ATTACHMENT A

Commonwealth Edison Company

Quad Cites Station Units 1 and 2

Proposed Changes to DPR-29 and DPR-30

Technical Specifications

Revised Pages: 3.7/4.7-6

3.7/4.7-6a

3.7'4.7-13

5364N

ATTACHMENT A

Commonwealth Edison Company

Quad Cites Station Units 1 and 2

Proposed Changes to DPR-29 and DPR-30

Technical Specifications

Revised Pages: 3.7/4.7-6

3.7/4.7-6a

3.7/4.7-13

5364N

points along the seal surface of the disk.

3) The position alarm system will annunciate in the control room if the valve opening exceeds the equivalent of 1/16 inch at all points along the seal surface of the disk.

b. Any pressure-suppression chamber-drywell vacuum breaker may be non-fully closed as indicated by the position indication and alarm systems provided that drywell to suppression chamber differential pressure decay rate is demonstrated to be not greater than 25% of the differential pressure decay rate for all vacuum breakers open the equivalent of 1/16 inch at all points along the seal surface of the disk.

c. Reactor operation may continue provided that no more than one quarter of the number of pressure suppression chamber-drywell vacuum breakers are determined to be inoperable provided that they are secured or known to be in the closed position.

d. If failure occurs in one of the two-position alarm systems for one or more vacuum breakers, reactor operation may continue provided that a differential pressure decay rate test is initiated immediately and performed every 15 days thereafter until the failure is corrected. The test shall meet the requirements of Specification 3.7.A.4.b.

5. Oxygen Concentration

a. After completion of the startup test program and demonstration of plant electrical output, the primary containment atmosphere shall be reduced to less than 4% oxygen by volume with nitrogen gas during reactor power operation with reactor coolant pressure above 90 psig.

2) Vacuum breaker position indication and alarm systems shall be calibrated and functionally tested.

3) At least 25% of the vacuum breakers shall be inspected such that all vacuum breakers shall have been inspected following every fourth refueling outage. If deficiencies are found, all vacuum breakers shall be inspected and deficiencies corrected.

4) A drywell to suppression chamber leak test shall demonstrate that with initial differential pressure of not less than 1.0 psi, the differential pressure decay rate does not exceed the rate which would occur through a 1-inch orifice without the addition of air or nitrogen.

5. Oxygen Concentration

The primary containment oxygen concentration shall be measured and recorded on a weekly basis.

except as specified in Specification 3.7.A.5.b.

b Within the 48-hour period subsequent to placing the reactor in the Run mode following a shutdown, the containment atmosphere oxygen concentration shall be reduced to less than 4% by volume, and maintained in this condition. Deinerting may commence 24 hours prior to a shutdown.

c. For the period from 10 P.M. January 14, 1979 to midnight January 21, 1979, the oxygen concentration limit in paragraph 3.7.A.5.b shall not apply unless adequate supplies of nitrogen or system load conditions sooner allow the inerting of the containment or shutdown of the reactor.

6. Containment Systems

Drywell-Suppression Chamber Differential Pressure

a. Differential pressure between the drywell and suppression chamber shall be maintained at equal to or greater than 1.20 psid except as specified in (1), (2), and (3) below:

(1) This differential shall be established within the 24 hour period subsequent to placing the reactor mode switch into the RUN mode during a startup and may be relaxed 24 hours prior to reactor shutdown when the provisions of 3.7.A.5(b) apply.

6. Containment Systems

Drywell-Suppression Chamber Differential Pressure

a. The pressure differential between the drywell and suppression chamber shall be recorded at least once each shift.

hydrogen, if it is present in sufficient quantities to result in excessively rapid recombination, could result in a loss of containment integrity.

The 4% oxygen concentration by volume minimizes the possibility of hydrogen combustion following a loss-of-coolant accident. Significant quantities of hydrogen could be generated if the core cooling system did not sufficiently cool the core. Providing an LCO by volume is consistent with the fact that the oxygen analyzer indicated in % oxygen by volume.

The occurrence of primary system leakage following a major refueling outage or other scheduled shutdown is much more probable than the occurrence of the loss-of-coolant accident upon which the specified oxygen concentration limit is based. Permitting access to the drywell for leak inspections during a startup is judged prudent in terms of the added plant safety offered without significantly reducing the margin of safety. Thus, to preclude the possibility of starting the reactor and operator and operating for extended periods of time with significant leaks in the primary system, leak inspections are scheduled during startup periods, when the primary system is at or near rated operating temperature and pressure.

