



OLIVER D. KINGSLEY, JR.
Vice President
Nuclear Operations

August 31, 1988

U. S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D. C. 20555

Attention: Document Control Desk

Gentlemen:

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-29
Type C Testing of Test, Vent and
Drain Valves
Proposed Amendment to the Operating
License (PCOL-88/16)
AECM-88/0177

System Energy Resources, Inc. (SERI) is submitting by this letter a proposed amendment to the Grand Gulf Nuclear Station (GGNS) Operating License. The proposed amendment deletes the requirement for Type C testing of certain test, vent and drain valves. The Type C testing will be replaced with an administrative leakage control program to ensure the leak tight integrity of these TVDs.

In accordance with the provisions of 10 CFR 50.4, the original of the requested amendment is enclosed and the appropriate copies will be distributed. Attachment 3 provides the justification and discussion to support the requested amendment. This amendment has been reviewed and accepted by the Plant Safety Review Committee and the Safety Review Committee.

Based upon the guidelines presented in 10 CFR 50.92, SERI has concluded that this proposed amendment involves no significant hazards considerations.

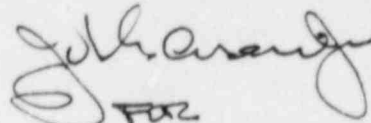
In accordance with the requirements of 10 CFR 170.21, an application fee of \$150 is attached to this letter.

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This amendment change is needed by January 1, 1989 to support activities planned for the third refueling outage (RF03).

Yours truly,


FOR
OD KINSEY, JR.

ODK:bms

Attachments: 1. Remittance of \$150 Application Fee
2. Affirmation per 10 CFR 50.30
3. GGNS PCOL-88/16

cc: Mr. T. H. Cloninger (w/a)
Mr. R. B. McGehee (w/a)
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BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

LICENSE NO. NPF-29

DOCKET NO. 50-416

IN THE MATTER OF
MISSISSIPPI POWER & LIGHT COMPANY
and
SYSTEM ENERGY RESOURCES, INC.
and
SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION

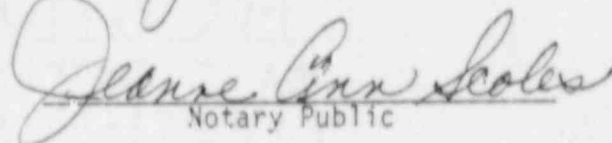
AFFIRMATION

I, T. H. Cloninger, being duly sworn, state that I am Vice President, Nuclear Engineering and Support of System Energy Resources, Inc.; that on behalf of System Energy Resources, Inc., and South Mississippi Electric Power Association I am authorized by System Energy Resources, Inc. to sign and file with the Nuclear Regulatory Commission, this application for amendment of the Operating License of the Grand Gulf Nuclear Station; that I signed this application as Vice President, Nuclear Engineering and Support of System Energy Resources, Inc.; and that the statements made and the matters set forth therein are true and correct to the best of my knowledge, information and belief.

STATE OF MISSISSIPPI
COUNTY OF HINDS

SUBSCRIBED AND SWORN TO before me, a Notary Public, in and for the
County and State above named, this 3rd day of August, 1988.

(SEAL)


Notary Public

My commission expires:

My Commission Expires Sept. 21, 1991

A. SUBJECT

1. PS 88-01: Deleting Type C Testing of Test, Vent and Drain Connections
2. Affected Technical Specifications:
 - Specification 3.6.1.2
Page 3/4 5-2, 3
 - TABLE 3.6.4-1
Pages 3/4 6-30, 38, 39, 40, 41 and 3/4 6-43, 44, 45

