August 27, 1982

Docket No. 50-409
LS05-82-08-052

Mr. Frank Linder
General Manager
Dairyland Power Cooperative
2615 East Avenue South
LaCrosse, Wisconsin 54601

Dear Mr. Linder:

SUBJECT: FORWARDING DRAFT EVALUATION REPORT OF SEP TOPIC VI-4, CONTAINMENT ISOLATION SYSTEM FOR THE LACROSSE BOILING WATER REACTOR

Enclosed is a copy of our draft evaluation of SEP Topic VI-4, Containment Isolation System. This assessment compares your facility, as described in Docket No. 50-409, with the criteria currently used by the regulatory staff for licensing new facilities. Please inform us if your as-built facility differs from the licensing basis assumed in our assessment.

In addition, I would like to draw your attention to the areas the staff has identified in which the containment isolation system at LaCrosse does not meet the current GDC and SRP 6.2.4 provisions:

1. Containment isolation arrangements in certain essential systems;
2. Containment isolation arrangements in certain non-essential systems;
3. Isolation provisions for instrument lines; and
4. Leakage monitoring during operation for remote manual valves.

To enable us to perform our assessment of the deviations identified in this report, we will need the defined basis upon which the specific isolation configurations at the LaCrosse Boiling Water Reactor were judged to be acceptable by you. Please provide this information as a part of your comments on this report.

Comments are required within 30 days of receipt of this letter so that they may be included in our final report. This evaluation will be a basic input to the integrated safety assessment for your facility unless

SEQA Add: T. Michaels

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you identify changes needed to reflect the as-built conditions at your facility. This assessment may be revised in the future if your facility design is changed or if NRC criteria relating to this subject are modified before the integrated assessment is completed.

Sincerely,

Dennis M. Crutchfield, Chief
Operating Reactors Branch No. 5
Division of Licensing

Enclosure:
As stated

cc w/enclosure:
See next page

OFFICE	SEPB:DL	SEPB:DL	SEPB:DL	SEPB:DL	ORB#5:PM	ORB#5:BC	AC:AD:SA:DL
SURNAME	SBrown:dk	TMichaels	RHermann	WRussell	RDudley	DCrutchfield	TIppolito
DATE	8/13/82	8/14/82	8/16/82	8/19/82	8/20/82	8/ /82	8/25/82

Mr. Frank Linder

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SAFETY EVALUATION REPORT

ON

CONTAINMENT ISOLATION SYSTEM

SEP TOPIC VI-4

FOR THE

LACROSSE NUCLEAR POWER PLANT

DOCKET NO. 50-409

TABLE OF CONTENTS

ENCLOSURE

Containment Systems Branch
Evaluation Report on SEP Topic VI-4
Containment Isolation System for the
LaCrosse Nuclear Power Plant, Unit 1
Docket No. 50-409

I Introduction

The LaCrosse Nuclear Power Plant began commercial operation in 1967. Since then the staff's safety review criteria have changed and, as part of the Systematic Evaluation Program (SEP), the containment isolation systems at LaCrosse have been re-evaluated. The purpose of this evaluation is to document the deviations from the current safety criteria as they relate to the containment isolation systems. The significance of the identified deviations, and recommended corrective measures to improve safety, will be the subject of a subsequent integrated assessment of LaCrosse.

II Review Criteria

The safety review criteria used in the current evaluation of the containment isolation system for LaCrosse are contained in the following references:

1 - 10 CFR Part 50, Appendix A, General Design Criteria for Nuclear Power Plants (GDC 54, 55, 56 and 57).

2 - NUREG-0800, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (SRP 6.2.4, Containment Isolation System).

3 - Regulatory Guide 1.11,Instrument Lines Penetrating Primary Reactor Containment.

4 - Regulatory Guide 1.141, Revision 1, Containment Isolation Provisions for Fluid Systems.