The 48-hour period to provide inerting is judged to be sufficient to perform the leak inspection and establish the required oxygen concentration. The primary containment is normally slightly pressurized during periods of reactor operation. Nitrogen used for inerting could leak out of the containment but air could not leak in to increase oxygen concentration. Once the containment is filled with nitrogen to the required concentration, no monitoring of oxygen is necessary. However, at least once a week, the oxygen concentration will be determined as added assurance.

In conjunction with the Mark I Containment Short Term Program, a plant unique analysis was performed (Reference 5) which demonstrated a factor of safety of at least two for the weakest element in the suppression chamber support system and attached piping. The maintenance of a drywell-suppression chamber differential pressure of 1.20 psid and a suppression chamber water level corresponding to a downcomer submergence range of 3.21 to 3.54 feet will assure the integrity of the suppression chamber when subjected to post-LOCA suppression pool hydrodynamic forces.

B. Standby Gas Treatment System

The standby gas treatment system is designed to filter and exhaust the reactor building atmosphere to the stack during secondary containment isolation conditions, with a minimum release of radioactive materials from the reactor building to the environs. One standby gas treatment system circuit is designed to automatically start upon containment isolation and to maintain the reactor building pressure at the design negative pressure so that all leakage should be inleakage. Should one circuit fail to start, the redundant alternate standby gas treatment circuit is designed to start automatically. Each of the two circuits has 100% capacity. Only one of the two standby gas treatment system circuits is needed to cleanup the reactor building atmosphere upon containment isolation. If one system is found to be inoperable, there is not immediate threat to the containment system performance. Therefore, reactor operation or refueling operation may continue while repairs are being made. If neither circuit is operable, the plant is placed in a condition that does not require a standby gas treatment system.

While only a small amount of particulates are released from the primary containment as a result of the loss-of-coolant accident, high-efficiency particulate filters before and after the charcoal filters are specified to minimize potential particulate release to the environment and to prevent clogging of the charcoal adsorbers. The charcoal adsorbers are installed to reduce the potential release of radioidine to the environment. (The in-place test results should indicate a system leaktightness of less than 1% bypass leakage for the charcoal adsorbers using halogenated hydrocarbon and a HEPA filter efficiency of at least 99% removal of DOP particulates.

points along the seal surface of the disk.

3) The position alarm system will annunciate in the control room if the valve opening exceeds the equivalent of 1/16 inch at all points along the seal surface of the disk.

b. Any pressure-suppression chamber-drywell vacuum breaker may be non-fully closed as indicated by the position indication and alarm systems provided that drywell to suppression chamber differential pressure decay rate is demonstrated to be not greater than 25% of the differential pressure decay rate for all vacuum breakers open the equivalent of 1/16 inch at all points along the seal surface of the disk.

c. Reactor operation may continue provided that no more than one quarter of the number of pressure suppression chamber-drywell vacuum breakers are determined to be inoperable provided that they are secured or known to be in the closed position.

d. If failure occurs in one of the two-position alarm systems for one or more vacuum breakers, reactor operation may continue provided that a differential pressure decay rate test is initiated immediately and performed every 15 days thereafter until the failure is corrected. The test shall meet the requirements of Specification 3.7.A.4.b.

5. Oxygen Concentration

a. After completion of the startup test program and demonstration of plant electrical output, the primary containment atmosphere shall be reduced to less than 4% oxygen by volume with nitrogen gas during reactor power operation with reactor coolant pressure above 90 psig.

2) Vacuum breaker position indication and alarm systems shall be calibrated and functionally tested.

3) At least 25% of the vacuum breakers shall be inspected such that all vacuum breakers shall have been inspected following every fourth refueling outage. If deficiencies are found, all vacuum breakers shall be inspected and deficiencies corrected.

4) A drywell to suppression chamber leak test shall demonstrate that with initial differential pressure of not less than 1.0 psi, the differential pressure decay rate does not exceed the rate which would occur through a 1-inch orifice without the addition of air or nitrogen.

