ATTACHMENT 1

Proposed Amendment Changes to Appendix A of the
Technical Specifications for Dresden Station
License Nos. DPR-19 and DPR-25

Revised Pages: 22
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7196N

3.1 LIMITING CONDITION FOR OPERATION

3.1 REACTOR PROTECTION SYSTEM

Applicability:

Applies to the instrumentation and associated devices which initiate a reactor scram.

Objective:

To assure the operability of the reactor protection system.

Specifications:

A. REACTOR PROTECTION SYSTEM

1. The setpoints, minimum number of trip systems, and minimum number of instrument channels that must be operable for each position of the reactor mode switch shall be as given in Table 3.1.1. The system response times from the opening of the sensor contact up to and including the opening of the trip actuator contacts shall not exceed 50 milliseconds.

2. If during operation, the maximum fraction of limiting power density for fuel fabricated by GE exceeds the fraction of rated power when operating above 25% rated thermal power, either:

   a. The APRM scram and rod block settings shall be reduced to the values given by the equations in Specifications 2.1.A.1 and 2.1.B. This may be accomplished by increasing APRM gains as described therein.

4.1 SURVEILLANCE REQUIREMENT

4.1 REACTOR PROTECTION SYSTEM

Applicability:

Applies to the surveillance of the instrumentation and associated devices which initiate reactor scram.

Objective:

To specify the type and frequency of surveillance to be applied to the protection instrumentation.

Specifications:

A. REACTOR PROTECTION SYSTEM

1. Instrumentation systems shall be functionally tested and calibrated as indicated in Tables 4.1.1 and 4.1.2, respectively.

2. Daily during reactor power operation above 25% rated thermal power, the core power distribution shall be checked for:

   a. Maximum fraction of limiting power density for fuel fabricated by GE (MFLPD) and compared with the fraction of rated power (FRP).

   b. For compliance with assumptions of the Fuel Design Analysis of overpower conditions for fuel fabricated by ENC.

3.1 LIMITING CONDITION FOR OPERATION

b. The power distribution shall be changed such that the maximum fraction of limiting power density no longer exceeds the fraction of rated power.

For fuel fabricated by ENC, operation of the core shall be limited to ensure the power distribution is consistent with that assumed in the Fuel Design Analysis for overpower conditions.

3. Two RPS electric power monitoring channels for each inservice RPS MG set or alternate source shall be OPERABLE at all times.

4. With one RPS electric power monitoring channel for an inservice RPS MG set or alternate power supply inoperable, restore the inoperable channel to OPERABLE status within 72 hours or remove the associated RPS MG set or alternate power supply from service.

5. With both RPS electric power monitoring channels for an inservice RPS MG set or alternate power supply inoperable, restore at least one to OPERABLE status within 30 minutes or remove the associated RPS MG set or alternate power supply from service.

4.1 SURVEILLANCE REQUIREMENT

3. The RPS power monitoring system instrumentation shall be determined OPERABLE:

   a. At least once per 6 months by performing a CHANNEL FUNCTIONAL TEST, and

   b. At least once per operating cycle by demonstrating the OPERABILITY of overvoltage, undervoltage, and underfrequency protective instrumentation by performance of a CHANNEL CALIBRATION including simulated automatic actuation of the protective relays, tripping logic, and output circuit breakers, and verifying the following setpoints:

<u>Surveillance Requirements</u>:
Reactor Protection Buses

(1) Overvoltage	126.5V ± 2.5% Min. 123.3V Max. 129.6V
(2) Undervoltage	108V ± 2.5% Min. 105.3V Max. 110.7V
(3) Underfrequency	56.0 Hz ± 1% of 60 Hz Min. 55.4 Hz Max. 56.6 Hz

Bases:

3.1 The reactor protection system automatically initiates a reactor scram to:

1. Preserve the integrity of the fuel cladding.
2. Preserve the integrity of the primary system.
3. Minimize the energy which must be absorbed, and prevent criticality following a loss of coolant accident.

