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ILLINOIS POWER

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July 3, 1996

Docket No. 50-461

10CFR50.90

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Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Clinton Power Station Response to Request for Additional Information Related to Proposed Amendment of Facility Operating License No. NPF-62 (LS-96-001)

Dear Sir:

By letter dated August 12, 1994 (letter number U-602320) Illinois Power (IP) submitted an application for amendment of the Clinton Power Station (CPS) Operating License (License No. NPF-62) to incorporate a proposed change to the CPS Technical Specifications (Appendix A). IP proposed to revise Technical Specification (TS) 3.6.5.1, "Drywell," to allow drywell bypass leakage tests (DBLRTs) to be performed at intervals of up to ten years based, in part, on the demonstrated performance of the drywell barrier with respect to leak tightness.

IP had originally requested NRC review to support the fifth refueling outage (RF-5) which was conducted in March 1995. However, NRC review to support a permanent change could not be completed in sufficient time to support RF-5. Based on the large margin to the drywell bypass leakage limit, a one-time change to support RF-5 was subsequently approved as Amendment No. 96 dated March 1, 1995 as NRC continued its review of IP's permanent amendment request. In addition, NRC requested that this testing improvement be addressed generically for the Boiling Water Reactor (BWR)-6 product line (i.e., for Grand Gulf Nuclear Station, River Bend Station, Perry Nuclear Power Plant, and CPS).

On September 12, 1995, the BWR-6 licensees met with the NRC Staff to discuss generic aspects and justification for the proposed changes. Based on the results of that meeting, additional changes to the CPS TS were proposed in IP letter U-602549 dated February 22, 1996, consistent with the changes already docketed by the other BWR-6 licensees.

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Just prior to submittal of IP's February 22, 1996 letter, IP received a Request for Additional Information (RAI) from the NRC (dated February 14, 1996) requesting a formal response to a number of questions that were previously asked of Entergy Operations related to their request for River Bend Station and Grand Gulf Nuclear Station. While IP's February 22, 1996 letter provided information related to many of the subject questions, each of the questions was not specifically addressed. Attachments 1 and 2 to this letter provide IP's response to each of the questions contained in the RAI. In addition, as verbally requested of IP by the NRC Project Manager, this letter provides additional information related to retaining the current TS frequency for performing inspections of the drywell surfaces in light of IP's request (and NRC's recent approval) to implement Option B of 10CFR50, Appendix J at CPS.

As a reminder, due to the refueling outage safety improvement and significant resource savings that can be realized by implementation of this proposed DBLRT frequency relaxation, IP is requesting that this application be reviewed on a schedule sufficient to support the sixth refueling outage currently scheduled to begin October 13, 1996.

Sincerely yours,

Michael W. Lyon
Director-Licensing

DAS/csm

Attachments

cc: NRC Clinton Licensing Project Manager
NRC Resident Office, V-690
Regional Administrator, Region III, USNRC
Illinois Department of Nuclear Safety

By letter dated February 14, 1996, the NRC requested additional information related to Illinois Power's (IP's) August 12, 1994 request to amend the Operating License for Clinton Power Station (CPS). Information related to many of these questions was provided in IP's February 22, 1996 letter. However, each question was not specifically addressed. IP's response to each of the specific questions is provided below.

Questions and Responses

1. **"How is the Technical Specification verification of closure of the purge valves performed?"**

Response: Per procedure CPS No. 9064.03, "Containment HVAC Supply/Exhaust Valve and Drywell Vent/Purge Supply Isolation Valve Sealed Closed Verification," the drywell vent and purge **supply** isolation valves 1VQ001A and 1VQ001B are verified to be sealed closed at least once per 31 days (as required by SR 3.6.5.3.1) by verifying that the associated control switches are tagged in the closed position. The drywell vent and purge **exhaust** isolation valves 1VQ002 and 1VQ005 are verified to be closed at least once per 31 days (as required by SR 3.6.5.3.2) by verifying that the associated control switches are in the closed position. Drywell vent and purge **exhaust** isolation valve 1VQ003 is normally in the open position to support operation of the continuous containment purge system and therefore, is open "to support air quality considerations for personnel entry" into primary containment as allowed by the Note to SR 3.6.5.3.2. In addition to the above-noted verifications of control switch position/control, CPS No. 9064.03 also requires that the valve position indicating lights in the main control room indicate that the valves are in the closed position.