B. DISCUSSION

1. Radiological consequences of loss of coolant accidents are analyzed using a containment design leakage rate (L_d). In the event of any radioactivity releases within the containment, the loss of the containment atmosphere through leakage paths must not be in excess of this design leakage rate. Therefore, a containment leakage testing program is needed to ensure that the containment leakage rate is less than this design leakage rate. This containment leakage testing program consists primarily of test requirements and acceptance criteria of 10CFR Part 50 Appendix J. The successful completion of periodic Type A integrated leak rate tests assure that the containment leakage rate does not exceed the design leakage rate assumed in the accident analysis. Furthermore, the acceptance criteria on measured overall integrated leakage rate is reduced to $0.75 L_d$ to account for possible degradation of leakage barriers between Type A tests. The more frequent Type B and C local leak rate tests ensure proper and timely maintenance and repairs of containment penetrations and isolation valves to maintain leakage within the design leakage rate.
2. Test, vent and drain connections are provided for the purpose of leak rate testing containment isolation valves. The purpose of the Type C local leak rate tests on the test, vent and drain valves (TVDs) is to ensure proper and timely maintenance and repairs to these valves in the time period between the Type A integrated leak rate tests. This Type C testing allows significant degradation of these TVDs to be detected and corrected, and so ensures that overall containment leakage is maintained within the design leakage rate.
3. The 1987 approved revision to ANSI/ANS - 56.8, American National Standard Containment System Leakage Testing Requirements addresses these test connection valves. In Section 6.2 - Test Boundaries and Connections for Testing, the standard states that due to infrequent use and multiple barriers, these test connection valves do not require leakage rate testing as long as the barrier configurations are maintained using an administrative control program. Additionally, ASME Section XI article IWB-1200 exempts these valves from inservice testing.

4. Recent surveys by the BWROG Containment Testing Committee indicate that the accepted industry practice is consistent with the above reference. SERI reviewed several approved Technical Specifications of utilities participating in the survey and others to confirm this accepted industry practice.
5. Additionally, the NRC Standard Review Plan 6.2.6 Containment Leakage Testing (Rev 2) allows the leak testing of test, vent and drain connections to be under administrative control.
6. SERI proposes to delete the requirement for Type C testing of certain test, vent and drain valves (TVDs) in the Grand Gulf Technical Specification Table 3.6.4-1. The 10CFR50 Appendix J Type C test requirements will be replaced with an administrative leakage control program to ensure the leak tight integrity of these TVDs. A description of this administrative leakage control program will be added to the UFSAR.

Each of the valves being requested for a change in leak testing methods will be identified with a new footnote (b). This footnote will state: "Type C testing is not required. Leak-tight integrity surveillance is under administrative control." Furthermore, for consistency footnote # in Specification 3.6.1.2 will be revised to account for these new provisions.

C. JUSTIFICATION

1. Each of the test, vent and drain valves requested for deletion is a locked closed valve in a one inch or smaller branch connection line (refer to UFSAR Table 6.2-44). In addition, each of these branch connections has at least one other closed valve or a threaded pipe cap in series with the locked closed valve (refer to UFSAR Figures 6.2-74 through 6.2-80). These configurations are consistent with acceptable barrier configurations specified in Section 6.2 of ANSI/ANS 56.8.
2. The only routine use of TVDs and the second barrier in the branch connection described above is during the periodic 10CFR50 Appendix J testing of the penetration. This is consistent with the criteria of ASME Section XI article IWB-1200 which exempts valves used only for operational convenience (such as manual test, vent and drain valves) from inservice testing. This infrequent use also minimizes excessive wear on the valve seat and valve packing.
3. Administrative controls in accordance with the 1987 revision to ANSI/ANS 56.8 which ensure these double barrier configurations are maintained include explicit restoration instructions in the leak rate test procedures to close and lock the first valve and either close the second valve or replace the pipe cap. In some instances there are two valves which are closed and a cap which are restored. These controls also require double verification of the restored line up including cap replacement.

Furthermore, Technical Specification 4.6.1.1.b requires that those TVDs currently identified in Table 3.6.4-1 be verified closed once per 31 days unless they are located in the drywell, containment or steam tunnel. In this case they are verified during cold shutdown if not verified in the previous 92 days. SERI is revising the procedure that performs the verification surveillance such that all barriers would be included in the verification (i.e., valves not listed in Table 3.6.4-1 and pipe caps where applicable). This revised procedure will be implemented upon startup from RF03.