This specification provides the limiting conditions for operation necessary to preserve the ability of the system to tolerate single failures and still perform its intended function even during periods when instrument channels may be out of service because of maintenance. When necessary, one channel may be made inoperable for brief intervals to conduct required functional tests and calibrations.

The reactor protection system is of the dual channel type. Ref. Section 7.7.1.2 SAR. The system is made up of two independent trip systems, each having two subchannels of tripping devices. Each subchannel has an input from at least one instrument channel which monitors a critical parameter.

The outputs of the subchannels are combined in a 1 out of 2 logic; i.e., an input signal on either one or both of the subchannels will cause a trip system trip. The outputs of the trip systems are arranged so that a trip on both systems is required to produce a reactor scram.

Specifications are provided to ensure the operability of the RPS Bus Electrical Protector Assemblies (EPA's). Each channel from either overvoltage, undervoltage, or under frequency will trip the associated MG set or alternate power source.

This system meets the requirements of the proposed IEEE Standard for Nuclear Power Plant Protection Systems issued Septemter 13, 1966. The system has a reliability greater than that of a 2 out of 3 system and somewhat less than that of a 1 out of 2 system.

With the exception of the Average Power Range Monitor(APRM) and Intermediate Range Monitor (IRM) channels, each subchannel has one instrument channel. When the minimum condition for operation on the number of operable instrument channels per untripped protection trip system is met or if it cannot be met and the effected protection trip system is placed in a tripped condition the effectiveness of the protection system is preserved; i.e., the system can tolerate a single failure and still perform its intended function of scramming the reactor. Three APRM instrument channels are provided for each protection trip system.

APRM's #1 and #3 operate contacts in a one subchannel and APRM's #2 and #3 operate contacts in the other subchannel. APRM's #4, #5, and #6 are arranged similarly in the other protection trip system. Each protection trip system has one more APRM than is necessary to meet the minimum number required per channel. This allows the bypassing of one APRM per protection trip system for maintenance, testing or calibration. Additional IRM channels have also been provided to allow for bypassing of one such channel. The bases for the scram settings for the IRM, APRM, high reactor pressure, reactor low water level, generator load rejection, and turbine stop valve closure are discussed in Specification 2.3.

Instrumentation (pressure switches) in the drywell are provided to detect a loss of coolant accident and initiate the emergency core cooling equipment. This instrumentation is a backup to the water level instrumentation which is discussed in Specification 2.2. A scram is provided at the same setting as the emergency core cooling system (ECCS) initiation to minimize the energy which must be accommodated during a loss of coolant accident and to prevent the reactor from going critical following the accident.

Bases:

4.1

A. The minimum functional testing frequency used in this specification is based on a reliability analysis using the concepts developed in reference (6). This concept was specifically adapted to the one out of two taken twice logic of the reactor protection system for Dresden 3. The analysis shows that the sensors are primarily responsible for the reliability of the reactor protection system. This analysis makes use of "unsafe failure" rate experience at conventional and nuclear power plants in a reliability model for the system. An "unsafe failure" is defined as one which negates channel operability and which, due to its nature, is revealed only when the channel is functionally tested or attempts to respond to a real signal. Failures such as blown fuses, ruptured bourdon tubes, faulted amplifiers, faulted cables, etc., which result in "upscale" or "downscale" readings on the reactor instrumentation are "safe" and will be easily recognized by the operators during operation because they are revealed by an alarm or a scram.

Surveillance requirements are provided for the RPS EPA's to demonstrate their operability. The setpoints for overvoltage, undervoltage and under frequency have been chosen based on analysis. (Reference T. Raush letter to H. Denton 02-04-83).