2. **"What are the leakage and closure verification requirements for the drywell equipment hatch? What assurance is there, if no drywell bypass leakage rate test is performed, that the drywell equipment hatch is not leaking excessively?"**

Response: As identified on page 11 of Attachment 2 to IP letter U-602549 dated February 22, 1996, the drywell equipment hatch penetration will continue to be required to be leak tested following each refueling outage by Technical Specification LCO 3.6.5.1 (via SR 3.0.1 which requires performance of appropriate post-maintenance testing to assure that SR 3.6.5.1.1 continues to be met). Procedurally, following each refueling outage, CPS No. 3001C001, "Approach to Critical Checklist," Step 11.2, triggers performance of CPS No. 3021.01, "Drywell Closeout (Long

Form)," prior to entry into MODE 2. Step 8.3.7 of CPS No. 3021.01 requires, in part, performance of a local leak rate test (LLRT) of the drywell equipment hatch seals per CPS No. 9861.03, "Type B Local Leak Rate Testing." Step 9.2.3 of CPS No. 9861.03 requires the drywell equipment hatch leakage rate to be less than or equal to 20 sccm.

3. **"What requirements are there for leakage rate testing of the drywell after modifications to the drywell structure or penetrations?"**

Response: The drywell will continue to be required to be leak tested following modification to the drywell structure or penetrations via Technical Specification (TS) LCO 3.6.5.1 (via SR 3.0.1 which requires performance of appropriate post-maintenance testing to assure that SR 3.6.5.1.1 continues to be met). If such a modification could adversely affect the leakage rate of the drywell, leak testing would be required.

4. **"Demonstrate, if possible, that one purge valve can be left open without exceeding the containment failure pressure."**

Response: As discussed in response to item 1 previously, plant procedures ensure that the drywell vent and purge isolation valves are in the closed position as required by the CPS TS. Notwithstanding these controls, as discussed on page 13 of Attachment 2 to U-602549 dated February 22, 1996, the drywell bypass leakage area design limit of 1.18 ft^2 would not be exceeded even if the drywell vent and purge **exhaust penetration flow path** is fully open in conjunction with other drywell bypass leakage equal to 10% of the design drywell bypass leakage limit (i.e., at the Technical Specification limit) since the effective $A/\sqrt{k}$ for this penetration is estimated to be approximately 1 ft^2. (That is, the resultant leakage would be 1.0 ft^2 + 0.118 ft^2 = 1.118 ft^2.) Additional margin to primary containment failure exists due to the primary containment's ability to withstand pressures much greater than the 15 psig design value. As previously stated, the drywell vent and purge **supply penetration flow path** is required to be sealed closed with the plant in Mode 1, 2, and 3 per SR 3.6.5.3.1. Thus, it is not credible to assume significant leakage through the drywell vent and purge **supply penetration flow path** when drywell integrity is required.

5. **"Discuss the consequences of a loss of the sealing medium of the electrical penetrations. Estimate the A/√k value for loss of sealing medium for both a single penetration and for all penetrations."**

Response: The drywell electrical penetrations at CPS consist of electrical conduits not larger than 6 inches which are embedded in the drywell wall. During initial construction, the concrete drywell wall was poured around the electrical conduits. After cable installation, the conduits were sealed with at least 12 inches (depth) of Bisco Locaseal, which is an epoxy-based sealing compound qualified for harsh environmental conditions. The remainder of the conduit was sealed with either Bisco SF-150NH or Bisco NS1. Bisco SF-150NH has a nominal density of 150 pounds per cubic foot and Bisco NS1 has a nominal density of 200 pounds per cubic foot. These seals are designed to last for the life of the plant and resist the highest pressure and temperature postulated to occur in the drywell.

