite transmission network and the onsite class 1E A.C. distribution system. This SR is not affected by the proposed change. In addition, continuous normal operation of selected service water and component cooling water pumps on the 4160 essential busses, of selected containment air cooler fans on 480 volt essential busses, and operation of the reactor protection system, safety features actuation system and radiation monitoring system on the 120 volt A.C. essential instrumentation busses will indicate essential power availability.

D. Based on the historical good performance of the these components, the low potential for significant increases in failure rates of these components under a longer test interval, and the introduction of no new failure modes, it is concluded that it is acceptable to increase the surveillance interval for Technical Specification SR 4.8.1.1.1.b (4.8.1.2) from 18 months to 24 months and that there is no adverse effect on nuclear safety. Furthermore, it remains acceptable to allow the continued application of TS 4.0.2 on a non-routine basis.

E. References:

i. DBNPS Procedure DB-SC-03020, 13.8 kV System Bus A and B Transfer Test, Revision 1 and later.

DBNPS Procedure DB-SC-03020, 13.8 kV System Bus A Transfer Test, Revision 0.

DBNPS Procedure DB-SC-03021, 13.8 kV System Bus B Transfer Test, Revision 0.

ii. DBNPS Procedure DB-SC-03022, Offsite A.C. Sources Bus Transfer Test

4. Maintenance Records Review:

A. The 18 month maintenance records for the components were reviewed for the period of 5RFO through 9RFO. This time period was selected because it reflects the major plant improvements after June 1985, and covers five refueling outages and four operating cycles of maintenance activities. The only applicable 18 month maintenance activity is to clean and inspect the 13.8 kV busses. The remaining maintenance is normally performed on-line.

B. The maintenance records indicate no failures or excessive wear items that resulted in the equipment being Technical Specification inoperable over this time period.

C. Based on the review of the maintenance records, no additional actions are necessary or recommended to support the increase in the surveillance interval from 18 months to 24 months.

D. The maintenance history indicates the equipment is at a good level of cleanliness. Increasing the cleaning and inspection activity to 24 months does not induce any component failure mechanisms. The equipment has operated reliably for the period of review. The service level of the equipment has not changed, therefore there is no potential for significant increases in failure rates. No equipment or operating parameters are being changed, therefore there are no new failure modes introduced.

This equipment is designed for continuous service and has redundancy built in for on-line maintenance and reliable operation. On-line breaker maintenance and thermographic inspections provide a means of detecting and correcting emergent problems to maintain continued reliability.

Based on the historical good performance of these components, the low potential for significant increases in failure rates, and the introduction of no new failure modes it is concluded that it is acceptable to increase the surveillance interval for TS 4.8.1.1.1.b (4.8.1.2) from 18 months to 24 months and that there is no adverse effect on nuclear safety. Furthermore, it remains acceptable to allow the continued application of TS 4.0.2 on a non-routine basis.

E. References:

i. DBNPS Maintenance Work Order Records.

Summary of Licensing Basis, Surveillance Data, and Maintenance Records Review for Surveillance Requirement 4.8.1.1.2.d

1. A. Technical Specification (TS) 3/4.8.1.1, "Electrical Power Systems - A.C. Sources - Operating," Surveillance Requirement (SR) 4.8.1.1.2.d

   Note: SR 4.8.1.2 for Modes 5 and 6 references SR 4.8.1.1.2.

   B. Systems or Components:

      Emergency Diesel Generator 1
      Emergency Diesel Generator 2

   C. USAR Sections: 3D.1.13, Criterion 17 - Electric Power Systems
      3D.1.14, Criterion 18 - Inspection and Testing of Electric Power Systems
      8.0, Electrical Power

2. Licensing Basis Review:

   A. Technical Specification SR 4.8.1.1.2.d (4.8.1.2) requires that each Emergency Diesel Generator (EDG) be demonstrated operable at least once per 18 months during shutdown by: 1) verifying the EDG capability to reject a load equal to the largest single emergency load without tripping; 2) simulating a loss of offsite power in conjunction with a Safety Features Actuation System (SFAS) test signal, and: a) verifying de-enerization of the essential busses and load shedding from the essential busses, b) verifying the EDG starts from ambient condition on the auto-start signal, energizes the essential busses with permanently connected loads, energizes the auto-connected essential loads through the load sequencer and operates for $\geq$ 5 minutes while the generator is loaded with the essential loads, and c) verifying that all EDG trips, except engine overspeed and generator differential, are automatically bypassed upon loss of voltage on the essential bus and/or an SFAS test signal; 3) verifying that the EDG operates for $\geq$ 60 minutes while loaded to $\geq$ 2000 kW; and 4) verifying that the auto-connected loads do not exceed the 2000 hour rating of 2838 kW. Technical Specification 4.0.2 is applicable which allows increasing the surveillance interval on a non-routine basis from 18 months to 22.5 months.

