

TECHNICAL SPECIFICATION CHANGE REQUEST 156
SAFETY EVALUATION

INTRODUCTION

Wisconsin Electric Power Company (Licensee) is applying for amendments to Facility Operating License DPR-24 and DPR-27 for Point Beach Nuclear Plant, Units 1 and 2. The requested amendments propose changes to add operating conditions, limiting conditions for operation (LCOs), and surveillances for the 120 VAC vital instrument bus system and diesel fuel oil system. This change also proposes a surveillance for the diesel generator room exhaust fans and proposes a revision to eliminate the daily testing requirement when one diesel generator is inoperable. The basis for Section 15.3.7 is also being revised to support these changes and also remove an administrative error.

EVALUATION

The function of the diesel fuel oil system is to receive, store, and distribute fuel oil in support of the operation of those components requiring the fuel oil as an energy source. The fuel oil is presently sampled upon receipt and periodically thereafter, and is analyzed for viscosity, water content, and sediment. Emergency fuel tank level can be maintained by gravity feed from the bulk storage tanks. Oil from the emergency fuel tank is automatically supplied through two fuel oil transfer pumps to maintain the required level in the diesel generator day tanks and manually supplied to the heating boiler and diesel fire pumps as required. All tanks are provided with high and low level alarms to alert the operator to an unusual condition. Since an adequate source of fuel oil is required to ensure the availability of the diesel generators to shut down the reactor and maintain it in a safe condition after a design basis accident, the fuel oil supply system associated with each diesel generator is required to be operable. The operability of the fuel oil supply system will be verified monthly in conjunction with the diesel generator's periodic tests. This surveillance frequency is consistent with the Westinghouse Owner's Group (WOG) Improved Standard Technical Specifications, Revision 0 (hereinafter referred to as WOG STS). In addition, a diesel fuel oil testing program will be maintained to test both new fuel oil and stored fuel oil in the emergency fuel oil tank on a quarterly frequency. This surveillance frequency is consistent with Rochester Gas and Electric Corporation's Ginna Station Technical Specifications.

The fuel oil transfer pumps take suction from the emergency fuel oil tank and transport the fuel to the diesel generator day tanks. Since the fuel oil transfer pumps are required for fuel transport to the diesel day tanks, the fuel oil transfer pumps must be operable to provide fuel oil supply system operability. Therefore, the requirement for fuel oil transfer pump operability is inherent in the requirement for fuel oil supply system operability.

Operability of the fuel oil transfer pumps will be verified monthly in conjunction with the monthly fuel oil system operability verification. This frequency is consistent with the WOG STS.

The diesel generator day tanks and diesel generator base-mounted fuel tanks have a combined capacity of 1130 gallons per diesel generator which is sufficient to support operation of their associated diesel generator at rated load for at least 5 hours. Therefore, one fuel oil transfer pump may be inoperable for up to 4 hours due to the 5 hour fuel oil reserve in the diesel generator day and base-mounted fuel tanks. A fuel oil transfer pump inoperable for greater than 4 hours will require declaring the associated diesel generator inoperable. A separate LCO for fuel oil transfer pumps is not addressed in the WOG STS or previous revisions of the Westinghouse Standard Technical Specifications.

A Nuclear Power Department calculation of the diesel generator room steady state temperature was recently performed. The calculation assumed design outside air conditions, the diesel manufacturer's suggested heat loading, and worst case actual air flow conditions through the diesel generator room. The calculation indicated that, with the conditions assumed, the diesel generator room exhaust fans must be operable in order to ensure the steady state temperature for the emergency diesel generator room remains below the manufacturer's recommended allowable temperature of 120°F. Therefore, a surveillance is proposed to verify operability of the diesel generator room exhaust fans on a monthly frequency. A specific surveillance for diesel generator room ventilation is not addressed in the WOG STS or previous revisions of the Westinghouse Standard Technical Specifications.