IP has not experienced any shrinkage or other problems with these sealing configurations following initial startup testing, nor is IP aware of any industry problems with these sealing compounds. Notwithstanding, any credible failure mechanisms would be more likely to cause seal degradation (with the seal remaining in the conduit) rather than cause a complete loss of the seal. Loss of multiple seals or degradation of multiple seals is of very low probability. In addition, the cable passing through the penetration limits the available flow path area to some extent, even if there were no sealant present. As discussed on page 10 of Attachment 2 to U-602549 dated February 22, 1996, IP has shown that all four of the 10-inch drywell post-LOCA vacuum relief subsystem penetrations (2.24 square feet total area) could be failed fully open without exceeding the design drywell bypass leakage limit. IP does not, therefore, consider it credible that electrical penetrations could fail to the extent that primary containment operability would be challenged in the event of a LOCA.

As evidenced by the continuous successful drywell bypass leakage rate tests performed since initial plant operation, the drywell electrical penetrations have demonstrated high reliability in performing their drywell isolation function. This proven reliability of the electrical penetrations is consistent with the 10CFR50 Appendix J Option B ten-year required test interval for primary containment electrical penetrations in supporting the containment isolation function (Type B testing).

6. **"Provide a list of all drywell isolation valves along with their diameters. Indicate which valves close automatically on indication of a LOCA and which valves are locked closed when drywell integrity is required. Indicate which valves have position indication in the control room. For those valves which have neither automatic isolation or are not locked closed, what assurance is there that the valves will be shut if a LOCA occurs? Can it be demonstrated that all valves below a certain diameter can be open during a LOCA without exceeding the design $A/\sqrt{k}$ value? If relevant material is in the USAR, a reference is sufficient."**

Response: The drywell isolation valves, their diameters, whether an automatic closure signal is provided, and whether valve position indication instrumentation is provided in the main control room are listed on Table 1 contained in Attachment 2 to this letter. All but 14 of the drywell isolation valves listed on Table 1 either receive an automatic isolation signal or are locked closed when drywell integrity is required. While not locked closed, the noted 14 valves are normally in the closed position when drywell integrity is required. Each of these 14 valves are addressed separately below.

Valves 1E12-F301A (1MD-15), 1E12-F301B (1MD-16), 1E12-F301C (1MD-17), 1E22-F304 (1MD-35), and 1E21-F340 (1MD-36) are 3/4-inch solenoid-operated equalizing valves associated with the test feature of the associated emergency core cooling system injection line check valves. These valves are Reactor Coolant System Pressure Isolation Valves and thus are leak tested with water at 1000 psi at least once per 18 months as required by TS SR 3.4.6.1. These solenoid-operated valves have position indication in the main control room, are normally closed, and are signaled to open only when the test push button for the associated check valve is depressed.

Valves 1E12-F073B (1MD-94) and 1E12-F073A (1MD-125) are 1-1/2 inch remotely operated motor-operated valves located inside the drywell. These valves are normally closed and have position indication in the main control room. These valves are required to be verified to be in the closed position as part of the system valve lineups performed prior to plant restart following a refueling outage.

Valves 1E31-F016 and 1E31-F019 (1MD-182) are 1-inch solenoid-operated valves located inside the drywell. These valves are installed spares which are not currently electrically connected (i.e., de-energized in the closed position). Since they are not electrically connected, no position indication is provided in the main control room, nor are the valves capable of being opened.

The remaining valves, 1B33-F021 (1MD-13), 1WO557 (1MD-53), 1WO560 (1MD-53), 1VQ011 (1MD-101), and 1VQ012 (1MD-102) are 3/4-inch test connections located between the drywell and the primary containment. These valves are normally closed, and the associated piping end/test connections are capped. No position indication is provided in the main control room. These valves are required to be verified to be in the closed position as part of the system valve lineups performed prior to plant restart following a refueling outage.

