



Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

June 16, 1994

Mr. William T. Russell, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attn: Document Control Desk

Subject: Zion Station Units 1 and 2
Application for Emergency Technical Specification
Amendment to Facility Operating License
DPR-39 and DPR-48
NRC Docket Nos. 50-295 and 50-304

Reference: T.W. Simpkin letter to W.T. Russell dated June 10, 1994

Dear Mr. Russell:

Pursuant to 10 CFR 50.91(a)(5), Commonwealth Edison (CECo) proposes to amend Appendix A, Technical Specification to Facility Operating Licenses DPR-39 and DPR-48. The proposed amendment changes specification 3/4.10.1 to exempt a single valve on each unit from Type C testing until the next refueling outage on each unit.

The need for this Emergency License Amendment request is a consequence of NRR enforcement discretion which was verbally granted for Units 1 and 2 on June 9, 1994 at 1500 hours. The Reference letter transmitted the formal request for that enforcement discretion. On June 8, 1994, it was determined that Type C leak rate testing had not been completed on valves 1(2)MOV-CC685 in accordance with 10CFR50 Appendix J. The Technical Specifications require that Type A,B, and C leak rate testing be performed in accordance with the applicable sections of 10CFR50 Appendix J. As a result, both Unit 1 and 2 were placed on a 24 hour Action clock per Technical Specification 4.0.3.

NRR granted enforcement discretion from the requirements of Specification 4.10.1.A.2 until such time as a request for a schedular exemption to 10CFR50 Appendix J could be reviewed and dispositioned by the NRC. During the conference call in which enforcement discretion was granted by NRR, Zion Station committed to submit the request for a schedular exemption to 10CFR50 Appendix J on or before June 16, 1994. On June 10, 1994, it was determined that a Emergency License

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Amendment Request would also be necessary to permit continued operation of Units 1 and 2. The Emergency License Amendment Request is also required to be submitted to the NRC on or before June 16, 1994. The schedular exemption request will be docketed separately.

If the request for a schedular exemption to 10CFR50 Appendix J or this Emergency License Amendment Request is denied, the NRR enforcement discretion will terminate and both units will be required to shutdown in accordance with Technical Specification 3.0.3. If the request for a schedular exemption to 10CFR50 Appendix J is granted and this Emergency License Amendment Request is approved, then both units may continue to operate in full compliance with the Operating License in 10CFR50 Appendix J.

The schedular exemption will defer the Type C leak rate testing requirements to refueling outages Z1R14 for 1MOV-CC6895 and Z2R13 for 2MOV-CC685. The proposed changes to the Technical Specifications will add an exception to Type C leak rate testing of valves 1(2)MOV-CC685 until the next refueling outage for each unit, and will no longer be applicable after cycles Z1C14 and Z2C13. Therefore, Type C testing of valves 1(2)MOV-CC685 must be completed during Z1R14 and Z2R13 to permit startup.

A detailed description of the proposed change is presented in Attachment A. The revised Technical Specification pages are contained in Attachment B.

The proposed change has been reviewed and approved by both on-site and off-site review in accordance with CECo procedures. CECo has reviewed this proposed amendment in accordance with 10CFR50.92(c) and has determined that no significant hazards consideration exists. This evaluation is documented in Attachment C. An Environmental Assessment has been completed and is contained in Attachment D.

As a part of CECo's continuing review of the circumstances surrounding this situation, it has been identified that clarifying information to the Reference submittal would be desirable. This information is included in Attachment E, and is being provided to preclude the possibility that information supplied previously may be misinterpreted.

CECo is notifying the State of Illinois of our application for this amendment by transmitting a copy of this letter and its attachments to the designated State Official.

June 16, 1994

To the best of my knowledge and belief the statements contained herein are true and correct. In some respects, these statements are not based on my personal knowledge but upon information received from other Commonwealth Edison and contractor employees. Such information has been reviewed in accordance with Company practice and I believe it to be reliable.

Please direct any questions regarding this matter to this office.

Sincerely,



A handwritten signature in cursive script that reads "Terrence W. Simpkin".