The 120 VAC vital instrument bus electrical system supplies power to vital plant instrumentation and provides power for vital control functions. This system also provides reliable power to the reactor protection system. Maintaining the AC vital bus electrical power distribution systems operable ensures that the redundancy incorporated into the design of engineered safety features is not defeated. With proper maintenance of these systems, a single failure within any system or within the electrical power distribution subsystems will not prevent safe shutdown of the reactor. Therefore, 120 VAC vital Instrument Buses Y01, Y02, Y03, Y04, Y101, Y102, Y103, and Y104 are required to be energized from their most reliable sources which are either their normal or alternate inverters. If one inverter is rendered inoperable during power operation of one or both reactors and the associated loads automatically transfer to a non-inverter power source, the loads shall be transferred back to an operable inverter within 8 hours or be in hot shutdown within an additional 6 hours and cold shutdown within an additional 36 hours. The 8 hour LCO is considered reasonable since 8 hours may be required to troubleshoot and shift all loads back to an inverter depending on the scope of the problem and personnel availability. The above LCO is consistent with the Prairie Island Nuclear Generating Plant Technical Specifications. The 120 VAC vital instrument buses will be verified as energized in

the required manner at least once per shift by verifying correct static transfer switch alignment and indicated voltage on the buses. This surveillance will be performed in conjunction with normal control room shift log-taking and its frequency is more conservative than the weekly frequency specified in Revision 5 of the Westinghouse Standard Technical Specifications.

Technical Specification 15.3.7.B.1.g states that during power operation of one or more reactors, one diesel generator may be inoperable for a period not exceeding 7 days provided the other diesel generator is tested daily to ensure operability and the engineered safety features associated with this diesel generator shall be operable. Recent NRC guidance (NUREG-1366) suggests that the number of diesel generator tests be greatly curtailed because studies show that testing too frequently is counterproductive to safety in terms of equipment availability and degradation. Given the demonstrated high reliability of our diesel generators, it is considered prudent to reduce the amount of wear induced in the diesel generator due to excessive testing. Therefore, if a diesel generator is taken out of service for maintenance, this change proposes that the diesel generator be allowed to be inoperable for a period not exceeding 7 days provided the other diesel generator is load tested to each unit within 24 hours prior to taking that diesel generator out of service. This change also allows the 7 day LCO period when one diesel generator is discovered to be inoperable provided the other diesel generator is load tested to each unit within 24 hours after the diesel generator is discovered to be inoperable. In addition to the above requirements, the engineered safety features associated with the operable diesel generator must have previously passed their required periodic surveillance tests. This diesel operability proof test is sufficient to satisfy the testing requirements for the other train diesel and to determine if a common-mode failure mechanism exists that would render the other diesel generator inoperable. Although NUREG-1366 recommends that the operable diesel generator be tested within 8 hours, we believe that the 24-hour requirement is conservative and is consistent with our existing daily (or every 24 hours) diesel generator testing requirement.

CONCLUSIONS

In summary, the proposed changes contained in this package will put additional controls in place making the Point Beach Technical Specifications more complete. Also, we propose to relax the daily testing requirement for the emergency diesel generators which should result in increased equipment reliability and reduce wear in accordance with recent NRC guidance. The time intervals specified for these additional items are consistent with Revision 5 of the Westinghouse Standard Technical Specifications, WOG Improved Standard Technical Specifications (NUREG-1431), NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements", technical specifications of nuclear plants similar to Point Beach, or with current Point Beach Nuclear Plant practices. Therefore, the proposed revisions will ensure and enhance the continued safe operation of Point Beach Nuclear Plant.

TECHNICAL SPECIFICATION CHANGE REQUEST 158
"NO SIGNIFICANT HAZARDS CONSIDERATION"

In accordance with the requirements of 10 CFR 50.91(a), Wisconsin Electric Power Company (Licensee) has evaluated the proposed changes against the standards of 10 CFR 50.92 and has determined that the operation of Point Beach Nuclear Plant, Units 1 and 2, in accordance with the proposed amendments, does not present a significant hazards consideration. The analysis of the requirements of 10 CFR 50.92 and the basis for this conclusion are as follows:

1. Operation of this facility under the proposed technical specification change will not create a significant increase in the probability or consequences of an accident previously evaluated. The proposed changes add operating conditions and limiting conditions for operation (LCOs) and surveillances for the 120 VAC vital instrument bus system and diesel fuel oil system. This change also proposes a surveillance for the diesel generator room exhaust fans and a revision to eliminate the daily testing requirement when one diesel generator is inoperable. The basis for Section 15.3.7 is also being revised to support the above changes and also to remove an administrative error. With the exception of the proposed removal of the daily diesel generator testing requirements, the above revisions add additional requirements to the Technical Specifications, making the document more restrictive and enhancing the overall operation of Point Beach Nuclear Plant.