Based on the above, it has been concluded there is adequate assurance that the 14 noted valves will be shut if a LOCA occurs when drywell integrity is required.

With respect to whether these valves could be open during a LOCA without exceeding the design $A/\sqrt{k}$ value, the largest of these valves is 1-1/2 inches in diameter. As discussed on page 10 of Attachment 2 to U-602549 dated February 22, 1996, IP has shown that all four of the 10-inch drywell post-LOCA vacuum relief subsystem penetrations (78.5 square inches total area) could be failed fully open without exceeding the design drywell bypass leakage limit. Thus, it has been concluded that the ten 3/4 inch, two 1 inch, and two 1-1/2 inch lines (9.52 square inches total area) noted above could be failed fully open without exceeding the design drywell bypass leakage limit.

7. **"Performance of a drywell bypass leakage rate test following a refueling outage confirms that all penetrations are properly isolated and that excessive bypass leakage due to seal or valve damage does not exist. In lieu of performing this test, discuss how plant procedures will provide sufficient assurance that unacceptable drywell bypass leakage does not exist."**

Response: With respect to ensuring all penetrations are properly isolated, as discussed in response to Question 6 above, SR 3.6.5.3.1, SR 3.6.5.3.2, SR 3.6.5.3.3, and LCO 3.6.5.3 Required Action A.2 require verification that each drywell penetration that is not capable of being isolated by an operable automatic drywell isolation valve is, in fact, isolated. These requirements are met by the performance of procedures CPS No. 9064.03, "Containment HVAC Supply/Exhaust Valve and Drywell Vent/Purge Supply Isolation Valve Sealed Closed Verification," CPS No. 9060.01, "Drywell Integrity Verification," CPS No. 3021.01V001, "Drywell Valve Lineup," and CPS No. 9061.05, "Containment and Drywell Test Connection Lineup." In addition, SR 3.6.5.6.1 requires verification that the drywell post-LOCA vacuum relief valves are in the closed position. This requirement is met by the performance of CPS No. 9064.01, "Drywell Post-LOCA Vacuum Breaker Verification Test." Following a refueling outage, these procedures are triggered by CPS No. 3021.01, "Drywell Closeout (Long Form)," (via CPS No. 3001.01C001, "Approach to Critical Checklist,") prior to entry into Mode 2.

With respect to the potential for excessive drywell bypass leakage due to seal damage, as noted in response to Question 2 above, the seals on the drywell equipment hatch will continue to be required to be leak tested following each refueling outage by Technical Specification LCO 3.6.5.1 (via SR 3.0.1 which requires performance of appropriate post-maintenance testing to assure that SR 3.6.5.1.1 continues to be met). These Technical Specification requirements are also applicable to the seals associated with the drywell head. The drywell air lock door seals continue to be required to be leak tested within 72 hours of each closure per proposed SR 3.6.5.1.1 (current SR 3.6.5.2.1).

With respect to the potential for excessive drywell bypass leakage due to electrical penetration seal or drywell isolation valve damage, on-line monitoring capabilities of the CPS design allow for detection of leakage in excess of drywell design leakage limits. As discussed on page 14 of Attachment 2 to U-602549 dated February 22, 1996, the existence of small instrument air system leaks and normal operation of pneumatic controls and operators in the drywell cause the drywell to slowly pressurize during normal plant operation. Based on the large demonstrated margin to the allowable drywell leakage rate and the size of potential instrument air system pipe breaks, IP has concluded that as long as the drywell continues to pressurize, regardless of the rate, drywell integrity is assured.

Notwithstanding this on-line monitoring capability, IP committed in letter U-602549 to perform a qualitative assessment of the drywell leak tightness at least once per operating cycle. This assessment, while not quantitative, will provide added assurance that the drywell is capable of performing its design function.