      It is proposed that in SR 4.8.1.1.2.d (4.8.1.2) the words "at least once per 18 months, during shutdown" be replaced with "at least once each REFUELING INTERVAL." A separate License Amendment Request (LAR 95-0018; DBNPS letter Serial Number 2342, dated August 7, 1996) proposes that "REFUELING INTERVAL" be defined as "a period of time $\leq$ 730 days" for the 24 month fuel cycle. This is consistent with the guidance provided by Generic Letter 91-04, "Changes in Technical Specification Surveillance Intervals

to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. Technical Specification 4.0.2 would continue to apply which would allow increasing the new surveillance interval on a non-routine basis from 24 months to 30 months.

B. The safety function of the EDGs is to provide highly reliable, independent sources of power to the various components necessary for the Engineered Safety Features (ESF) systems to function as assumed in the USAR. The safety function of the ESF systems is to protect the fuel cladding, ensure Containment Vessel integrity, and reduce the driving force for containment leakage in the event of an accident. As described in the USAR, the starting and loading of one EDG is adequate to satisfy the minimum ESF requirements.

The two redundant EDGs, one connected to essential 4.16 kV bus C1 and the other to essential 4.16 kV bus D1, are provided as onsite standby power sources to supply their respective essential busses upon loss of the normal (station transformer) and the reserve (offsite) power sources. Bus load shedding and isolation, bus transfer to the EDG, and pick up of critical loads is automatic. Each EDG is a General Motors Electro-Motive diesel generator and has a continuous rating of 2600 kW. The EDGs are located in separate, adjacent rooms in the seismic Class I Auxiliary Building.

The EDGs are not an initiator, nor a contributor, to the initiation of an accident described in the USAR. The loss of all A.C. power or station blackout accident has been analyzed in USAR Section 15.2.9, "Loss of all AC Power to the Station Auxiliaries (Station Blackout)." The accident analysis shows that the loss of all A.C. power does not result in excessive pressure in the Reactor Coolant System (RCS) and the natural circulation characteristics of the RCS will assure core decay heat removal and a minimum core DNBR greater than 1.30.

C. The current 18 month surveillance interval for SR 4.8.1.1.2.d was based on the guidance of NUREG-0103, Revision 0, June 1, 1976, "Standard Technical Specifications for Babcock and Wilcox Pressurized Water Reactors," during the initial licensing of the DBNPS.

Current SR 4.8.1.1.2.e, which is not affected by this License Amendment Request, for inspection of the EDGs was revised from a 18 months during shutdown interval to a 30 month interval by License Amendment No. 141 to Facility Operating License No. NPF 3, for the Davis-Besse Nuclear Power Station, Unit No. 1, dated December 22, 1989.

As discussed above, the proposed changes follow the guidance of Generic Letter 91-04.

D. As a result of the above review, it is concluded that the licensing basis for SR 4.8.1.1.2.d (4.8.1.2) will not be invalidated by increasing the surveillance interval for SR 4.8.1.1.2.d (4.8.1.2) from 18 months to 24 months and by continuing to allow the application of TS 4.0.2 on a non-routine basis.

E. References:

i. Davis-Besse Nuclear Power Station (DBNPS) Unit No. 1, Operating License NPF-3, Appendix A, Technical Specifications, through Amendment 211.

ii. Generic Letter 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991.

iii. "Standard Technical Specifications for Babcock and Wilcox Pressurized Water Reactors," NUREG-0103, Revision 0, dated June 1, 1976.

iv. NUREG-0136, Safety Evaluation Report for the Davis-Besse Nuclear Power Station, dated December 1976 and Supplement No. 1.

v. DBNPS Updated Safety Analysis Report Section 3D.1.13.

vi. DBNPS Updated Safety Analysis Report Section 3D.1.14.

vii. DBNPS Updated Safety Analysis Report Section 8.0.

viii. DBNPS Updated Safety Analysis Report Section 15.2.9.

ix. License Amendment No. 141 to Facility Operating License No. NPF 3, for the Davis-Besse Nuclear Power Station, Unit No. 1, dated December 22, 1989.