The only revision that will relax existing requirements is the proposed revision to eliminate the daily testing of the emergency diesel generators when one diesel generator is inoperable. Rather than test the operable diesel generator daily when one diesel is inoperable, the operable diesel would be tested only once during the seven day period to determine if a common failure mode existed for both diesel generators. If a diesel generator is removed from service for maintenance, the other diesel generator will be tested prior to taking the diesel generator out of service to ensure operability. Although the operable diesel would be tested for operability less often, the initial common-mode failure test would be sufficient to ensure that the remaining diesel was operable and verify that the failure mode which caused inoperability in one diesel generator did not affect the other diesel. Also, testing the operable diesel generator less frequently will reduce the amount of wear induced in the diesel generators which could increase their reliability, and is consistent with NUREG-1366.

The installation of the static transfer switches in the 120 VAC vital instrument bus system was performed in accordance with 10 CFR 50.59. Although not required for the installation of the plant modification, the addition of the LCOs and surveillance for the 120 VAC vital instrument bus system is proposed to further enhance the reliability and operation of the system.

Since there is no physical change to the facility, its systems, or its operation as a result of this technical specification change request, the proposed changes will not create a significant increase in the probability or consequences of an accident previously evaluated.

2. Operation of this facility under the proposed technical specification change will not create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed changes add operating conditions and limiting conditions for operation (LCOs) and surveillances for the 120 VAC vital instrument bus system and diesel fuel oil system. This change also proposes a surveillance for the diesel generator room exhaust fans and a revision to eliminate the daily testing requirement when one diesel generator is inoperable. The basis for Section 15.3.7 is also being revised to support the above changes and also to remove an administrative error. With the exception of the proposed removal of the daily diesel generator testing requirements, the above revisions add additional requirements to the Technical Specifications, making the document more restrictive and enhancing the overall operation of Point Beach Nuclear Plant. The only revision that will relax existing requirements is the proposed revision to eliminate the daily testing of the emergency diesel generators when one diesel generator is inoperable. This is consistent with recent NRC guidance and supported by the demonstrated high reliability of our diesel generators.

The installation of the static transfer switches in the 120 VAC vital instrument bus system was performed in accordance with 10 CFR 50.59. Although not required for static transfer switch installation, the addition of the LCOs and surveillance for the 120 VAC vital instrument bus system is proposed to further enhance the reliability and operation of the system. The static transfer switches were installed to transfer loads to an alternate AC power source upon an inverter failure or a fault condition that causes instrument bus voltage to drop below a preset level. The alternate AC power source is not classified as safety-related. Failure of this source will not cause an inverter failure or prevent the inverters from supplying their respective instrument buses. In addition, the time allowed for the loads to be powered from the alternate AC power source will be limited to 8 hours, after which time the plant must proceed to hot shutdown.

Since there is no change to the function of plant systems or its operation as a result of this technical specification change request, the proposed changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Operation of this facility under the proposed technical specification change will not create a significant reduction in a margin of safety. The proposed changes add operating conditions and limiting conditions for operation (LCOs) and surveillances for the 120 VAC vital instrument bus system and diesel fuel oil system. This change also proposes a surveillance for the diesel generator room exhaust fans and a revision to eliminate the daily testing requirement when one diesel generator is inoperable. The basis for Section 15.3.7 is also being revised to support the above changes and also to remove an administrative error. With the exception of the proposed removal of the daily diesel generator testing requirements, the above revisions add additional requirements to the Technical Specifications, making the document more restrictive and enhancing the overall operation of Point Beach Nuclear Plant. The only revision that will relax existing requirements is the proposed revision to eliminate the daily testing of the emergency diesel generators when one diesel generator is inoperable. This is consistent with recent NRC guidance and supported by the demonstrated high reliability of our diesel generators. The installation of the static transfer switches in the 120 VAC vital instrument bus system was performed in accordance with 10 CFR 50.59. Although not required for the installation of the plant modification, the addition of the LCOs and surveillance for the 120 VAC vital instrument bus system is proposed to further enhance the reliability and operation of the system.

Since there is no change to the function of plant systems or its operation as a result of this technical specification change request, the proposed changes will not create a significant reduction in a margin of safety. In fact, the addition of the proposed operating restrictions may increase the margin of safety.

15.3.7 AUXILIARY ELECTRICAL SYSTEMS

Applicability

Applies to the availability of off-site and on-site electrical power for plant power operation and for the operation of plant auxiliaries.