T.W. Simpkin
Nuclear Licensing Administrator

A handwritten signature in cursive script that reads "Mary Jo Yack" followed by the date "6-16-94".
Attachments

- cc: C.Y. Shiraki, Project Manager - NRR
J.D. Smith, Senior Resident Inspector - Zion
Document Control Desk - NRR
Region III Office
Office of Nuclear Facility Safety - IDNS

ATTACHMENT A

ZION NUCLEAR GENERATING STATION

DESCRIPTION AND SAFETY ANALYSIS
FOR PROPOSED CHANGES TO
APPENDIX A TECHNICAL SPECIFICATIONS
FACILITY OPERATING LICENSES
DPR-39 AND DPR-48

EMERGENCY LICENSE AMENDMENT REQUEST 94-05

TYPE C LEAK RATE TESTING

DESCRIPTION OF PROPOSED CHANGE

It is proposed that the footnote on page 214 of Technical Specifications be deleted and replaced with a new footnote. The new footnote will be applicable to Specifications 3.10.1.A.2, 4.10.1.A.2, 4.10.1.A.4, 4.10.1.A.6, and the Action Statement associated with Specification 3.10.1.A.2. Each of these Specifications provide requirements for leak rate testing in accordance with the applicable sections of 10CFR50 Appendix J. The footnote that will be replaced was applicable only until startup following operating cycles Z1C12 and Z2C12. The footnote that will be added provides an exception from the requirements of 10CFR50 Appendix J to Type C leak rate test valves 1(2)MOV-CC685 until entering Mode 5 (Cold Shutdown) for refueling outages Z1R14 and Z2R13, during which time the valves will be Type C leak rate tested in accordance with 10CFR50 Appendix J.

CURRENT REQUIREMENT AND BASES

Technical Specification 3.10.1.A.2 requires that the containment leakage rate be limited to a combined leakage rate of less than or equal to $0.60 L_n$ for all penetrations and valves subject to Type B and C tests, when pressurized to P_n . 10CFR50 Appendix J defines P_n as the calculated peak containment internal pressure related to the design basis accident and L_n as the maximum allowable leakage rate at pressure P_n . The Action Statement associated with Specification 3.10.1.A.2 requires that with either (a) the measured overall integrated containment leakage rate exceeding $0.75 L_n$ or (b) with the measured combined leakage rate for all penetrations and valves subject to Type B and C tests exceeding $0.60 L_n$, restore the overall integrated leakage rate to less than or equal to $0.75 L_n$, and the combined leakage rate for all penetrations subject to Type B and C tests to less than or equal to $0.6 L_n$ prior to entering MODE 4.

Technical Specification 4.10.1.A.2 requires that Type B and C tests (except air lock tests) be performed at P_n or above in accordance with the appropriate section of 10CFR50 Appendix J. Technical Specification 4.10.1.A.4 requires that Type A, B, and C leak rate tests be considered satisfactory only if the acceptance criteria delineated in 10CFR50 Appendix J are met.

Technical Specification 4.10.1.A.6 requires that retest schedules for Type A, B, and C leak rate tests be in accordance with the appropriate section of 10CFR50 Appendix J. A footnote on page 214 applies to Specifications 3.10.1.A.2, 4.10.1.A.2, 4.10.1.A.4, 4.10.1.A.6, and the Action Statement associated with Specification 3.10.1.A.2 and provides exceptions to the requirements for Type C leak rate testing of certain containment penetrations specified within the footnote. The footnote was applicable only prior to startup following operating cycles Z1C12 and Z2C12.

As stated in the Technical Specifications Bases Section, the performance of periodic penetration Type C local leak rate testing provides a current assessment of potential leakage from containment during accident conditions. The periodic tests are performed at pressures sufficiently high to provide an accurate measurement of the leakage rate.

10CFR50 Appendix J requires that a program consisting of a schedule for conducting Type A, B, and C tests be developed for leak testing the primary reactor containment, and related systems and components penetrating the primary containment pressure boundary. In addition, prior to any reactor operating period, periodic leak rate tests are required to be conducted according to the applicable section of 10CFR50 Appendix J. The purposes of the tests, as stated in 10CFR50 Appendix J, are:

- (a) to assure that leakage through the primary reactor containment, and systems and components penetrating primary containment, do not exceed allowable leak rate values as specified in the Technical Specifications or associated Bases, and
- (b) to assure that proper maintenance and repairs are made during the service life of the containment, and systems and components penetrating the primary containment.

Type C tests are tests intended to measure containment isolation valve leakage rates. The containment isolation valves included are those that:

- 1) Provide a direct connection between the inside and outside atmospheres of the primary reactor containment under normal operation, such as purge and ventilation, vacuum relief, and instrument valves, or
- 2) Are required to close automatically upon receipt of a containment isolation signal in response to controls intended to effect containment isolation, or
- 3) Are required to operate intermittently under post accident conditions, or
- 4) Are in main steam and feedwater piping and other systems which penetrate containment of direct-cycle boiling water power reactors.