3. Surveillance Data Review:

A. The 18 month TS surveillance test results data for the Emergency Diesel Generators (EDG 1-1 and EDG 1-2) and the Safety Features Actuation System Sequencers, as they apply to SR 4.8.1.1.2.d (4.8.1.2), were reviewed for the period of 5RFO through 9RFO. This time period was selected because it reflects the major plant improvements after June 1985, and covers five refueling outages and four operating cycles of test results.

B. The test results indicate three failures over this time period for these components.

In March, 1988, two of four sequencer relays failed, causing sequencer channels 1 and 2 to be inoperable. The root cause of the failures was determined to be internal rust caused by a loss

of the nitrogen blanket within the relays. It was suspected that air intrusion occurred during the manufacturing process prior to sealing the relays. The relays were replaced and subsequent post-maintenance testing was satisfactory. A biweekly preventive maintenance (PM) activity was established to verify that the four sequencer relays are properly energized and ready to perform their intended safety function. Additionally as an enhancement, the four relays are replaced each refueling period. There have been no sequencer relay failures since March, 1988.

In October, 1991, EDG 1 failed to reach rated voltage during the SFAS Integrated Time Response Test due to a degraded field flash contactor. The contactor degradation was due to an oxidation or film build-up on an auxiliary contact which prevented the contactor coil from picking-up in sufficient time. The degradation was intermittent, and the cause was not determined until the November, 1991 monthly surveillance test. The contactor was replaced at that time. The field flash contactor and a similar field shorting switch are now timed each refueling period to note any future degradation. No further EDG start failures have occurred as a result of these contactors. It should be noted that although this degradation was discovered during an 18 month test, it would have also been discovered during monthly EDG surveillance testing.

C. Based on a review of the 18 month surveillance test results data, no additional actions are necessary or recommended to support this increase in the present surveillance interval. The EDGs are tested on a 31 day frequency and a 184 day frequency by existing SRs 4.8.1.1.2.a and c, which provide determinations of operability. These SRs are not affected by the proposed change.

D. Based on the historical good performance of these components, the low potential for significant increases in failure rates of these components under a longer test interval, and the introduction of no new failure modes, it is concluded that it is acceptable to increase the surveillance interval for TS 4.8.1.1.2.d (4.8.1.2) from 18 to 24 months and that there is no adverse effect on nuclear safety. Furthermore, it remains acceptable to allow the continued application of TS 4.0.2 on a non-routine basis.

E. References:

i. DBNPS Procedure DB-SC-03114, SFAS Integrated Time Response Test.

ii. DBNPS Procedure DB-SC-03080 (03081), Diesel Generator 1 (2), Overspeed Trip Test.

iii. DBNPS Procedure DB-SC-03070 (03071), Emergency Diesel Generator 1 (2) Monthly Test.

iv. Potential Condition Adverse to Quality (PCAQ) Reports 88-0181, 88-0182, and 91-0584.

4. Maintenance Records Review:

A. The 18 month maintenance records for the Emergency Diesel Generators (EDG 1-1 and EDG 1-2) were reviewed for the period of 5RFO through 9RFO. This time period was selected because it reflects the major plant improvements after June 1985, and covers five refueling outages and four operating cycles of maintenance activities.

B. Refueling interval preventive maintenance (PM) activities to date have not revealed any abnormal component degradations or other anomalies which would indicate that a 24 month surveillance interval would be inappropriate. The required maintenance on the EDGs is governed by the Owners Group program. This program is written for 18 or 24 month refueling intervals and specific guidance is given to change intervals where necessary for those utilities who perform EDG maintenance during refueling intervals. With the issuance of Amendment 206 to Facility Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station, Unit No. 1, dated February 26, 1996, the DBNPS has the ability to perform PM activities on-line during a 7-day allowed outage time. Commencing with the tenth refueling outage all PM activities on the EDGs will now normally be performed with the plant on-line and PM activity intervals can be revised to a more frequent interval if required.