The 13 channels listed in Tables 4.1.1 and 4.1.2 are divided into three groups respecting functional testing. These are:

1. On-Off sensors that provide a scram trip function.

2. Analog devices coupled with bi-stable trips that provide a scram function.

3. Devices which only serve a useful function during some restricted mode of operation, such as startup or shutdown, or for which the only practical test is one that can be performed at shutdown.

The sensors that make up group (A) are specifically selected from among the whole family of industrial on-off sensors that have earned an excellent reputation for reliable operation. Actual history on this class of sensors operating in nuclear power plants shows 4 failures in 472 sensor years, or a failure rate of 0.97 X 10^{-6}/hr. During design, a goal of 0.99999 probability of success (at the 50% confidence level) was adopted to assure that a balanced and adequate design is achieved. The probability of success is primarily a function of the sensor failure rate and the test interval. A three-month test interval was planned for group (A) sensors. This is in keeping with good operating practice, and satisfies the design goal for the logic configuration utilized in the Reactor Protection System.

To satisfy the long-term objective of maintaining an adequate level of safety throughout the plant lifetime, a minimum goal of 0.9999 at the 95% confidence level is proposed. With the (1 out of 2) X (2) logic, this requires that each sensor have an availability of 0.993 at the 95% confidence level. This level of availability may be maintained by adjusting the test interval as a function of the observed failure history (6). To facilitate the implementation

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6. Reliability of Engineered Safety Features as a Function of Testing Frequency, I.M. Jacobs, Nuclear Safety, Vol. 9, No. 4, July-Aug. 1968. pp. 310-312.

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b. The power distribution shall be changed such that the maximum fraction of limiting power density no longer exceeds the fraction of rated power.

For fuel fabricated by ENC, operation of the core shall be limited to ensure the power distribution is consistent with that assumed in the Fuel Design Analysis for overpower conditions.

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4. With one RPS electric power monitoring channel for an inservice RPS MG set or alternate power supply inoperable, restore the inoperable channel to OPERABLE status within 72 hours or remove the associated RPS MG set or alternate power supply from service.

5. With both RPS electric power monitoring channels for an inservice RPS MG set or alternate power supply inoperable, restore at least one to OPERABLE status within 30 minutes or remove the associated RPS MG set or alternate power supply from service.

4.1 SURVEILLANCE REQUIREMENT

3. The RPS power monitoring system instrumentation shall be determined OPERABLE:

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b. At least once per operating cycle by demonstrating the OPERABILITY of overvoltage, undervoltage, and underfrequency protective instrumentation by performance of a CHANNEL CALIBRATION including simulated automatic actuation of the protective relays, tripping logic, and output circuit breakers, and verifying the following setpoints:

<u>Surveillance Requirements:</u>
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The outputs of the subchannels are combined in a 1 out of 2 logic; i.e., an input signal on either one or both of the subchannels will cause a trip system trip. The outputs of the trip systems are arranged so that a trip on both systems is required to produce a reactor scram.

Specifications are provided to ensure the operability of the RPS Bus Electrical Protector Assemblies (EPA's). Each channel from either overvoltage, undervoltage, or under frequency will trip the associated MG set or alternate power source.

This system meets the requirements of the proposed IEEE Standard for Nuclear Power Plant Protection Systems issued September 13, 1966. The system has a reliability greater than that of a 2 out of 3 system and somewhat less than that of a 1 out of 2 system.

With the exception of the Average Power Range Monitor(APRM) and Intermediate Range Monitor (IRM) channels, each subchannel has one instrument channel. When the minimum condition for operation on the number of operable instrument channels per untripped protection trip system is met or if it cannot be met and the effected protection trip system is placed in a tripped condition the effectiveness of the protection system is preserved; i.e., the system can tolerate a single failure and still perform its intended function of scramming the reactor. Three APRM instrument channels are provided for each protection trip system.