Objective

To define those conditions of electrical power availability necessary (1) to provide for safe reactor operation, and (2) to provide for the continuing availability of engineered safeguards.

Specification

- A.1 Under normal conditions neither one nor both reactors shall be made critical unless the following conditions are met:
- a. At least two 345 KV transmission lines are in service.
 - b. The 345/13.8 KV and the 13.8/4.16 KV station auxiliary transformers associated with the reactor(s) to be taken critical are in service; or one 345/13.8 KV station auxiliary transformer and the associated 13.8/4.16 KV station auxiliary transformer(s) are in service with the gas turbine operating.
 - c. 4160 Volt unit supply buses A03 and A04 for the unit to be taken critical are energized from their normal supply.
 - d. 4160 Volt safeguards buses A05 and A06 for the unit(s) to be taken critical are independently energized from their normal supply and both units' A05/A06 bus tie-breakers are removed from their cubicles.
 - e. 480 Volt buses B03 and B04 for the unit(s) to be taken critical are independently energized from their normal supply and both units' B03/B04 bus tie-breakers are open with control power removed.
 - f. ~~A fuel supply of 11,000 gallons is available; and both diesel generators are operable.~~ Both diesel generators are operable, and:
 - 1) The fuel oil supply system associated with each diesel generator is operable;
 - 2) A fuel supply of 11,000 gallons is available.

- g. Four of the five safety-related station batteries and all four of the main DC distribution systems are operable.
- h. Four battery chargers are operable with one charger carrying the DC loads on each main DC distribution bus: D01, D02, D03 and D04.
- i. 120 VAC Vital Instrument Buses Y01, Y02, Y03, Y04, Y101, Y102, Y103, and Y104 for the unit(s) to be taken critical are energized from either their normal or alternate inverters.

A.2 Under abnormal conditions one reactor may be made critical providing the following conditions are met:

- a. One 345 KV transmission line is in service; or the gas turbine is operating.
- b. The 345/13.8 KV and the 13.8/4.16 KV station auxiliary transformers associated with the unit to be taken critical are in service; or the associated 13.8/4.16 KV station auxiliary transformer is in service and the gas turbine is operating.
- c. Reactor power level is limited to 50% rated power until 2 or more transmission lines are restored to service.
- d. 4160 Volt buses A03 and A04 for the unit to be taken critical are energized from their normal supply.
- e. 4160 Volt safeguards buses A05 and A06 for the unit to be taken critical are independently energized from their normal or emergency power supply and both units' A05/A06 bus tie-breakers are removed from their cubicles.
- f. 480 Volt safeguards buses B03 and B04 for the unit to be taken critical are independently energized from their normal or emergency power supply and both units' B03/B04 bus tie-breakers are open with control power removed.
- g. ~~A fuel supply of 11,000 gallons is available; and both diesel generators are operable.~~ Both diesel generators are operable, and:
 - 1) The fuel oil supply system associated with each diesel generator is operable;
 - 2) A fuel supply of 11,000 gallons is available.
- h. Four of the five safety-related station batteries and all four of the main DC distribution systems are operable.
- i. Four battery chargers are operable with one charger carrying the DC loads of each main DC distribution bus: D01, D02, D03 and D04.

j. 120 VAC Vital Instrument Buses Y01, Y02, Y03, Y04, Y101, Y102, Y103, and Y104 for the unit to be taken critical are energized from either their normal or alternate inverters.

B.1 During power operation of one or both reactors, the requirements of 15.3.7.A.1 may be modified to allow the following arrangements of systems and components:

- a. If the 345 KV lines are reduced to only one, any operating reactor(s) must be promptly reduced to, and limited to, 50% power. If all 345 KV lines are lost, any operating reactor(s) will be reduced to supplying its auxiliary load, until one or more 345 KV transmission lines are again available.
- b. If both 345/13.8 KV auxiliary transformers are out of service and only the gas turbine is operating, only one reactor will remain operating and it will be limited to 50% power. The second reactor will be placed in the hot shutdown condition.
- c. If the 13.8/4.16 KV auxiliary transformers are reduced to only one, the reactor associated with the out of service transformer must be placed in the hot shutdown condition.
- d. Either bus A03 or A04 may be out of service for a period not exceeding 7 days provided both diesel generators are operable and the associated diesel generator is operating and providing power to the engineered safeguard bus normally supplied by the out of service bus.
- e. With a unit in cold or refueling shutdown, one pair of buses, A05 and A06 or B03 and B04, for that shutdown unit, may be tied together through their common tie breaker for up to 8 hours. If the tie breaker cannot be opened or the conditions of 15.3.7.B.1.f met within 8 hours, the operating unit shall be placed in the hot shutdown condition within 6 hours and in cold shutdown within the following 30 hours.
- f. With a unit fully defueled, one pair of buses for the defueled unit, A05 and A06 or B03 and B04, may be tied together through their common tie-breaker in excess of 8 hours provided:

- 1) An evaluation is performed to show that the loads that remain or can be energized by the buses will not cause a potential overload of the associated diesel generator. The applicable Limiting Conditions for Operation of the equipment removed from service shall be entered for the operating unit.
 - 2) A single train of spent fuel cooling is adequate to cool the spent fuel pool.
- g. One diesel generator may be inoperable for a period not exceeding 7 days provided the other diesel generator is tested daily to ensure operability and the engineered safety features associated with this diesel generator shall be operable load tested to each unit within 24 hours to ensure operability. The engineered safety features associated with the operable diesel generator shall be operable and have been tested within the required surveillance test intervals. This LCO shall not be allowed in conjunction with e. or f. above.
- h. One of the two fuel oil transfer pumps and its associated piping and valves may be out of service for up to 4 hours. If after 4 hours the fuel oil transfer pump is not returned to service, the associated diesel generator shall be declared inoperable and the 7 day LCO shall be entered.
- h i. One of the four connected safety-related station batteries may be inoperable for a period not exceeding 24 hours provided four battery chargers remain operable with one charger carrying the DC loads of each main DC distribution bus.
- j. If one inverter is rendered inoperable and the associated loads transfer to a non-inverter power source, the loads shall be transferred back to an operable inverter within 8 hours or be in hot shutdown within an additional 6 hours and cold shutdown within an additional 36 hours.

Basis

This two unit plant has four 345 KV transmission line interconnections. A 20 MW gas turbine generator and two 2850 KW diesel generators are installed at the plant. All of these energy sources will be utilized to provide depth and reliability of service to the Engineered Safeguards equipment through redundant station auxiliary power supply systems.

The electrical system equipment is arranged so that no single contingency can inactivate enough safeguards equipment to jeopardize the plant safety. The 480-volt equipment is arranged on 4 buses per unit. The 4160-volt equipment is supplied from 6 buses per unit.

Two separate outside sources can serve either unit's low voltage station auxiliary transformer. One is a direct feed from the unit's high voltage station auxiliary transformer and the second is from the other unit's high voltage station auxiliary transformer or the gas turbine via the 13,800 volt system tie bus H01.

Separation is maintained in the 4160-volt system to allow the plant auxiliary equipment to be arranged electrically so that redundant items receive their power from the two different buses. For example, the safety injection pumps are supplied from the 4160 volt buses 1-A05 and 1-A06 for Unit No. 1 and 2-A05 and 2-A06 for Unit No. 2; the six service water pumps are arranged on 480-volt buses as follows: two on bus 1-B03, one on bus 1-B04, one on bus 2-B03 and two on bus 2-B04; the four containment fans are divided between 480-volt buses 1-B03 and 1-B04 for Unit No. 1 and 2-B03 and 2-B04 for Unit No. 2 and so forth. Redundant valves are supplied from motor control centers 1-B32 and 1-B42 for Unit No. 1 and 2-B32 and 2-B42 for Unit No. 2.

The specifications for the 480 volt safeguards buses, B03 and B04, and the 4160 volt safeguards buses, A05 and A06, direct an independent lineup of power distribution, specifically stating that a normal lineup must be achieved (all safeguards buses associated with a unit are powered through their normal supply breaker with all safeguards bus tie-breakers open) prior to taking a unit critical and during subsequent power operation. Operability of the safeguards buses is based on maintaining at least one on-site AC power source and associated distribution system operable during accident conditions coincident with an assumed loss of offsite power and a single failure in the other on-site AC source. This includes a failure of a tie-breaker to trip, which under certain conditions could result in an overload and a loss of the associated diesel generator. The LCOs permit abnormal power distribution lineups for periods of time in order to facilitate such items as maintenance of normal supply breakers or transformers. In such cases, bus independence may be relaxed under the conditions specified in the LCO.