C. Based on the above review, no additional actions are necessary or recommended to support this increase in the present surveillance interval.

D. Based on the historical good performance of these components, the low potential for significant increases in failure rates of these components under a longer test interval, and the introduction of no new failure modes, it is concluded that it is acceptable to increase the surveillance interval for TS 4.8.1.1.2.d (4.8.1.2) from 18 to 24 months and that there is no adverse effect on nuclear safety. Furthermore, it remains acceptable to allow the continued application of TS 4.0.2 on a non-routine basis.

E. References:

i. EMD PS-Owners Group "Recommended Maintenance Program"

ii. NRC License Amendment No. 206 to Facility Operating License No. NPF-3, dated February 26, 1996 (Toledo Edison Log Number 4795).

Summary of Licensing Basis, Surveillance Data, and Maintenance Records Review for Surveillance Requirements 4.8.2.3.2.c, d, e and f

1. A. Technical Specification (TS) 3/4.8.2.3, "D.C. Distribution - Operating," Surveillance Requirements (SR) 4.8.2.3.2.c, d,e and f, and Bases 3/4.8, "Electrical Power System"

Note: The battery charger testing required in current SR 4.8.2.3.2.c is normally performed with the plant on-line and will continue to be performed on an 18 month frequency. Therefore, a review of the licensing basis, surveillance data and maintenance records was not performed.

SR 4.8.2.4.2 for Modes 5 and 6 references SR 4.8.2.3.2

B. Systems or Components:

D.C. Distribution System

C. USAR Sections: 3D.1.13, Criterion 17 - Electric Power Systems
3D.1.14, Criterion 18 - Inspection and Testing of Electric Power Systems
8.0, Electrical Power

2. Licensing Basis Review

A. Technical Specification SR 4.8.2.3.2.c requires that at least once per 18 months each 125-volt battery and charger shall be demonstrated operable by verifying: 1) the cells, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration; 2) the cell-to-cell and terminal connections are clean, tight and coated with anti-corrosion material; 3) the resistance of each cell-to-cell and terminal connection is less than or equal to 150 E-6 Ohms; and 4) the battery charger will supply at least 475 amperes at a minimum of 130 volts for at least 8 hours.

Technical Specification SR 4.8.2.3.2.d requires that at least once per 18 months, during shutdown, the 125-volt batteries be verified operable by verifying that the battery capacity is adequate to supply and maintain in operable status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test.

Technical Specification SR 4.8.2.3.2.e requires that at least once per 60 months, during shutdown, the batteries are verified operable by verifying that battery capacity is at least 80% on the manufacturer's rating when subjected to a performance discharge test. Once per 60 month interval the performance discharge test may be performed in lieu of the battery service test.

Technical Specification SR 4.8.2.3.2.f requires that the batteries be verified operable every 18 months, during shutdown, through performance discharge tests given to any battery that

shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

Technical Specification 4.0.2 is applicable to each of these surveillance requirements which allows increasing the surveillance interval on a non-routine basis from 18 months to 22.5 months.

To reflect the intent to continue to perform current TS SR 4.8.2.3.2.c.4 on an 18 month interval, but to perform current TS SRs 4.8.2.3.2.c.1, 2, and 3 each REFUELING INTERVAL, it is proposed to relocate SR 4.8.2.3.2.c.4 into SR 4.8.2.3.2.c, rewording SR 4.8.2.3.2.c as follows:

> "c. At least once per 18 months by verifying that the battery chargers will supply at least 475 amperes at a minimum of 130 volts for at least 8 hours; and at least once each REFUELING INTERVAL by verifying that:"

In addition, it is proposed that: in TS SR 4.8.2.3.2.d the words "At least once per 18 months, during shutdown" be replaced with "At least once each REFUELING INTERVAL;" in SR 4.8.2.3.2.e the words "during shutdown" be deleted; and in SR 4.8.2.3.2.f the words "Every 18 months, during shutdown" be replaced with "Every REFUELING INTERVAL;" and in SR 4.8.2.3.2.c the words "at least once per 18 months" be replaced with "at least once each REFUELING INTERVAL."