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Instrumentation (pressure switches) in the drywell are provided to detect a loss of coolant accident and initiate the emergency core cooling equipment. This instrumentation is a backup to the water level instrumentation which is discussed in Specification 2.2. A scram is provided at the same setting as the emergency core cooling system (ECCS) initiation to minimize the energy which must be accommodated during a loss of coolant accident and to prevent the reactor from going critical following the accident.

Bases:

4.1

A. The minimum functional testing frequency used in this specification is based on a reliability analysis using the concepts developed in reference (6). This concept was specifically adapted to the one out of two taken twice logic of the reactor protection system for Dresden 3. The analysis shows that the sensors are primarily responsible for the reliability of the reactor protection system. This analysis makes use ot "unsafe failure" rate experience at conventional and nuclear power plants in a reliability model for the system. An "unsafe failure" is defined as one which negates channel operability and which, due to its nature, is revealed only when the channel is functionally tested or attempts to respond to a real signal. Failures such as blown fuses, ruptured bourdon tubes, faulted amplifiers, faulted cables, etc., which result in "upscale" or "downscale" readings on the reactor instrumentation are "safe" and will be easily recognized by the operators during operation because they are revealed by an alarm or a scram.

Surveillance requirements are provided for the RPS EPA's to demonstrate their operability. The setpoints for overvoltage, undervoltage and under frequency have been chosen based on analysis. (Reference T. Raush letter to H. Denton 02-04-83).

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3. Devices which only serve a useful function during some restricted mode of operation, such as startup or shutdown, or for which the only practical test is one that can be performed at shutdown.

The sensors that make up group (A) are specifically selected from among the whole family of industrial on-off sensors that have earned an excellent reputation for reliable operation. Actual history on this class of sensors operating in nuclear power plants shows 4 failures in 472 sensor years, or a failure rate of 0.97 X 10^{-6}/hr. During design, a goal of 0.99999 probability of success (at the 50% confidence level) was adopted to assure that a balanced and adequate design is achieved. The probability of success is primarily a function of the sensor failure rate and the test interval. A three-month test interval was planned for group (A) sensors. This is in keeping with good operating practice, and satisfies the design goal for the logic configuration utilized in the Reactor Protection System.

To satisfy the long-term objective of maintaining an adequate level of safety throughout the plant lifetime, a minimum goal of 0.9999 at the 95% confidence level is proposed. With the (1 out of 2) X (2) logic, this requires that each sensor have an availability of 0.993 at the 95% confidence level. This level of availability may be maintained by adjusting the test interval as a function of the observed failure history (6). To facilitate the implementation

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6. Reliability of Engineered Safety Features as a Function of Testing Frequency, I.M. Jacobs, Nuclear Safety, Vol. 9, No. 4, July-Aug. 1968. pp. 310-312.

ATTACHMENT 2

Proposed Amendment Changes to Appendix A of the
Technical Specifications for Dresden Station
License Nos. DPR-29 and DPR-30

Revised Pages: 3.9/4.9-4
3.9/4.9-5
3.9/4.9-6

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reactor shall be in the cold shutdown condition within 24 hours.

2. Specification 3.9.E.1 shall not apply when a diesel generator has been made inoperable for a period not to exceed 1-1/2 hours for the purpose of conducting preventative maintenance. Additionally, preventative maintenance shall not be undertaken unless two offsite lines are available and the alternate diesel generator has been demonstrated to be operable.

3. When the reactor is in the Cold Shutdown or Refueling mode, a minimum of one diesel generator (either the Unit diesel generator or the Unit 1/2 diesel generator) shall be operable whenever any work is being done which has the potential for draining the vessel, secondary containment is required, or a core or containment cooling system is required.

F. REACTOR PROTECTION BUS POWER MONITORING SYSTEM

1. Two RPS electric power monitoring channels for each inservice RPS MG set or inservice alternate power source shall be OPERABLE except when the reactor is in the SHUTDOWN mode.