4. In addition to these barrier configuration controls, SERI has implemented or will implement one or more of the following programs to ensure the leak tight integrity of the test, vent and drain valves which will meet the intent of SRP 6.2.6. Attachment 5 contains a listing of each of the TVDs which are proposed to have Type C testing deleted and which of the following administrative controls will ensure their leak tight integrity.
 - (a) TVDs, including caps, will be visually inspected for leakage during the Class 1 System Leakage Test required by ASME B&PV Code, Section XI at each refueling outage.
 - (b) TVDs will be visually inspected for seat leakage during the Type A test required by 10CFR50, Appendix J and Technical Specification 4.6.1.2.a. For this test the TVDs will be closed, the associated pipe caps will be removed and associated penetrations will be drained as required by Appendix J.
 - (c) TVDs, including caps, will be visually inspected during the Leakage Reduction Program System Walkdowns required by Technical Specification 6.8.3.a.
 - (d) Drain valves will be monitored for leakage via liquid in-leakage to Radwaste and investigating unexplained sudden increases as part of the leakage reduction program required by Technical Specification 6.8.3.a.
 - (e) TVDs, including caps, will be visually inspected during a walkdown of areas normally inaccessible during power operation before closing the areas.
5. Each of the above controls will require visual examination for leakage through the penetration barrier (cap and/or valve seat leakage). The test pressure during these examinations will be ≥ 13 psig when pressurized with water (Note: Type C hydrostatic test pressure ≥ 12.65 psig) or ≥ 11.5 psig (Pa) when pressurized with air. Any observed boundary leakage will require a deficiency document (material non-conformance report or maintenance work order) to be initiated to evaluate the leakage condition and specify the required corrective action. Appropriate corrective actions will include one or more of the following:
 - a. Repair, replacement or other appropriate maintenance action to stop the leakage.

- b. Perform a local leak rate (Type C) test to verify leakage is within acceptable limits (1 gpm for valves presently Type C tested with water or combined Type B and C leakage & 0.6 La for valves presently Type C tested with air).
 - c. Evaluation of the leakage severity and the system conditions during the visual inspection to conclude that the leakage is within acceptable limits (1 gpm for valves presently Type C tested with water or combined Type B and C leakage & 0.60 La for valves presently Type C tested with air).
6. Eight valves (identified by system identifier M61) cannot be pressurized by any of the programs identified in C.4 above because they are in penetrations that are opened only for the Type A Test (ILRT) required by Technical Specification 4.6.1.2.a and the Drywell Bypass Test required by Technical Specification 4.6.2.2. The penetrations do not connect to any other system piping and are closed both inside and outside the containment pressure boundary by flanges with flexitallic gaskets and/or globe valves and pipe caps during power operation. The flanges will continue to be Type B tested as required by Appendix J and Technical Specification 4.6.1.1.a. The acceptance criteria used at GGNS for these flanges is zero leakage. Further testing of the associated TVDs is not necessary because each penetration is sealed by at least four separate and independent pressure boundaries. In the unlikely event that all four (or more) independent pressure boundaries leaked during an accident pressurizing the containment, the pressure differential would push the inboard pipe cap tighter onto the pipe end tending to minimize the leakage. See enclosed diagram of these penetrations and barriers.
7. The above administrative controls to ensure leak tight integrity, in conjunction with barrier configuration controls, provides assurance of no significant leakage from the containment through these connections during any event. Additionally, the TVD's being deleted from Type C testing have generally demonstrated good performance during the past seven years of testing. Of the one hundred and four valves being deleted from Type C testing no valves have experienced leakage significant enough to exceed any technical specification limits in the tested configuration, which does not take credit for a second TVD and/or pipe cap.
8. This change will result in about a 3.5 day reduction in operations support of Type C testing during refueling outages and will also result in a reduction in personnel exposure incurred due to Type C testing. The proposed change is consistent with SERI's third refueling outage goals of minimizing collective exposure and limiting the outage duration to 45 days or less.