8. **"Discuss any operational problems (problems with tests, material problems, etc.) which have occurred and are relevant to extending the drywell bypass leakage rate test interval."**

Response: As identified on Table 2 of Attachment 2 to U-602549 dated February 22, 1996, the measured drywell bypass leakage during the initial drywell bypass leakage test in January 1986 was 273.0 scfm. All subsequent leak tests have resulted in measurements less than 31 scfm. Although the January 1986 test results represented only 0.63% of the design allowable bypass leakage rate of 43,120 scfm, the measured leakage was attributed primarily to a defective electrical penetration seal which was later repaired. The effectiveness of the repair has been demonstrated by the significant reduction in leakage measured in subsequent bypass leakage tests. As stated in response to Question 5 above, IP has not experienced any shrinkage or other problems with the continued integrity of the electrical penetration sealing configuration used in the CPS drywell following initial startup testing nor is IP aware of any industry problems with those sealing compounds. CPS has not experienced any other operational problems relevant to extending the drywell bypass leakage rate test interval.

Additional Information

In addition to the information formally requested in NRC's Request for Additional Information (RAI) dated February 14, 1996, IP was requested to provide additional information regarding the frequency for performing visual inspections of the exposed accessible interior and exterior surfaces of the drywell as required by SR 3.6.5.1.2 (proposed SR 3.6.5.1.4). Drywell inspections have normally been performed in conjunction with the required inspections of the primary containment (which are required prior to performance of Type A leakage rate tests). Per the Technical Specifications, the drywell inspection is required (by SR 3.6.5.1.2) to be performed at least "once prior to each Type A test required by SR 3.6.1.1." The frequency for performing Type A tests is, in turn, dependent on whether a plant is committed to Option A or Option B for 10CFR50 Appendix J. In accordance with Option A for 10CFR50, Appendix J, paragraph III.D.1, ". . . a set of three Type A tests . . . at approximately equal intervals during each 10-year service period . . " would be required by SR 3.6.1.1. Thus, inspection of the drywell surfaces would be required at least three times during each 10-year service period. This equates to an inspection of the primary containment being required approximately every other refueling outage.

By letter dated May 1, 1996, IP requested changes to the CPS Operating License to implement Option B for 10CFR50, Appendix J. IP's request was subsequently approved by the NRC, and is reflected in recently issued Amendment No. 105 to the CPS Operating License. Amendment No. 105 allows the frequency for performing Type A (as well as Type B and C) testing of the primary containment to be performance-based, and allows the Type A testing to be extended up to 10 years based on good performance (in accordance with Option B for 10CFR50, Appendix J). Per Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," Regulatory Position C.3, inspection of the primary containment surfaces must be performed ". . . prior to initiating a Type A test, and during two other refueling outages before the next Type A test if the interval for the Type A test has been extended to 10 years." This position is reflected in the NRC's letter to IP issued with Amendment No. 105. Thus, inspections of the primary containment will be maintained at a frequency of at least three inspections per 10-year interval, while Type A testing may be extended up to 10 years with good performance.

IP's May 1, 1996 request did not specifically address the impact that the proposed change in the Type A test interval would have on the frequency of drywell inspections per current SR 3.6.5.1.2. With the issuance of Amendment No. 105, as noted above, the frequency for performing drywell inspections could be as long as 10 years, while inspections of the primary containment will be maintained at a frequency of at least three inspections per 10-year interval. The NRC staff has requested IP to address this disparity.

To repeat, with the adoption of Option B for 10CFR50 Appendix J, and as currently allowed by the CPS Technical Specifications, inspection intervals for the drywell may be extended up to 10 years. IP believes that this frequency is appropriate in light of the justification provided in IP's letter dated February 22, 1996 for extending the test interval for the drywell bypass leak tests up to 10 years based on drywell performance. In addition, as discussed in response to Question 7 previously, on-line monitoring capabilities of the CPS design allow for detection of leakage in excess of drywell design leakage limits during normal plant operation. As further discussed in response to Question 7 previously and on page 14 of Attachment 2 to IP's February 22, 1996 letter, the existence of small instrument air system leaks and the normal operation of pneumatic controls and operators in the drywell cause the drywell to slowly pressurize during normal plant operation. Based on the large demonstrated margin to the allowable drywell leakage rate relative to the size of potential instrument air system pipe breaks, IP has concluded that as long as the drywell continues to pressurize, regardless of the rate, drywell integrity is assured.