2. a. With one RPS electric power monitoring channel for an inservice RPS MG set or inservice alternate power source inoperable, restore the inoperable channel to OPERABLE status within 72 hours or remove the associated RPS MG set or alternate power source from service.

   b. With both RPS electric power monitoring channels for an inservice RPS MG set or inservice alternate power source inoperable, restore at least one channel to OPERABLE status within 30 minutes, or remove the associated RPS MG set or alternate power source from service.

F. REACTOR PROTECTION BUS POWER MONITORING SYSTEM

1. The RPS Bus power monitoring system instrumentation shall be determined OPERABLE:

   a. At least once per 6 months by performing a channel functional test, and

   b. At least once per operating cycle by demonstrating the operability of overvoltage, undervoltage, and underfrequency protective instrumentation by performance of a channel calibration including simulated automatic activation of the protective relays, tripping logic, and output circuit breakers, and verifying the following setpoints:

      (1) Overvoltage 126.5 V = 2.5%
      Min. 123.3 V
      Max. 129.6 V

      (2) Undervoltage 108 V = 2.5%
      Min. 105.3 V
      Max. 110.7 V

      (3) Underfrequency 56.0 Hz ± 1% of 60 Hz
      Min. 55.4 Hz
      Max. 56.6 Hz

3.9 LIMITING CONDITIONS FOR OPERATION BASES

A. The general objective of this specification is to assure an adequate source of electrical power to operate the auxiliaries during plant operation, to operate facilities to cool and lubricate the plant during shutdown, and to operate the engineered safety features following an accident. There are two sources of electrical energy available, namely, the 345-kV transmission system and the diesel generators.

B. The d-c supply is required for control and motive power for switchgear and engineered safety features. The electrical power required provides for the maximum availability of power, i.e., one active offsite source and one backup source of offsite power and the maximum numbers of onsite sources.

C. Auxiliary power for the Unit is supplied from two sources, either the Unit auxiliary transformer or the Unit reserve auxiliary transformer. Both of these transformers are sized to carry 100% of the auxiliary load. If the reserve auxiliary transformer is lost, the unit can continue to run for 7 days, since the Unit auxiliary transformer is available and both diesel generators are operational. A 7-day period is provided if one source of offsite power is lost. This period is based on having two diesels operable which are adequate to handle an accident assuming a single failure. In addition, auxiliary power from the other unit can be obtained through the 4160-volt bus tie. If both offsite lines are lost, power is reduced to 40% of rated so that the turbine bypass system could accept the steam flow without reactor trip should the generator be separated from the system or a turbine trip occur. In this condition, the turbine-generator is capable of supplying house load and ECCS load if necessary through the unit auxiliary transformer. If the unit were shut down on loss of both lines, fewer sources of power would be available than for sustained operation at 40% power. Attention will be given to restoring normal offsite power to minimize the length of time operation is allowed in a condition where both sources are available.

In the normal mode of operation, the 345-kV system is operable and two diesel generators are operable. One diesel generator may be allowed out of service for a short period of time to conduct preventative maintenance provided that power is available from the 345-kV system through a 4160-volt bus tie to supply the emergency buses, and the alternate diesel generator is proven operable. Offsite power is quite reliable, and in the last 25 years there has been only one instance in which all offsite power was lost at a Commonwealth Edison Generating Station. When the unit or shared diesel generator is made or found inoperable for reasons other than preventative maintenance, the remaining diesel generator and its associated low-pressure core cooling and containment cooling systems, which provide sufficient engineered safety features equipment to cover all breaks, will be proven operable.

D. The diesel fuel supply of 10,000 gallons will supply each diesel generator with a minimum of 2 days of full load operation or about 4 days at 1/2 load. Additional diesel fuel can be obtained and delivered to the site within an 8-hour period; thus a 2-day supply provides for adequate margin.