Type C tests are performed by local pressurization. The pressure is applied in the accident direction, unless it can be determined that pressurization in a different direction provides equivalent, or more conservative results. Valves, unless pressurized with fluid from a seal water system, are pressurized with air or nitrogen at a pressure of P_n for the test. The acceptance criteria for the tests is that the combined leakage rate for all penetrations and valves subject to Type B and C tests shall be less than $0.60 L_n$. Type C tests are required to be performed during each reactor shutdown for refueling but in no case at intervals greater than 2 years.

Valves 1(2)MOV-CC685 are wedge type gate valves which are not provided with automatic isolation valve seal water injection. Manual isolation valve seal water injection is provided for the piping between 1(2)MOV-CC685 and 1(2)MOV-CC9438. Refer to attached Figure 1. Because the component cooling water return line from the reactor coolant pump thermal barriers is a line that is used intermittently under post accident conditions, the associated containment isolation valves 1(2)MOV-CC685 and 1(2)MOV-CC9438 are required to be Type C tested in accordance with 10CFR50 Appendix J.

NEED FOR AMENDING THE REQUIREMENT

In the fourth quarter of 1990, CECo personnel initiated a self assessment of the Appendix J leak rate testing program at Zion Station. Through this self assessment, CECo identified two containment pathways that had not been Type C tested in accordance with 10CFR50 Appendix J. The pathways in question (P-76 and P-80) were subsequently dispositioned by Emergency Technical Specification Amendment 121/110, which was issued on February 15, 1991.

In completing the self assessment, CECo identified five additional penetrations that were not Type C leak tested in accordance with 10CFR50 Appendix J. Based on the aforementioned containment leak rate testing self assessment, and the understanding of the NRC's interpretation of 10CFR50 Appendix J requirements, CECo determined that Type C leak rate testing of the identified penetrations was required. In accordance with the self assessment criteria provided in the CECo letter of February 13, 1991 requesting Technical Specification Amendment 121/110, Zion Station personnel notified the NRC of these deficiencies on March 5 and March 7, 1991, pursuant to 10CFR50.72.

On March 11, 1991 a Temporary Waiver of Compliance was granted by NRR to permit continued operation of Unit 2 and startup and operation of Unit 1 until such time as an Emergency Technical Specification Amendment could be issued to address the situation. On April 5, 1991 the Emergency Technical Specification Amendment request was approved and issued (Amendment 122/111). Amendment 122/111 added a footnote to Technical Specification page 214 which provided an exception to Type C leak and local leak rate testing requirements for several penetrations, including Unit 1 penetration P-33 (valves 1MOV-CC685 and 1MOV-CC9438) and Unit 2 penetration P-33 (valves 2MOV-CC685 and 2MOV-CC9438). This footnote was applicable until startup following operating cycles Z1C12 and Z2C12 since it was expected that Type C leak testing would be completed during the Z1R12 and Z2R12 refueling outages. Modifications to the affected penetrations were designed to allow completion of the required testing.

On June 8, 1994 at 1645, it was determined by Zion Station that the Type C leak rate testing requirements had not been explicitly met for 1(2)MOV-CC685. When this determination was made, both Unit 1 and 2 initiated a 24 hour clock per Technical Specification 4.0.3.

At 1500 hours Central Daylight Time on June 9, 1994, NRR enforcement discretion was verbally granted for Units 1 and 2 to allow continued operation of Unit 2 and startup of Unit 1. NRR granted enforcement discretion from the requirements of Specification 3/4.10.1 until such time as a request for a schedular exemption to 10CFR50 Appendix J could be reviewed and dispositioned by the NRC. During the conference call in which enforcement discretion was granted by NRR, Zion Station committed to submit the request for a schedular exemption from 10CFR50 Appendix J on or before June 16, 1994. On June 10, 1994, it was determined that in addition to a request for a schedular exemption to Appendix J, an Emergency License Amendment Request was also necessary to permit continued operation of Unit 1 and 2.

If the request for a schedular exemption to 10CFR50 Appendix J or this Emergency License Amendment Request is denied, the period of enforcement discretion will terminate and both units will be required to shut down in accordance with Technical Specification 3.0.3. Specification 3.0.3 requires action to be initiated within one hour to place the Unit in at least Hot Shutdown within the following 4 hours and at least Cold Shutdown within the following 48 hours.