III Related Safety Topics

The review areas identified below are not covered in this report, but are related and essential to the completion of the re-evaluation of the containment isolation system for LaCrosse. These review areas are included in other SEP topics or ongoing Generic Reviews, as indicated below:

1 - III-1, Classification of Structures, Components and Systems (Seismic and Quality)

2 - III-4.C, Internally Generated Missiles

3 - III-5.A, Effects of Pipe Break on Structures, Systems and Components Inside Containment

4 - III-5.B, Pipe Break Outside Containment

5 - III-6, Seismic Design Considerations

6 - III-12, Environmental Qualification of Safety Related Equipment

7 - VI-6, Containment Leak Testing

8 - VII-2, Engineered Safety Feature System Control Logic and Design

9 - VIII-2, Onsite Emergency Power Systems - Diesel Generator

10 - VIII-4, Electric Penetrations of Reactor Containment

11 - NUREG-0737, Clarification of TMI Action Plan Requirements, Item II.E.4.1, Containment Isolation Dependability

12 - NUREG-0660, NRC Action Plan Developed as a Result of the TMI-2 Accident, Item II.E.4.4, Containment Purging and Venting Requirements

13 - NUREG-0803, Generic Safety Evaluation Report Regarding Integrity of BWR Scram System Piping.

IV Review Guidelines

The containment isolation system of a nuclear power plant is an engineered safety feature that functions to allow the normal or emergency passage of fluids through the containment boundary while preserving the ability of the boundary to prevent or limit the escape of fission products to the environs that may result from postulated accidents. General Design Criteria (GDC) 54, 55, 56 and 57 of Appendix A to 10 CFR Part 50 pertain to the containment isolation system of a nuclear power plant.

GDC 54 establishes design and test requirements for the leak detection provisions, the isolation function and the containment capability of the isolation barriers in lines penetrating the primary reactor containment. From the standpoint of containment isolation, leak detection provisions should be capable of quickly detecting and responding to a spectrum of postulated pipe break accident conditions. To accomplish this, diverse parameters should be monitored to initiate the containment isolation function. The parameters selected should assure a positive, rapid response to the developing accident condition. This aspect of the containment isolation system review will be addressed during the review of the post-TMI requirements approved for implementation, as stated in NUREG-0737, Item II.E.4.2.

Leak detection capability should also be provided at the system level to alert the operator of the need to isolate a system train equipped with remote manual isolation valves. The Standard Review Plan (SRP) 6.2.4, Item II.6.q, provides guidance in this regard.

With respect to the design requirements for the isolation function, all non-essential systems should be automatically isolated (with manual valves sealed closed), and valve closure times should be selected to assure rapid isolation of the containment in the event of an accident. The review of the classification of systems as essential or non-essential, and the automatic isolation provisions for non-essential systems by appropriate signals, will be addressed in conjunction with the review of the post-TMI requirements as stated in NUREG-0737, Item II.E.4.2. The closure time of the containment ventilation system isolation valves will be evaluated in conjunction with the ongoing generic review of purging practices at operating plants (see NUREG-0660, Item II.E.4.4).

The electrical power supply, instrumentation and control systems should be designed to engineered safety feature criteria to assure accomplishment of the containment isolation function. This aspect of the review is covered under SEP Topics VII-2 and VIII-2. Also, resetting the isolation signal should not result in the automatic re-opening of containment isolation valves. This will be addressed in conjunction with the review of the post-TMI requirements approved for implementation, as stated in NUREG-0737, Item II.E.4.2.

With respect to the capabilities of containment isolation barriers in lines penetrating primary containment, the isolation barriers should be designed to engineered safety feature criteria, and protected against missiles, pipe whip and jet impingement. Typical isolation barriers include valves, closed systems and blind flanges. Futhermore, provisions should be made to permit periodic leak testing of the isolation barriers.

The adequacy of the missile, pipe whip and jet impingement protection will be covered under SEP Topics III-4.C, III-5.A and III-5.B. The acceptability of the design criteria originally used in the design of the containment isolation system components will be covered in SEP Topics III-1, III-6 and III-12.

The adequacy of the leak testing program will be covered under SEP Topic VI-6. The acceptability of electrical penetrations will be covered in SEP Topic VIII-4.

GDC 55, 56 and 57 establish explicit requirements for isolation valving in lines penetrating the containment. Specifically, they address the number and location of isolation valves (e.g., redundant valving with one located inside containment and the other located outside containment), valve actuation provisions (e.g., automatic or remote manual isolation valves), valve position (e.g., locked closed, or the position of greater safety in the event of an accident or power failure), and valve type (e.g., a simple check valve is not a permissable automatic isolation valve outside containment). Figures 1 and 2 depict the explicit valve arrangements specified in GDC 55 and 56, and GDC 57, respectively.