E. Diesel generator operability is discussed in Paragraph 3.9.C above.

F. Specifications are provided to ensure the operability of the RPS Bus electrical protection assemblies (EPA's). Each RPS MG set and the alternate power source has 2 EPA channels wired in series. A trip of either channel from either overvoltage, undervoltage, or underfrequency will trip the associated MG set or alternate power source.

4.9 SURVEILLANCE REQUIREMENTS BASES

A. The monthly test of the diesel generator is conducted to check for equipment failures and deterioration. Testing is conducted up to equilibrium operating conditions to demonstrate proper operation at these conditions. The diesel will be manually started, synchronized to the bus, and load picked up. The diesel shall be loaded to at least half load to prevent fouling of the engine. It is expected that the diesel generator will be run for 1 to 2 hours. Diesel-generator experience at other Commonwealth Edison generating stations indicates that the testing frequency is adequate and provides a high reliability of operation should the system be required. In addition, during the test, the generator is synchronized to the offsite power sources and thus not completely independent of this source. To maintain the maximum amount of independence, a 30-day testing interval is also desirable.

Each diesel generator has two air compressors and four air tanks. Two air tanks are piped together to form an air receiver. Each air compressor supplies an air receiver. This arrangement provides redundancy in starting capability. It is expected that the air compressors will run only infrequently.

During the monthly check of the diesel, the receivers will be drawn down below the point at which the compressor automatically starts to check operation and the ability of the compressors to recharge the receivers. Pressure indicators are provided on each of the receivers.

Following the monthly test of the diesels, the fuel oil day tank will be approximately half full based on the 2-hour test at full load and 205 gph at full load. At the end of the monthly load test of the diesel generators, the fuel oil transfer pumps will be operated to refill the day tank and to check the operation of these pumps from the emergency source.

The test of the emergency diesel generator during the refueling outage will be more comprehensive in that it will functionally test the system, i.e., it will check diesel starting, closure of diesel breaker, and sequencing of loads on the diesel. The diesel will be started by simulation of a loss-of-coolant accident. In addition, an undervoltage condition will be imposed to simulate a loss of the time required. The only load on the diesel is that due to friction and windage and a small amount of bypass flow on each pump.

Periodic tests between refueling outages verify the ability of the diesel to run at full load and the core and containment cooling pumps to deliver full flow. Periodic testing of the various components plus a functional test at the refueling interval are sufficient to maintain adequate reliability.

B. Although station batteries will deteriorate with time, utility experience indicates there is almost no possibility of precipitous failure. The type of surveillance described in this specification is that which has been demonstrated over the years to provide an indication of a cell becoming irregular or unserviceable long before it becomes a failure.

In addition, the checks described also provide adequate indication that the batteries have the specified ampere-hour capability.

C. Because the availability of electricity to the system is a normal operating function, a check of the status of these systems provides adequate surveillance.

D. The diesel fuel oil quality must be checked to ensure proper operation of the diesel generators. Water content should be minimized, because water in the fuel would contribute to excessive corrosion of the system, causing decreased reliability. The growth of micro-organisms results in slime formations, which are one of the chief causes of jellying in hydrocarbon fuels. Minimizing of such slimes is also essential to assuring high reliability.

E. Diesel-generator operability surveillance is discussed in Paragraph 4.9.A above.

F. Surveillance requirements are provided for the RPS EPA's to demonstrate their operability. The setpoints for overvoltage, undervoltage, and underfrequency have been chosen based on analysis (ref. February 4, 1983 letter to H. Denton from T. Rausch).

reactor shall be in the cold shutdown condition within 24 hours.

2. Specification 3.9.E.1 shall not apply when a diesel generator has been made inoperable for a period not to exceed 1-1/2 hours for the purpose of conducting preventative maintenance. Additionally, preventative maintenance shall not be undertaken unless two offsite lines are available and the alternate diesel generator has been demonstrated to be operable.