A separate License Amendment Request (LAR 95-0018; DBNPS letter Serial Number 2342, dated August 7, 1996) proposes that "REFUELING INTERVAL" be defined as "a period of time ≤ 730 days" for the 24 month fuel cycle. This is consistent with the guidance provided by Generic Letter 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. Technical Specification 4.0.2 would continue to apply which would allow increasing the new surveillance interval on a non-routine basis from 24 months to 30 months.

B. The Davis-Besse Nuclear Power Station (DBNPS) D.C. power system is described in the Updated Safety Analysis Report (USAR) Section 8.3.2, "DC Power System." The DBNPS D.C. equipment consists of two 250/125V D.C. motor control centers, four batteries, six battery chargers, four essential distribution panels, four 480V A.C./125V D.C. rectifiers and four nonessential distribution panels.

The four station lead-acid batteries are 125V D.C., approximately 1500 ampere-hour, on an eight hour discharge basis, and arranged to form two independent 250/125V D.C. systems. The batteries have a one minute, 1 hour and 8 hour capacity of 1400, 750, and 187

amperes respectively. Each battery is maintained in a fully charged condition and is normally float charged at approximately 132 volts from its associated battery charger. Battery discharge will occur either when the D.C. requirements temporarily exceed the charger capacity or during a loss of a battery charger supply. Each battery is connected to one 125V D.C. bus of one of the two D.C. motor control centers.

The batteries are sized to supply the anticipated D.C. and instrument A.C. supply for a period of one hour after the loss of the battery charger supply. This includes approximately 20% over capacity to compensate for the loss due to aging of the batteries over a 20 year period. Loads for each battery are listed in USAR Section 8.3.2.1.2, "Station Batteries."

The batteries are located in separate rooms in the Seismic Class I Auxiliary Building. Each battery room has fire walls and is served by an independent Class 1E ventilation system.

The batteries are not an initiator, nor a contributor, to the initiation of an accident described in the USAR. The loss of all A.C. power or station blackout accident has been analyzed in USAR Section 15.2.9, "Loss of all AC Power to the Station Auxiliaries (Station Blackout)" and does assume the station batteries function to provide D.C. power. The accident analysis shows that the loss of all A.C. power does not result in excessive pressure in the Reactor Coolant System (RCS) and the natural circulation characteristics of the RCS will assure core decay heat removal and a minimum core DNBR greater than 1.30.

C. The current surveillance interval of 18 months was based on the guidance of NUREG-0103, Revision 0, June 1, 1976, "Standard Technical Specifications for Babcock and Wilcox Pressurized Water Reactors," during the initial licensing of the DBNPS. Surveillance Requirements 4.8.2.3.2.c.3 and 4.8.2.3.2.f were added by Amendment No. 100 to Facility Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station, Unit No. 1, dated March 12, 1987 with the 18 month surveillance interval incorporated for these SRs. As discussed above, the proposed changes follow the guidance of Generic Letter 91-04.

The current interval of 60 months during shutdown for SR 4.8.2.3.2.e was based on the guidance of NUREG-0103, Revision 0, June 1, 1976, "Standard Technical Specifications for Babcock and Wilcox Pressurized Water Reactors," during the initial licensing of the DBNPS. The allowance that the performance discharge test may be performed in lieu of the battery service test once per 60 month interval was added by Amendment No. 100. The restriction "during shutdown" is being deleted in accordance with Generic Letter 91-04 wherein the NRC staff concluded that the TS need not restrict surveillances as only being performed during shutdown, and that licensees are to give proper regard for performing

refueling interval surveillances during power operation or during another mode that is consistent with the safe conduct of that surveillance.

Regulatory Guide 1.129, "Maintenance, Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," dated February 1978, and IEEE Standard 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations," recommend testing of the batteries on an annual or 18 month frequency. It is proposed that TS Bases 3/4.8, Electrical Power Systems, be revised to note an exception to these test frequencies, thereby revising the licensing basis.

D. As a result of the above review, it is concluded that the licensing basis for SRs 4.8.2.3.2.c, d and f (4.8.2.4.2) will not be invalidated by increasing the surveillance interval for SRs 4.8.2.3.2.c, d and f (4.8.2.4.2) from 18 months to 24 months and by continuing to allow the application of TS 4.0.2 on a non-routine basis. Further, the licensing basis for SR 4.8.2.3.2.e will not be invalidated by deletion of the "during shutdown" restriction for conducting the performance discharge test.