GDC 55 and 56 also permit containment isolation provisions for lines penetrating the primary containment boundary that differ from the explicit requirements, provided the basis for acceptability is defined. This provision is typically invoked when establishing the containment isolation requirements for essential (i.e., safety related) systems, or there is a clear improvement in safety.

SRP 6.2.4, Item II.6 presents guidelines for acceptable alternate containment isolation provisions for certain classes of lines. Containment isolation provisions that are found acceptable on the "other defined basis" represent conformance with the GDC and do not constitute exceptions.

The following evaluation addresses deviations in the containment isolation provisions from the explicit requirements of the GDC.

V Evaluation

The containment isolation provisions for the lines penetrating the primary reactor containment of LaCrosse are listed in Table 1. This information was obtained from the documents and piping and instrumentation drawings referenced in Section VII. There was insufficient information to complete certain elements of Table 1, therefore, the licensee is requested to provide the missing information and make any necessary corrections.

The containment isolation provisions, as listed in Table 1, were evaluated against the requirements of GDC 54, 55, 56 and 57 (Appendix A to 10 CFR Part 50), and the supplementary guidance of SRP 6.2.4, Containment Isolation System, where applicable. Deviations from the explicit requirements of GDC 54, 55, 56 and 57, and the acceptance criteria of SRP 6.2.4, are discussed below.

The evaluation of containment system deviations from the current licensing criteria is best summarized by listing the four areas of non-conformance as follows:

1. Containment Isolation Arrangements in Essential Systems;
2. Containment Isolation Arrangeents in Non-Essential Systems;
3. Isolation Provisions for Instrument Lines; and
4. Leakage Monitoring during operation for remote manual valves.

Containment Isolation Arrangements in Essential Systems

The following list is composed of essential system lines which do not meet the GDC 54 through 57 requirements concerning the number and/or location of containment isolation valves:

Penetration	System	Existing C.I.V.
M-9 & M-10	Component cooling inlet and outlet	Manual - inside
M-11	Demineralized water	Check - inside Manual - outside
M-8	High Pressure Service Water	Check - inside Manual - outside
M-12	Control Air	Check - inside and outside
M-34	Shutdown condenser steam to atmosphere	None
M-19	Off-gas vent from shut-down condenser	Remote manual - inside Manual - outside

(LAC-6769, 1/31/80, gives the listing of essential and nonessential systems).

The component cooling inlet and outlet lines, penetrations M-9 and M-10, contain local manual isolation valves, which are not acceptable as containment isolation valves. SRP Section 6.2.4.II.6 states that, in their

place, remote manual valves may be used as isolation valves and a single isolation valve outside containment will be acceptable if it can be shown that the system reliability is greater with only one isolation valve in the line, the system is closed outside containment, and a single active failure can be accommodated with only one isolation valve in the line. The closed system outside containment should be protected from missiles, designed to seismic Category I standards, classified Safety Class 2, and should have a design temperature and pressure rating of at least equal to that of the containment. The closed system outside containment should be leak tested, unless it can be shown that the system integrity is being maintained during normal plant operations.

The demineralized water line, penetration M-11, is isolated by one check valve inside and one manual valve outside containment. The check valve inside containment is acceptable, however, the manual valve outside containment is not. An automatic or remote manual valve outside containment would be acceptable.

Similarly, the high pressure service water system, penetration M-8, contains a check valve inside containment and a manual valve outside. Again, the check valve is acceptable but the manual valve is not. An automatic or remote manual valve outside containment would meet the GDC requirements of 10 CFR Part 50, Appendix A.

Control air, penetration M-12, is isolated by check valves inside and outside containment. The check valve inside containment is acceptable but the one outside containment is not. To meet the explicit SRP Section

6.2.4 design criteria and GDC requirements either an automatic isolation valve, which actuates on diverse parameters, or a remote manual valve should be installed.