D. NO SIGNIFICANT HAZARDS CONSIDERATIONS

The following analysis about the issue of no significant hazards consideration, using the standards of 10CFR50.92, is provided in accordance with 10CFR50.91(a).

1. No significant increase in the probability or consequences of an accident previously evaluated results from this change.
 - a. Substituting administrative controls for the existing Type C testing requirements for test, vent and drain connections will not affect the integrity of the boundary and therefore the probability of a LOCA or loss of containment integrity. The primary coolant system and containment boundary remains as designed. Technical Specification 3/4 6.1.1 continues to require that these penetrations remain isolated with periodic verification when containment integrity is required. Since these test, vent and drain connections will physically remain unchanged and the only effect of this request is to allow these valves to be removed from the 10CFR50 Appendix J Type C testing program by substituting other administrative programs for ensuring leak tight integrity, the probability of an accident previously evaluated remains unchanged.
 - b. The only routine use of these test, vent and drain connections is during the periodic 10CFR50 Appendix J testing of containment penetrations. This infrequent use minimizes excessive wear on the valve seat and packing. To assure there is no significant leakage during an accident, administrative control for ensuring leak tight integrity is proposed to be substituted for the current 10CFR50 Appendix J Type C testing. This program will detect leakage from these connections during system pressure tests at greater than or equal to the current Type C test pressures. This in conjunction with the relatively small size of these lines (≤ 1 "), multiple barrier configuration and barrier configuration controls provides adequate assurance that these penetrations will not provide a containment leakage path during an accident. Therefore the consequences of an accident previously evaluated are not significantly increased.
2. This change would not create the possibility of a new or different kind of accident from any previously evaluated.
 - a. This request involves a change in the leakage surveillance procedures only. There is no change in the plant's configuration and no new modes of operation of any equipment are introduced. Therefore, there is not a possibility of a new or different kind of accident from any previously evaluated.
3. This change would not involve a significant reduction in the margin of safety.
 - a. The margin of safety in maintaining offsite doses below 10CFR100 limits is assured by stipulating the limit on integrated containment leakage of ≤ 0.75 times the design leakage rate (L_d). Furthermore the sum of the measured Appendix J Type B and C leakages is limited to 0.6 times the design leakage rate (L_d). It is recognized by the NRC Standard Review Plan 6.2.6 and supported by the 1987 revision to American Nuclear Society's

American National Standard 56.8 that sufficient margin of safety is maintained by administratively controlling the leak tight integrity of these small test, vent and drain valves given their infrequent use and multiple barrier arrangement. SERI maintains strict administrative controls on the positioning & sealing of the first valve on these connections. The second (and in many instances the third) isolation barrier is also maintained under strict controls. These controls include double verification of all components and periodic reverification that the barriers are maintained.

- b. In addition to these barrier configuration controls, SERI has implemented or will implement one or more controls to ensure leak tight integrity. This program meets the intent of SRP 6.2.6. Any observed boundary leakage will require a deficiency document (material non-conformance report or maintenance work order) to be initiated to evaluate the leakage condition and specify the required corrective action.

Eight valves are in penetrations that do not connect to any other system piping and are closed both inside and outside the containment pressure boundary by flanges with flexitallic gaskets and/or globe valves and pipe caps during power operation. The flanges will continue to be Type B tested as required by Appendix J and Technical Specification 4.3.1.1.2. The acceptance criteria used at GGNS for these flanges is zero leakage. Further testing of the associated TVDs is not necessary because each penetration is sealed by at least four separate and independent pressure boundaries.

- c. These administrative controls to ensure leak tight integrity in conjunction with the barrier configuration controls, provides assurance of no significant leakage from the containment through these connections during any event. Therefore, this change will not involve a significant reduction in the margin of safety.