Extended use of safeguards bus tie-breakers is allowed under specified, controlled conditions. For example, when a unit is fully defueled, safeguards and safe shutdown systems and equipment dedicated to that unit are not required. However, spent fuel pool cooling must be maintained. By limiting the loads supplied by the cross-connected buses, the potential for loss of a diesel generator due to overloading caused by the failure of a tie-breaker to open is minimized. Operability of shared safeguards systems such as auxiliary feedwater and service water must be maintained as required by their applicable LCOs.

The Point Beach DC electrical system has been modified so that each of the four main DC distribution buses, which are shared between the two units, has its own power supplies consisting of a safety-related station battery (D05, D06, D105, D106) and a battery charger. In addition to these bus-specific power supplies, a swing safety-related battery (D305) is installed which is capable of being connected to any one of the four main DC distribution buses. Swing battery chargers are also provided. Under normal circumstances, one battery and one battery charger are connected in each main DC distribution bus. The battery charger normally shall be in service on each battery so that the batteries will always be at full charge in anticipation of a loss-of-AC power incident. Under unusual circumstances, two of the five safety-related batteries may be out of service for a limited period of time provided one of the two out-of-service batteries is returned to service within the time periods specified in Specification 15.3.7.B.1.f. These limiting conditions for operation ensure that adequate DC power will always be available for starting the emergency generators and other emergency uses.

~~The emergency generator sets are General Motors Corporation, Electro Motive Division, Model 999-20 Units rated at 2850 KW continuous, 0.8 power factor 900 RPM, 4160 volts 3 phase, 60 cycle and consume 205 gallons of fuel per hour. Thus the 11,000 gallon supply in the Emergency Fuel Tank provides sufficient fuel to operate one diesel at design load for more than 48 hours. In addition, it will be normal for Point Beach to keep one, or the equivalent of one, bulk storage tank full at all times (55,000 gallons which is equal to about 10 days' supply). They are each capable of providing 3050 kw for a 30 minute period. The gas turbine is capable of providing 20,000 kw. The operability of the fuel oil system is determined by the ability to transfer fuel oil from the emergency fuel oil tank, through the diesel generator day tank, to the engine mounted fuel tank. The 11,000 gallon supply in the emergency fuel tank provides sufficient fuel to operate one diesel generator at design load for more than 48 hours. One of the two fuel oil transfer pumps and its associated piping and valves is allowed to be~~

out of service for four hours due to a combined four hour supply of fuel oil in the diesel base and day tanks which do not require a fuel oil transfer pump for flow to the associated diesel generator. In addition, it is normal for Point Beach to keep one, or the equivalent of one, bulk fuel oil storage tank full at all times (60,000 gallons which is equal to about 12 days supply at 205 gph). The operability of the diesel generator room exhaust fans is determined by the ability of the fans to automatically start when required and exhaust air from the diesel room.

If only one 345 KV transmission line is in service to the plant switchyard, a temporary loss of this line would result in a reactor trip(s) if the reactor(s) power level were greater than 50%. Therefore, in order to maintain continuity of service and the possibility of self sustaining operations, if only one 345 KV transmission line is in service to any operating reactor(s), the power level of the affected reactor(s) will be limited to 50%.

If both 345/13.8 KV station auxiliary transformers are out of service, only one reactor will be operated. The gas turbine will be supplying power to operate safeguards auxiliaries of the operating reactor and acts as a backup supply for the unit's normal auxiliaries. Therefore, to prevent overloading the gas turbine in the event of a reactor trip, the maximum power level for the operating reactor will be limited to 50%. These conservative limits are set to improve transmission system reliability only and are not dictated by safety system requirements.

References

FSAR Section 8.

TABLE 15.4.1-2 (Continued)

	<u>Test</u>	<u>Frequency</u>
24. Integrity of Post Accident Recovery Systems Outside Containment	Evaluate	Each refueling cycle
25. Containment Purge Supply and Exhaust Isolation Valves	Verify valves are locked closed	Monthly ⁽⁹⁾
26. Reactor Trip Breakers	a. Verify independent operability of automatic shunt and undervoltage trip functions.	Monthly ⁽⁹⁾
	b. Verify independent operability of manual trip to shunt and undervoltage trip functions.	Each refueling shutdown
27. Reactor Trip Bypass Breakers	a. Verify operability of the undervoltage trip function.	Prior to breaker use
	b. Verify operability of the shunt trip functions.	Each refueling shutdown
	c. Verify operability of the manual trip to undervoltage trip functions.	Each refueling shutdown
28. 120 VAC Vital Instr. Bus Power	Verify Energized ⁽²²⁾	Shiftly