Notwithstanding this on-line monitoring capability, IP committed in its February 22, 1996 letter to perform a qualitative assessment of the drywell leak tightness at least once per operating cycle. This assessment, while not quantitative, will provide added assurance that the drywell is capable of performing its design function.

Based on the above, IP believes that extension of the drywell visual inspection intervals up to 10 years is justified.

Table 1

DRYWELL ISOLATION VALVES

System	Penetration Number	Valve(s)	Operator Type	Valve Type	Diameter (in.)	MCR Pos. Indication	Automatic Closure
Standby Liquid Control	1MD-4	1C41-F007	-------	Check	3	No	Check Valve
		1C41-F336	-------	Check	4	No	Check Valve
		1C41-F006	-------	Check	3	No	Check Valve
		1C41-F026	Manual	Globe	3/4	No	Locked Closed
RR Pump Seal Purge "A"	1MD-11	1B33-F013A	-------	Check	3/4	No	Check Valve
		1B33-F017A	-------	Check	3/4	No	Check Valve
RR Pump Seal Purge "B"	1MD-12	1B33-F013B	-------	Check	3/4	No	Check Valve
		1B33-F017B	-------	Check	3/4	No	Check Valve
RR Process Sampling	1MD-13	1B33-F020	AOV	Globe	3/4	Yes	Yes
		1B33-F021	Manual	Globe	3/4	No	Closed/Capped
		1B33-F019	AOV	Globe	3/4	Yes	Yes
RHR/LPCI "A"	1MD-15	1E12-F041A	-------	Check	12	Yes	Check Valve
		1E12-F301A	AOV	Gate	3/4	Yes	NC/open for test
		1E12-F056A	Manual	Globe	3/4	No	Locked Closed
RHR/LPCI "B"	1MD-16	1E12-F041B	-------	Check	12	Yes	Check Valve
		1E12-F301B	AOV	Gate	3/4	Yes	NC/open for test
		1E12-F056B	Manual	Globe	3/4	No	Locked Closed
		1E12-F456A	Manual	Globe	3/4	No	Locked Closed
		1E12-F373C	Manual	Globe	3/4	No	Locked Closed
RHR/LPCI "C"	1MD-17	1E12-F041C	-------	Check	12	Yes	Check Valve
		1E12-F301C	AOV	Gate	3/4	Yes	NC/open for test
		1E12-F456B	Manual	Globe	3/4	No	Locked Closed
		1E12-F351	Manual	Globe	3/4	No	Locked Closed
HPCS discharge to Reactor Pressure Vessel	1MD-35	1E22-F005	-------	Check	10	Yes	Check Valve
		1E22-F304	AOV	Gate	3/4	Yes	NC/open for test
		1E22-F366B	Manual	Globe	3/4	No	Locked Closed
LPCS discharge to Reactor Pressure Vessel	1MD-36	1E21-F006	-------	Check	10	Yes	Check Valve
		1E21-F358	Manual	Globe	3/4	No	Locked Closed
		1E21-F340	AOV	Gate	3/4	Yes	NC/open for test
		1E21-F356A	Manual	Globe	3/4	No	Locked Closed