5. Oxygen Concentration

The primary containment oxygen concentration shall be measured and recorded on a weekly basis.

except as specified in Specification 3.7.A.5.b.

b. Within the 48-hour period subsequent to placing the reactor in the Run mode following a shutdown, the containment atmosphere oxygen concentration shall be reduced to less than 4% by volume, and maintained in this condition. Deinerting may commence 24 hours prior to a shutdown.

6. Containment Systems

Drywell-Suppression Chamber Differential Pressure

a. Differential pressure between the drywell and suppression chamber shall be maintained at equal to or greater than 1.20 psid except as specified in (1), (2), and (3) below:

(1) This differential shall be established within the 24 hour period subsequent to placing the reactor mode switch into the RUN mode during a startup and may be relaxed 24 hours prior to reactor shutdown when the provisions of 3.7.A.5(b) apply.

(2) This differential may be decreased to less than 1.20 psid for a maximum of 4 hours during required operability testing of the HPCI system pump, the RCIC system pump, the drywell-pressure suppression chamber vacuum breakers, and reactor pressure relief valves.

6. Containment Systems

Drywell-Suppression Chamber Differential Pressure

a. The pressure differential between the drywell and suppression chamber shall be recorded at least once each shift.

hydrogen, if it is present in sufficient quantities to result in excessively rapid recombination, could result in a loss of containment integrity.

The 4% oxygen concentration by volume minimizes the possibility of hydrogen combustion following a loss-of-coolant accident. Significant quantities of hydrogen could be generated if the core cooling system did not sufficiently cool the core. Providing an LCO by volume is consistent with the fact that the oxygen analyzer indicated in % oxygen by volume.

The occurrence of primary system leakage following a major refueling outage or other scheduled shutdown is much more probable than the occurrence of the loss-of-coolant accident upon which the specified oxygen concentration limit is based. Permitting access to the drywell for leak inspections during a startup is judged prudent in terms of the added plant safety offered without significantly reducing the margin of safety. Thus, to preclude the possibility of starting the reactor and operator and operating for extended periods of time with significant leaks in the primary system, leak inspections are scheduled during startup periods, when the primary system is at or near rated operating temperature and pressure.

The 48-hour period to provide inerting is judged to be sufficient to perform the leak inspection and establish the required oxygen concentration. The primary containment is normally slightly pressurized during periods of reactor operation. Nitrogen used for inerting could leak out of the containment but air could not leak in to increase oxygen concentration. Once the containment is filled with nitrogen to the required concentration, no monitoring of oxygen is necessary. However, at least once a week, the oxygen concentration will be determined as added assurance.

In conjunction with the Mark I Containment Short Term Program, a plant unique analysis was performed (Reference 5) which demonstrated a factor of safety of at least two for the weakest element in the suppression chamber support system and attached piping. The maintenance of a drywell-suppression chamber differential pressure of 1.20 psid and a suppression chamber water level corresponding to a downcomer submergence range of 3.21 to 3.54 feet will assure the integrity of the suppression chamber when subjected to post-LOCA suppression pool hydrodynamic forces.

B. Standby Gas Treatment System

The standby gas treatment system is designed to filter and exhaust the reactor building atmosphere to the stack during secondary containment isolation conditions, with a minimum release of radioactive materials from the reactor building to the environs. One standby gas treatment system circuit is designed to automatically start upon containment isolation and to maintain the reactor building pressure at the design negative pressure so that all leakage should be inleakage. Should one circuit fail to start, the redundant alternate standby gas treatment circuit is designed to start automatically. Each of the two circuits has 100% capacity. Only one of the two standby gas treatment system circuits is needed to cleanup the reactor building atmosphere upon containment isolation. If one system is found to be inoperable, there is not immediate threat to the containment system performance. Therefore, reactor operation or refueling operation may continue while repairs are being made. If neither circuit is operable, the plant is placed in a condition that does not require a standby gas treatment system.

While only a small amount of particulates are released from the primary containment as a result of the loss-of-coolant accident, high-efficiency particulate filters before and after the charcoal filters are specified to minimize potential particulate release to the environment and to prevent clogging of the charcoal adsorbers. The charcoal adsorbers are installed to reduce the potential release of radioidine to the environment. (The in-place test results should indicate a system leaktightness of less than 1% bypass leakage for the charcoal adsorbers using halogenated hydrocarbon and a HEPA filter efficiency of at least 99% removal of DOP particulates.