In order to perform Type C leak rate testing of valves 1(2)MOV-CC685 in strict compliance with 10CFR50 Appendix J, both units would have to be placed in Cold Shutdown. In addition, all reactor coolant pumps (RCPs) would have to be deenergized and taken out of service. Component cooling water to the RCPs would have to be secured and the component cooling water return line from the RCP thermal barriers would be drained. A flange at the component cooling water outlet from the RCP thermal barrier would have to be uncoupled to provide a means to pressurize the line upstream of valves 1(2)MOV-CC685. Test valves would then be opened to provide the bleed path. The scope of this work would be significant. In addition to the undesirable thermal cycle each unit would experience, downtime is estimated to be three weeks, planning and maintenance support would be significant, and radiation dose received by maintenance personnel would be significant. The safety significance of deferring Type C leak rate testing of the two valves to the next refueling outage for each unit does not justify the extensive amount of work that would be required to complete the Type C testing.

If the request for a schedular exemption to 10CFR50 Appendix J is granted and this Emergency License Amendment Request is approved, then both units will continue to operate in full compliance with the Operating License and 10CFR50 Appendix J.

The schedular exemption will defer the Type C leak rate testing requirements to refueling outage Z1R14 for 1MOV-CC685 and to Z2R13 for 2MOV-CC685. The proposed changes to Technical Specifications will add an exception to the requirement to Type C leak rate test valves 1(2)MOV-CC685 until the next refueling outage for each unit.

Zion Station has made a good faith effort to comply with the regulation. The need to Type C leak test valves 1(2)MOV-CC685 in accordance with 10CFR50 Appendix J was identified through a self assessment completed in 1991. Steps were taken at that time to complete Type C leak testing of the subject valves. Root cause investigation is ongoing to determine what systematic breakdowns contributed to the valves not being properly tested. It is felt that a good faith effort, while unsuccessful, was put forth to correct the deficiencies identified in the 1991 self assessment.

PROPOSED REQUIREMENT AND BASES

It is proposed that the footnote on page 214 of Technical Specifications be deleted. The footnote provided exceptions to the Type C leak rate testing requirements of Specifications 3.10.1.A.2, 4.10.1.A.2, 4.10.1.A.4, 4.10.1.A.6, and the Action Statement associated with Specification 3.10.1.A.2 for certain containment penetrations and valves until startup from operating cycles Z1C12 and Z2C12. Unit 1 is currently operating in Cycle 14 and Unit 2 is currently operating in Cycle 13. As such, the provisions of the footnote on page 214 of Technical Specifications are no longer applicable and may be deleted. This change is administrative in nature and no further justification is required.

It is proposed that a new footnote be added to page 214 of Technical Specifications that will be applicable to Specifications 3.10.1.A.2, 4.10.1.A.2, 4.10.1.A.4, 4.10.1.A.6, and the Action Statement associated with Specification 3.10.1.A.2. The new footnote will provide exceptions to the requirements to Type C leak rate test valves 1(2)MOV-CC685 in accordance with the applicable sections of 10CFR50 Appendix J, until after entering Mode 5 (Cold Shutdown) for Unit 1 refueling outage Z1R14 and until after entering Mode 5 for Unit 2 refueling outage Z2R13.

The proposed footnote to be added to page 214 of Technical Specifications reads as follows:

- 1) Prior to entering Mode 5 for refueling outage Z1R14, the Type C leak rate testing requirements of this specification are not applicable to Unit 1 valve 1MOV-CC685.
- 2) Prior to entering Mode 5 for refueling outage Z2R13, the Type C leak rate testing requirements of this specification are not applicable to Unit 2 valve 2MOV-CC685.

Addition of this footnote to Technical Specification to provide exceptions to Type C leak rate testing requirements for valves 1(2)MOV-CC685 is based on several factors. First, the addition of the proposed footnotes to Technical Specifications allows the Type C leak rate testing of the two subject valves to be deferred on a one time basis only.