3. When the reactor is in the Cold Shutdown or Refueling mode, a minimum of one diesel generator (either the Unit diesel generator or the Unit 1/2 diesel generator) shall be operable whenever any work is being done which has the potential for draining the vessel, secondary containment is required, or a core or containment cooling system is required.

F. REACTOR PROTECTION BUS POWER MONITORING SYSTEM

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   b. With both RPS electric power monitoring channels for an inservice RPS MG set or inservice alternate power source inoperable, restore at least one channel to OPERABLE status within 30 minutes, or remove the associated RPS MG set or alternate power source from service.

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      Min. 123.3 V
      Max. 129.6 V

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A. The general objective of this specification is to assure an adequate source of electrical power to operate the auxiliaries during plant operation, to operate facilities to cool and lubricate the plant during shutdown, and to operate the engineered safety features following an accident. There are two sources of electrical energy available, namely, the 345-kV transmission system and the diesel generators.

B. The d-c supply is required for control and motive power for switchgear and engineered safety features. The electrical power required provides for the maximum availability of power, i.e., one active offsite source and one backup source of offsite power and the maximum numbers of onsite sources.

C. Auxiliary power for the Unit is supplied from two sources, either the Unit auxiliary transformer or the Unit reserve auxiliary transformer. Both of these transformers are sized to carry 100% of the auxiliary load. If the reserve auxiliary transformer is lost, the unit can continue to run for 7 days, since the Unit auxiliary transformer is available and both diesel generators are operational. A 7-day period is provided if one source of offsite power is lost. This period is based on having two diesels operable which are adequate to handle an accident assuming a single failure. In addition, auxiliary power from the other unit can be obtained through the 4160-volt bus tie. If both offsite lines are lost, power is reduced to 40% of rated so that the turbine bypass system could accept the steam flow without reactor trip should the generator be separated from the system or a turbine trip occur. In this condition, the turbine-generator is capable of supplying house load and ECCS load if necessary through the unit auxiliary transformer. If the unit were shut down on loss of both lines, fewer sources of power would be available than for sustained operation at 40% power. Attention will be given to restoring normal offsite power to minimize the length of time operation is allowed in a condition where both sources are available.

In the normal mode of operation, the 345-kV system is operable and two diesel generators are operable. One diesel generator may be allowed out of service for a short period of time to conduct preventative maintenance provided that power is available from the 345-kV system through a 4160-volt bus tie to supply the emergency buses, and the alternate diesel generator is proven operable. Offsite power is quite reliable, and in the last 25 years there has been only one instance in which all offsite power was lost at a Commonwealth Edison Generating Station. When the unit or shared diesel generator is made or found inoperable for reasons other than preventative maintenance, the remaining diesel generator and its associated low-pressure core cooling and containment cooling systems, which provide sufficient engineered safety features equipment to cover all breaks, will be proven operable.

D. The diesel fuel supply of 10,000 gallons will supply each diesel generator with a minimum of 2 days of full load operation or about 4 days at 1/2 load. Additional diesel fuel can be obtained and delivered to the site within an 8-hour period; thus a 2-day supply provides for adequate margin.

E. Diesel generator operability is discussed in Paragraph 3.9.C above.

F. Specifications are provided to ensure the operability of the RPS Bus electrical protection assemblies (EPA's). Each RPS MG set and the alternate power source has 2 EPA channels wired in series. A trip of either channel from either overvoltage, undervoltage, or underfrequency will trip the associated MG set or alternate power source.

4.9 SURVEILLANCE REQUIREMENTS BASES

A. The monthly test of the diesel generator is conducted to check for equipment failures and deterioration. Testing is conducted up to equilibrium operating conditions to demonstrate proper operation at these conditions. The diesel will be manually started, synchronized to the bus, and load picked up. The diesel shall be loaded to at least half load to prevent fouling of the engine. It is expected that the diesel generator will be run for 1 to 2 hours. Diesel-generator experience at other Commonwealth Edison generating stations indicates that the testing frequency is adequate and provides a high reliability of operation should the system be required. In addition, during the test, the generator is synchronized to the offsite power sources and thus not completely independent of this source. To maintain the maximum amount of independence, a 30-day testing interval is also desirable.