E. References:

i. Davis-Besse Nuclear Power Station (DBNPS) Unit No. 1, Operating License NPF-3, Appendix A, Technical Specifications, through Amendment 211.

ii. Generic Letter 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991.

iii. "Standard Technical Specifications for Babcock and Wilcox Pressurized Water Reactors," NUREG-0103, Revision 0, dated June 1, 1976.

iv. NUREG-0136, Safety Evaluation Report for the Davis-Besse Nuclear Power Station, dated December 1976 and Supplement No. 1.

v. DBNPS Updated Safety Analysis Report Section 3D.1.13.

vi. DBNPS Updated Safety Analysis Report Section 3D.1.14.

vii. DBNPS Updated Safety Analysis Report Section 8.0.

viii. DBNPS Updated Safety Analysis Report Section 15.2.9.

ix. NRC License Amendment No. 100 to Facility Operating License No. NPF-3, dated March 12, 1987 (Toledo Edison Log Number 2232).

3. Surveillance Data Review:

A. The surveillance test results data for the station batteries were reviewed for the period of January 1990, (6RFO), through October 1994, (9RFO). Station batteries 1N and 1P were replaced in September 1988, during 5RFO. Station batteries 2P and 2N were replaced in January 1990, during 6RFO. The batteries were replaced because they were at their end of life.

B. The battery test results indicated no failures over the time period indicated for these components.

C. Battery capacity (or life) is based on the number of discharge cycles, which includes testing. The DBNPS's batteries are cycled very little due to their application. Testing has indicated that the battery capacities have exceeded the manufacturer's ratings. There has been no degradation indicated by past testing.

D. The performance of the chargers and batteries have had good-to-excellent surveillance test performance. There have been no failures experienced.

There is negligible potential for increase in failures of the batteries due to the longer test interval.

New failure modes will not be introduced with the 24 month surveillance interval. The station batteries will not significantly degrade by more than 10% of noted capacity from the average of previous tests with the additional 6 month period between tests. This is based on results data reviewed from previous tests. The 24 month surveillance interval will allow adequate trending to ensure battery replacement before failure. It is concluded therefore, that it is acceptable to increase the surveillance interval for TS 4.8.2.3.2.c.1, 2 and 3 and TS 4.8.2.3.2.d and f from 18 months to 24 months and that there is no adverse effect on nuclear safety. Furthermore, it remains acceptable to allow the continued application of TS 4.0.2 on a non-routine basis.

E. References:

i. DBNPS Procedure DB-ME-03001, Station Battery Quarterly Surveillance.

ii. DBNPS Procedure DB-ME-03002, Station Battery Service and Performance Discharge Test.

iii. DBNPS Procedure DB-ME-03003, Station Battery Charger Test.

iv. System Performance Book for SUS002-01.

4. Maintenance Records Review:

A. Maintenance 18-month records for the station batteries were reviewed for the period of January 1990 (6RFO) through October 1994 (9RFO). The reason the battery maintenance records were reviewed for this time period is because the batteries were replaced during 5RFO and 6RFO because they were at their end of life.

B. There have been no indications of battery failures that resulted in the components being Technical Specification inoperable. There was no excessive wear on the batteries for the time period reviewed.

C. There are no additional actions necessary or recommended to support an increase in the present Technical Specification surveillance interval from 18 months to 24 months.

D. The 18 month maintenance history observations have indicated no failures or significant component degradations.

The 18 month battery PM activities are actually performed quarterly per DBNPS procedure as required by Technical Specification 4.8.2.3.2.b. Therefore, there is no potential for increases in failure rates of the batteries with the longer test interval.

There will be no introduction of any new failure modes with the longer test intervals. It is concluded therefore, that it is acceptable to increase the surveillance interval for TS 4.8.2.3.2.c.1, 2 and 3 and TS 4.8.2.3.2.d and f from 18 months to 24 months and that there is no adverse effect on nuclear safety.

Furthermore, it remains acceptable to allow the continued application of TS 4.0.2 on a non-routine basis.

E. References:

i. System Performance Book for SUS002-01.

ii. Battery 18-month PMs 0710 through 0713.