VALVES TO BE DELETED FROM LLRT PROGRAM

VALVE NO.	PENETRATION NO.	Administrative Control (See Justification Paragraph C.4)				
		(a)	(b)	(c)	(d)	(e)
B21-F025A	5	X	X			X
B21-F025B	6	X	X			X
B21-F025C	7	X	X			X
B21-F025D	8	X	X			X
B21-F030A	9					X
B21-F063A	9	X				X
B21-F030B	10					X
B21-F063B	10	X				X
C11-F128	33			X		
C41-F152	61		X			
E12-F002	14	X				X
E12-F342	18			X		
E12-F061	18			X		
E12-F107A	20	X			X	
E12-F107B	21	X			X	
E12-F056C	22	X		X		
E12-F234	22	X			X	
E12-F322	23		X	X		
E12-F336	23		X	X		
E12-F338	23		X	X	X	
E12-F349	23		X	X		
E12-F339	23		X	X	X	
E12-F310	23		X	X		
E12-F303	23		X	X		
E12-F348	23		X	X		
E12-F227	23		X	X	X	
E12-F228	23		X	X	X	
E12-F259	23		X	X	X	
E12-F260	23		X	X	X	
E12-F261	23		X	X	X	
E12-F262	23		X	X	X	
E12-F280	24		X	X	X	
E12-F281	24		X	X	X	
E12-F304	24		X	X		
E12-F311	24		X	X		
E12-F321	67		X	X		
E12-F334	67		X	X	X	
E12-F331	67		X	X		
E12-F335	67		X	X	X	
E12-F350	67		X	X		
E12-F305	67		X	X		
E12-F312	67		X	X		
E12-F351	67		X	X		

VALVE NO.	PENETRATION NO.	Administrative Control (See Justification Paragraph C.4)				
		(a)	(b)	(c)	(d)	(e)
E12-F212	67		X	X	X	
E12-F213	67		X	X	X	
E12-F249	67		X	X	X	
E12-F250	67		X	X	X	
E12-F276	67		X	X	X	
E12-F277	67		X	X	X	
E12-F408	71B		X	X		
E12-F409	71B		X	X		
E21-F200	31	X			X	
E21-F207	31	X			X	
E21-F013	31	X		X		
E21-F222	32		X	X		
E21-F221	32		X	X		
E21-F217	32		X	X	X	
E21-F218	32		X	X	X	
E22-F218	26	X			X	
E22-F201	26	X			X	
E22-F021	26	X		X		
E22-F301	27		X	X	X	
E22-F302	27		X	X	X	
E22-F304	27		X	X		
E22-F303	27		X	X		
E51-F072	17	X	X			X
E51-F258	29		X	X		
E51-F257	29		X	X		
E51-F251	46		X	X	X	
E51-F252	46		X	X	X	
E61-F017	65		X			
G33-F070	43		X			
G33-F055	83		X			
G33-F002	87	X	X			
G33-F061	88		X			
G41-F340	57		X			
M41-F042	34		X			
M41-F051	35		X			
M41-F054	66		X			
M61-F009	40					
M61-F010	82					
M61-F015	110A					
M61-F014	110A					
M61-F019	110C					