Each diesel generator has two air compressors and four air tanks. Two air tanks are piped together to form an air receiver. Each air compressor supplies an air receiver. This arrangement provides redundancy in starting capability. It is expected that the air compressors will run only infrequently.

During the monthly check of the diesel, the receivers will be drawn down below the point at which the compressor automatically starts to check operation and the ability of the compressors to recharge the receivers. Pressure indicators are provided on each of the receivers.

Following the monthly test of the diesels, the fuel oil day tank will be approximately half full based on the 2-hour test at full load and 205 gph at full load. At the end of the monthly load test of the diesel generators, the fuel oil transfer pumps will be operated to refill the day tank and to check the operation of these pumps from the emergency source.

The test of the emergency diesel generator during the refueling outage will be more comprehensive in that it will functionally test the system, i.e., it will check diesel starting, closure of diesel breaker, and sequencing of loads on the diesel. The diesel will be started by simulation of a loss-of-coolant accident. In addition, an undervoltage condition will be imposed to simulate a loss of the time required. The only load on the diesel is that due to friction and windage and a small amount of bypass flow on each pump.

Periodic tests between refueling outages verify the ability of the diesel to run at full load and the core and containment cooling pumps to deliver full flow. Periodic testing of the various components plus a functional test at the refueling interval are sufficient to maintain adequate reliability.

B. Although station batteries will deteriorate with time, utility experience indicates there is almost no possibility of precipitous failure. The type of surveillance described in this specification is that which has been demonstrated over the years to provide an indication of a cell becoming irregular or unserviceable long before it becomes a failure.

In addition, the checks described also provide adequate indication that the batteries have the specified ampere-hour capability.

C. Because the availability of electricity to the system is a normal operating function, a check of the status of these systems provides adequate surveillance.

D. The diesel fuel oil quality must be checked to ensure proper operation of the diesel generators. Water content should be minimized, because water in the fuel would contribute to excessive corrosion of the system, causing decreased reliability. The growth of micro-organisms results in slime formations, which are one of the chief causes of jellying in hydrocarbon fuels. Minimizing of such slimes is also essential to assuring high reliability.

E. Diesel-generator operability surveillance is discussed in Paragraph 4.9.A above.

F. Surveillance requirements are provided for the RPS EPA's to demonstrate their operability. The setpoints for overvoltage, undervoltage, and underfrequency have been chosen based on analysis (ref. February 4, 1983 letter to H. Denton from T. Rausch).

ATTACHMENT 3

SIGNIFICANT HAZARDS CONSIDERATION

Description of Amendment Request

An amendment of the Technical Specifications adding Limiting Conditions for Operation and surveillance requirements for the Reactor Protection System (RPS) electrical power supplies. The proposed change was submitted at NRC's request using guidance provided by the NRC. The change is intended to assure that the power produced by the RPS motor-generator sets is of a quality acceptable to the RPS.

Basis For Proposed No Significant Hazards Consideration Determination

The Commission has provided guidance concerning the application of the standards for determining whether a significant hazards consideration exists by providing certain examples (48 FR 14870). The examples of actions involving no significant hazards consideration include: "(ii) A change that constitutes an additional limitation restriction, or control not presently included in the technical specifications; for example, a more stringent surveillance requirement." The changes proposed in the application for amendment are encompassed by this example in that the proposed change would add Limiting Conditions for Operation and surveillance requirements on the Reactor Protection System power monitoring system that previously had no specifications imposed, and is thus similar to the example designed above.

Therefore, since the application for amendment involves a proposed change that is similar to an example for which no significant hazards consideration exists, Commonwealth Edison has made a proposed determination that the application involves no sinificant hazards cnsideration.