Additionally, it has been determined, through evaluation, that deferring performance of Type C leak rate testing in strict compliance with 10CFR50 Appendix J, until after the current operating cycles, has minimal safety significance or adverse consequences. This determination is based on the following:

- 1) The piping associated with penetration P-33 and valves 1(2)MOV-CC685 is seismically supported. Lines between containment and the first outside isolation valve are designed to the same seismic criteria as the containment vessel and are considered to be an extension of the containment.
- 2) The Component Cooling system is a closed system within containment. The most probable way for radioactive fluid from the reactor coolant system to enter the component cooling system would be from a rupture of a reactor coolant pump (RCP) thermal barrier heat exchange tube. During this failure, high flow would be detected in the component cooling return line from the RCP thermal barriers by flow detector/controller 1(2)FICA-685. Valves 1(2)MOV-CC685 receive an automatic signal to throttle closed if detected flow is greater than 190 gpm. This setpoint is at a value that permits prompt isolation of the penetration, but is not so low as to cause spurious actuations. Alarms in the control room would alert the operators to the condition. Also, radiation monitors on the component cooling heat exchanger outlets are available to alert the operator of any radioactive fluid intrusion into the component cooling system. These monitors have a setpoint that will allow prompt annunciation of an abnormal condition.
- 3) There is a loop seal in the component cooling water return line from the reactor coolant pump thermal barriers inside containment that is missile protected. This loop seal ensures that water will remain in the line in the event of an upstream line break on a section of the piping not missile protected within containment.
- 4) Manually initiated Isolation Valve Seal Water (IVSW) is provided to the component cooling water return line between valves 1(2)MOV-CC685 and 1(2)MOV-CC9438. Manual seal water injection is provided for lines which remain in service for a time, or are used periodically, subsequent to an accident. Manual initiation of seal water is initiated during long term recovery from an accident. Guidance is provided in the Emergency Operating Procedures to initiate seal water to the valves. Emergency Procedure E-1, 'Loss of Reactor or Secondary Coolant', Step 20 directs the Technical Support Center to evaluate the need for operation of manual

Isolation Valve Seal Water valves. Initiation of seal water is based on the particular event in progress, the potential for leakage through the penetration, and potential radiation exposure to the operator responsible for local operation of the manual valves.

- 5) Valves 1(2)MOV-CC9438 have been successfully Type C leak tested pursuant to 10CFR50 Appendix J. Test results were as follows:

<u>1MOV-CC9438</u>			<u>2MOV-CC9438</u>		
Date	Outage	Leakage Rate	Date	Outage	Leakage Rate
6/27/92	Z1R12	0.28 scfh*	01/29/93	Z2R12	0.35 scfh*
2/15/94	Z1R13	0.65 scfh	10/11/93	Z2P02	0.02 scfh

* Original leakage rate test for these valves

- 6) Testing that has been performed on penetration P-33 has provided a high degree of confidence that leakage through 1(2)MOV-CC685 would be well within Type C leak rate test limits. Testing that has been performed is as follows:
- Pressurized air tests were performed. Using test procedure TSS 15.6.10E, the piping between valves 1(2)MOV-CC685 and 1(2)MOV-CC9438 was pressurized to greater than P_a and no unacceptable air leakage was observed. This was done on the dates shown above for the Type C leak rate testing of valves 1(2)MOV-CC9438.
 - Water leakage tests were performed on valves 1(2)MOV-CC685. The component cooling (CC) pump discharge pressure is well above P_a (2.5 times P_a). Using test procedure TSS 15.6.10E, valves 1(2)MOV-CC685 were closed with prevailing local system pressure behind (upstream) them. The local system pressure with penetration P-33 in service has been measured to be 20 psig, so the water pressure during the leakage test would be higher. Test valve 1(2)CC0509 was then opened to observe for water leakage through the valve. No leakage was observed for either valve. This test was performed on the same dates as shown above for the Type C leak rate testing of valves 1(2)MOV-CC9438.
- 7) The valves associated with the component cooling return line from the reactor coolant pumps and penetration P-33 are of similar design and are exposed to similar environments as those valves that have been successfully Type C leak tested.
- 8) For a significant release of radioactive containment atmosphere to occur through the subject pathway, the following combination of events must occur:

- a) LOCA, and
- b) Rupture of the component cooling water return line from the reactor coolant pump thermal barriers, inside containment, and failure of the operators, using available indications and alarms, to recognize the failure and isolate the process line, and
- c) Leakage through both 1(2)MOV-CC685 and 1(2)MOV-CC9438 to the Auxiliary Building atmosphere (via the component cooling system surge tank vent or through a process line break outside containment) OR failure of both valves to automatically close on a Phase B isolation signal, and
- d) Manual isolation valve seal water supply not utilized.

The probability of occurrence of this combination of events is very low.

Lastly, compensatory measures will be implemented until Type C leak rate testing is performed on valves 1(2)MOV-CC685. Zion Station will reduce the administrative limit for allowable containment Type B and C leak rate. The current leak rate limit of $0.6 L_a$ (285 scfh) will be reduced to an administrative limit of $0.4 L_a$ (190 scfh). Periodic walkdowns of the piping between the containment penetration (P-33) and valves 1(2)MOV-CC9438 will be performed. This walkdown will verify the integrity of the piping and the subject valves.