DRYWELL ISOLATION VALVES

System	Penetration Number	Valve(s)	Operator Type	Valve Type	Diameter (in.)	MCR Pos. Indication	Automatic Closure
Chilled Water for drywell cooling coil cabinets G & H	1MD-53	1WO551B	MOV	Gate	4	Yes	Yes
		1WO557	Manual	Globe	3/4	No	Closed/Capped
		1WO570A	------	Relief	3/4	No	Relief Valve
		1WO551A	MOV	Gate	4	Yes	Yes
	1MD-53	1WO552B	MOV	Gate	4	Yes	Yes
		1WO560	Manual	Globe	3/4	No	Closed/Capped
		1WO570B	------	Relief	3/4	No	Relief Valve
		1WO552A	MOV	Gate	4	Yes	Yes
Instrument Air	1MD-57	1IA007	AOV	Gate	3	Yes	Yes
		1IA008	AOV	Gate	3	Yes	Yes
Service Air	1MD-59	1SA032	AOV	Gate	3	Yes	Yes
		1SA031	AOV	Gate	3	Yes	Yes
Drywell Equipment Drains, pump disch	1MD-69	1RE019	AOV	Gate	3	Yes	Yes
		1RE020	AOV	Gate	3	Yes	Yes
Drywell Floor Drains, pump disch	1MD-70	1RF019	AOV	Gate	3	Yes	Yes
		1RF020	AOV	Gate	3	Yes	Yes
Drywell Vacuum Breakers	1MD-72	1HG010A	-------	Check	10	Yes	Check Valve
		1HG011A	-------	Check	10	Yes	Check Valve
RHR	1MD-94	1E12-F073B	MOV	Globe	1 1/2	Yes	Closed
		1E12-F110B	-------	Check	2	No	Check Valve
Drywell Purge Air inlet	1MD-101	1VQ001B	AOD	Butterfly	24	Yes	Yes
		1VQ011	Manual	Globe	3/4	No	Closed/Capped
		1VQ001A	AOD	Butterfly	24	Yes	Yes
Drywell Purge Air outlet	1MD-102	1VQ002	AOD	Butterfly	24	Yes	Yes
		1VQ005	AOD	Butterfly	10	Yes	Yes
		1VQ003	AOD	Butterfly	36	Yes	Yes
		1VQ012	Manual	Globe	3/4	No	Closed/Capped
Breathing Air	1MD-106	0RA028	AOV	Gate	1	Yes	Yes
		0RA029	AOV	Gate	1	Yes	Yes
Drywell Vacuum Breakers	1MD-117	1HG010B	-------	Check	10	Yes	Check Valve
		1HG011B	-------	Check	10	Yes	Check Valve
Drywell Vacuum Breakers	1MD-119	1HG010D	-------	Check	10	Yes	Check Valve
		1HG011D	-------	Check	10	Yes	Check Valve
Drywell Vacuum Breakers	1MD-120	1HG010C	-------	Check	10	Yes	Check Valve
		1HG011C	-------	Check	10	Yes	Check Valve
Fire Protection	1MD-124	1FP079	MOV	Gate	4	Yes	Yes
		1FP078	MOV	Gate	4	Yes	Yes

DRYWELL ISOLATION VALVES

System	Penetration Number	Valve(s)	Operator Type	Valve Type	Diameter (in.)	MCR Pos. Indication	Automatic Closure
Condensate Makeup/ RHR	1MD-125	1CY020	MOV	Gate	3	Yes	Yes
		1CY021	MOV	Gate	3	Yes	Yes
	1MD-125	1E12-F073A	MOV	Globe	1 1/2	Yes	Closed
		1E12-F110A	-------	Check	2	No	Check Valve
Leak Detection	1MD-182A	1E31-F014	SOV	Gate	1	Local Only	Yes
		1E31-F016	SOV	Gate	1	No	Failed Closed
		1E31-F015	SOV	Gate	1	Local Only	Yes
	1MD-182B	1E31-F018	SOV	Gate	1	Local Only	Yes
		1E31-F019	SOV	Gate	1	No	Failed Closed
		1E31-F017	SOV	Gate	1	Local Only`	Yes

Table Legend

AOD Air Operated Damper
AOV Air Operated Valve
HPCS High Pressure Core Spray system
LPCI Low Pressure Coolant Injection mode of the RHR system
LPCS Low Pressure Core Spray system
MOV Motor Operated Valve
MCR Main Control Room
NC Normally Closed
RHR Residual Heat Removal system
RR Reactor Recirculation
SOV Solenoid Operated Valve