- (1) Required only during periods of power operation.
- (2) E determination will be started when the gross activity analysis of a filtered sample indicates $\geq 10\mu\text{Ci/cc}$ and will be redetermined if the primary coolant gross radioactivity of a filtered sample increases by more than $10\mu\text{Ci/cc}$.
- (3) Drop test shall be conducted at rated reactor coolant flow. Rods shall be dropped under both cold and hot condition, but cold drop tests need not be timed.
- (4) Drop tests will be conducted in the hot condition for rods on which maintenance was performed.
- (5) As accessible without disassembly of rotor.
- (6) Not required during periods of refueling shutdown.
- (7) At least once per week during periods of refueling shutdown.
- (8) At least three times per week (with maximum time of 72 hours between samples) during periods of refueling shutdown.
- (9) Not required during periods of cold or refueling shutdown.

TABLE 15.4.1-2 (Continued)

- (10) Sample to be taken after a minimum of 2 EFPD and 20 days power operation since the reactor was last subcritical for 48 hours or longer.
- (11) An approximately equal number of valves shall be tested each refueling outage such that all valves will be tested within a five year period. If any valve fails its tests, an additional number of valves equal to the number originally tested shall be tested. If any of the additional tested valves fail, all remaining valves shall be tested.
- (12) The specified buses shall be determined energized in the required manner at least once per shift by verifying correct static transfer switch alignment and indicated voltage on the buses.

15.4.6 EMERGENCY POWER SYSTEM PERIODIC TESTS

Applicability

Applies to periodic testing and surveillance requirements of the emergency power system.

Objective

To verify that the emergency power system will respond promptly and properly when required.

Specification

The following tests and surveillance shall be performed as stated:

A. Diesel Generators

1. Manually-initiated start of the diesel generator, followed by manual synchronization with other power sources and assumption of load by the diesel generator shall not exceed 2850KW. This test will be conducted monthly with a minimum running time of 30 minutes on each diesel generator. Normal plant operation will not be affected.
2. Automatic start of each diesel generator, load shedding, and restoration to operation of particular vital equipment, initiated by an actual interruption of normal AC station service power supplies to associated engineered safety systems busses together with a simulated safety injection signal. In addition, after the diesel generator has carried its load for a minimum of 5 minutes, automatic load shedding and restoration of vital loads are tested again by manually tripping the diesel generator output breaker. This test will be conducted during reactor shutdown for major fuel reloading of each reactor to assure that the diesel generator will start and assume required load in accordance with the timing sequence listed in FSAR Section 8.2 after the initial starting signal. During this test a checkout of emergency lighting will be performed, including the changeover relay for DC lights.

3. Each diesel generator shall be given an inspection, at least annually,* following the manufacturer's recommendations for this class of stand-by service.
4. ~~Each fuel oil transfer pump shall be run monthly.~~ Operability of the diesel fuel oil system shall be verified monthly.
5. Operability of the diesel generator room exhaust fans shall be verified monthly.
6. A diesel fuel oil testing program shall be maintained to test both new fuel oil upon receipt and stored fuel oil in the emergency fuel oil tank on a quarterly frequency in accordance with applicable ASTM Standards.

The above tests will be considered satisfactory if all applicable equipment operates as designed.

B. Safety-Related Station Batteries

These surveillance specifications are applicable to all four safety-related station batteries: D05, D06, D105, and D106; and the safety-related station swing battery D305.

1. Every month the voltage of each cell (to the nearest 0.05 volt), the specific gravity and temperature of a pilot cell in each battery and each battery voltage shall be measured and recorded.
2. Every 3 months the specific gravity, the height of electrolyte, and the amount of water added, for each cell, and the temperature of every fifth cell, shall be measured and recorded.
3. At each time data is recorded, new data shall be compared with old to detect signs of abuse or deterioration.
4. Each Safety-Related Station Battery shall be demonstrated OPERABLE:
 - a. At least once per 18 months (SERVICE TEST) 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.**

* The surveillance interval for the 1992 annual inspection of diesel generator G02 may be extended up to 6 months, not to exceed a total time between annual inspections of 18 months.

** Service and Performance testing to begin subsequent to installation of the swing safety-related battery (D-305) which is expected by the end of 1992.