SCHEDULE REQUIREMENTS

Zion Station Units 1 and 2 are currently operating under the provisions of NRR enforcement discretion granted on 6/9/94 at 1500 hours Central Standard Time. It is requested that review of this proposed Emergency License Amendment be expedited so that the NRR enforcement discretion may be terminated, and so that Zion Station may return to full compliance with the Operating License.

P-33 CURRENT CONFIGURATION

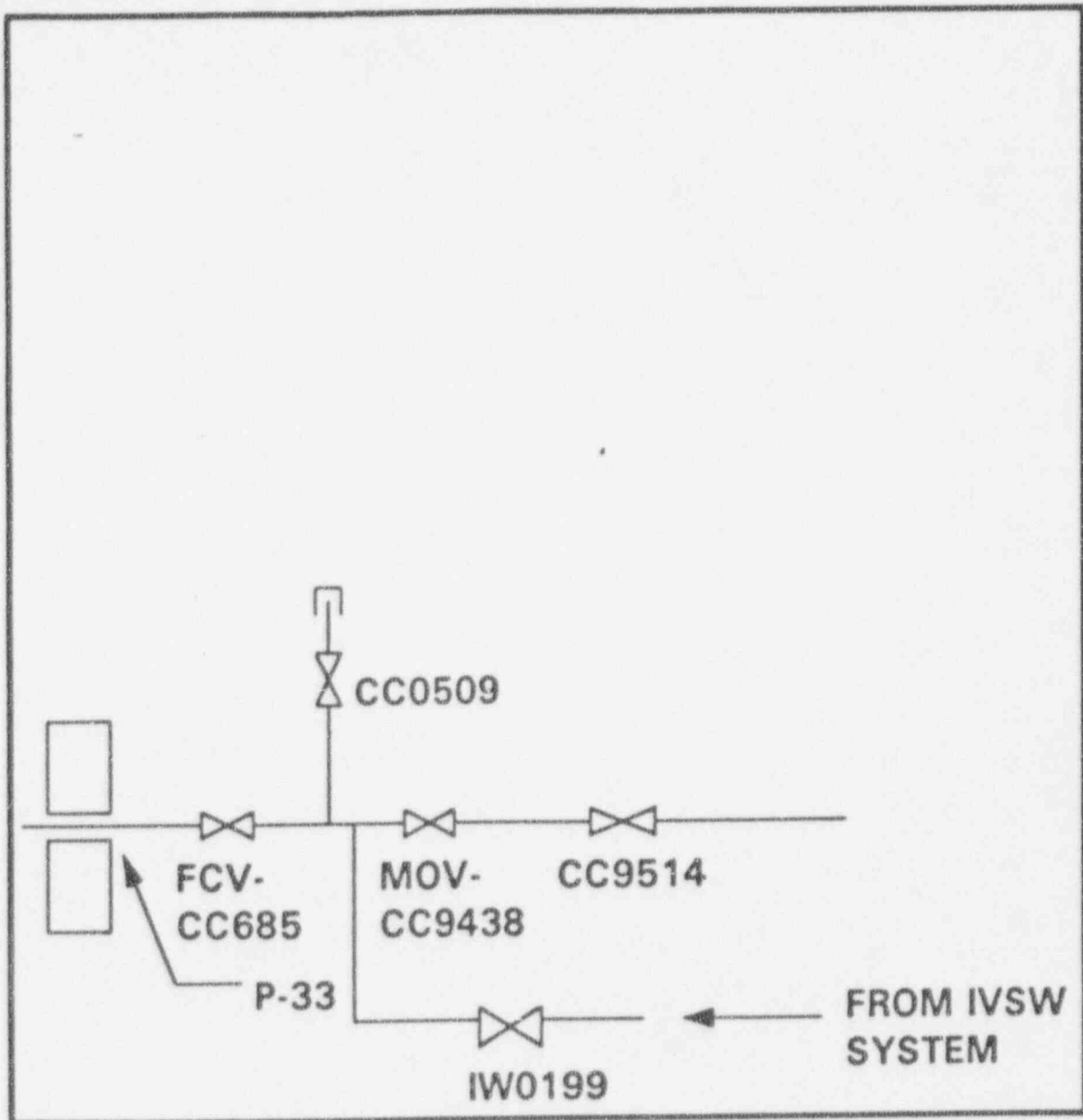


FIGURE 1