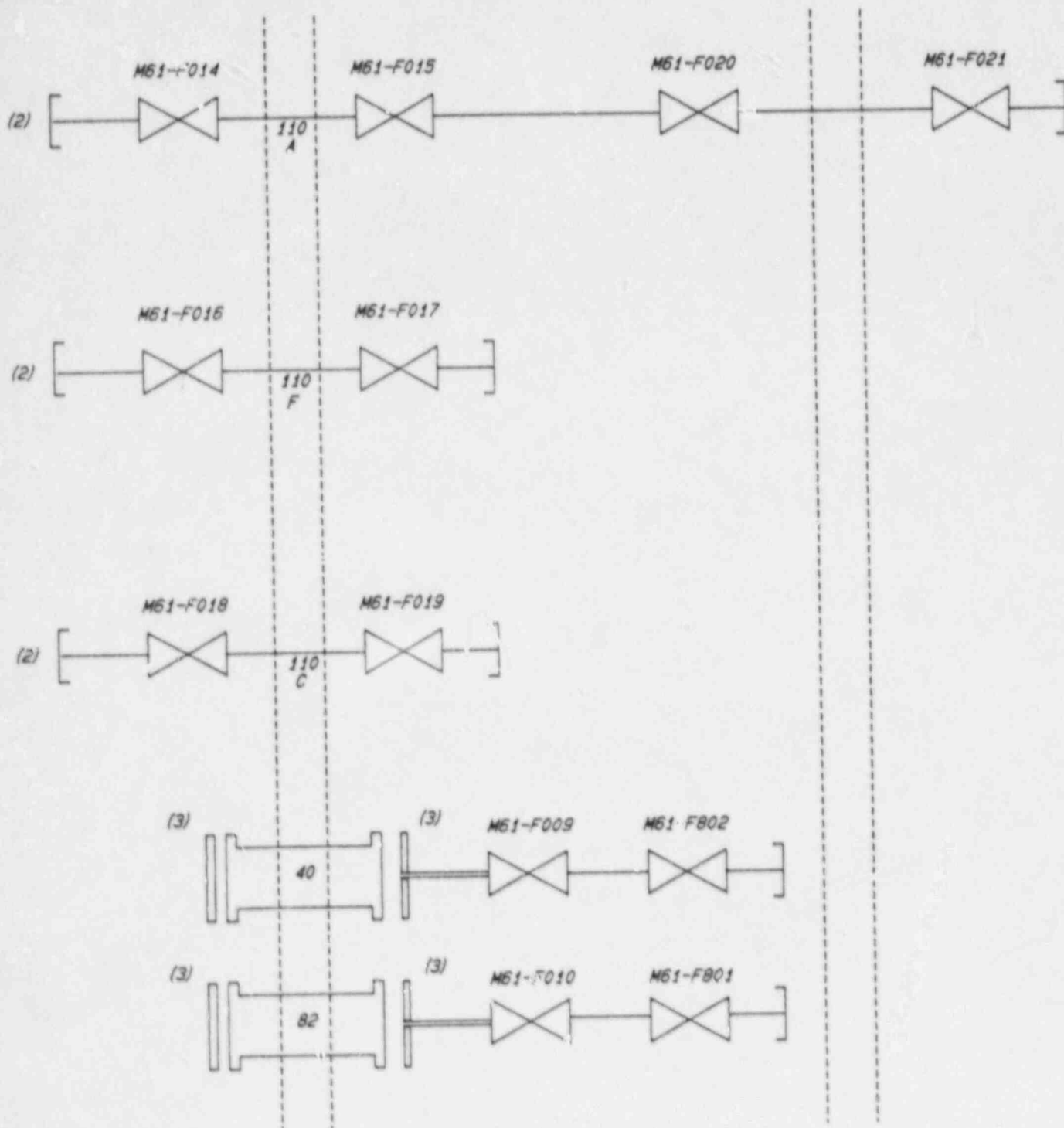
VALVE NO.	PENETRATION NO.	Administrative Control (See Justification Paragraph C.4)				
		(a)	(b)	(c)	(d)	(e)
M61-F018	110C					
M61-F017	110F					
M61-F016	110F					
P11-F095	56			X		
P11-F132	69		X	X		
P11-F425	69		X	X		
P41-F163A	89			X		
P41-F163B	92			X		
P42-F161	44		X	X		
P42-F162	45		X	X		
P45-F275	60		X			
P45-F290	60		X			
P52-F258	41		X	X		
P53-F036	42		X	X		
P53-F043	70		X	X		
P60-F011	75		X			
P60-F034	85		X			
P71-F232	38			X		
P71-F246	39			X		
P72-F167	37			X		

SCHEMATIC OF M61 ISOLATION VALVES ⁽¹⁾

AUXILIARY BUILDING

CONTAINMENT

DRYWELL



NOTES

- (1) REFER TO UFSAR FIGURE 6.2-76
- (2) THE ILRMS CONSOLE SHOWN IN UFSAR FIGURE 6.2-76 IS DISCONNECTED AND CAPPED DURING NORMAL OPERATION
- (3) FLANGE IS TYPE B TESTED IN ACCORDANCE WITH APPENDIX J.