Penetration M-34 carries steam from the shutdown condenser to atmosphere, a system used in emergency situations to dissipate reactor decay heat. The shell side of the shutdown condenser heat exchanger receives water from the demineralized water system or the high pressure service water system and turns to steam as it condenses the reactor steam in the heat exchanger tubes. In the event of a tube rupture the reactor steam would enter the shell side of the heat exchanger and exit to the atmosphere through penetration M-34. GDC 57 governs this penetration in that this system is closed inside containment. As such the present configurations with no isolation valves is not acceptable. The staff believes that an adequate isolation arrangement for this system would consist of an automatic or remote manual (with leak detection) isolation valve outside containment. The containment boundary inside containment can be regarded to consist of the tube wall separating reactor steam from service water.

Penetration M-19, the off-gas vent from the shutdown condenser to the off-gas holding tank, contains a manual valve outside containment. An automatic or remote manual valve is required for this penetration.

Containment Isolation Arrangements in Non-Essential Systems

The following list is composed of non-essential system lines which do not meet the GDC 54 through 57 requirements concerning the number and/or location of containment isolation valves:

Penetration	System	Existing C.I.V.
M-13	Station air	Check - inside
M-17	Decay Heat Removal	AO Globe - inside
M-18	Seal Injection	Check - inside
M-21	Vent Exhaust Damper	AO Butterfly (2) - Inside
M-23	Resin Sluice to atmosphere	Locked Closed (2) - Inside
M-22, 25, 27	Waste water	AO Globe - Inside
M-26	Heating Steam, Supply Line and Return	Check - Outside AO Globe - Outside
M-28	Reactor Cavity Purge Air	Check - Outside
M-29	Off-Gas Vent Chimney	AO Globe - Inside (Remote-Manual-Outside)
M-31	Ventilation Supply	AO Butterfly - Inside

The heating steam system lines to and from the reactor plant equipment valves, penetration M-26, appear to constitute a closed system inside containment. As such, these lines may be acceptable with one isolation valve outside containment provided they meet the SRP Section 6.2.4.II.6 provisions which specify that:

1. The system may not communicate with either the reactor coolant system or the containment atmosphere.
2. The system must be protected against missiles and pipe whip.
3. The system must be designated seismic Category I.
4. The system must be classified Safety Class 2.
5. The system must be designed to withstand temperatures at least equal to the containment design temperature.

6. The system must be designed to withstand the external pressure from the containment structure acceptance test.
7. The system must be designed to withstand the loss-of-coolant accident transient and environment.

With these criteria satisfied this system would be acceptable with one isolation valve outside containment on each line (inlet and outlet). As they currently exist the condensate return line (outlet would be acceptable while the supply line (inlet) is not since a check valve is used as the isolation valve. If the seven provisions listed above are not met then both lines would not be acceptable since, being non-essential systems, they require dual isolation valves on each line.

Similarly, station air, penetration M-13, is a closed system inside containment and falls under the review criteria of GDC 57. Reference 2 states that this system has no normal usage inside containment and is piped to several hose stations. This system, just as the heating steam system, should meet the provisions of SRP Section 6.2.4.II.6.o listed above in order to justify the use of only one containment isolation valve outside containment. As it is concurrently, this penetration has a check valve outside containment which is not acceptable regardless, as an isolation valve outside containment. If the seven criteria listed above are not met, then this penetration would require an isolation valve inside containment and one outside (not a check valve).

Decay Heat Removal, penetration M-17, falls under the review of GDC 55. The automatic air operated valve located inside containment is acceptable

to the staff. However, GDC 55 requires that either a locked closed or automatic isolation valve be located outside containment. It should be noted that approval of the operation of the decay heat valve by the NRC staff as part of the evaluation of the licensee's compliance with TMI-2 Lessons Learned does not guarantee complete compliance with current SRP Section 6.2.4 licensing criteria. The TMI-2 Lessons Learned recommendations did not address the GDC 55 through 57 requirements concerning the number, location and type of containment isolation valves. For clarity, the NRC Lessons Learned requirements pertaining to containment isolation were oriented around the following goals:

a) determine which systems penetrating containment are considered essential or non-essential to safety;
b) modify containment isolation circuitry to automatically isolate all non-essential systems by diverse parameters; and
c) modify containment isolation circuitry to assure that clearing of the containment isolation signal does not cause inadvertent opening of containment isolation valves.

In addition, for the LaCrosse plant, the isolation system was reviewed to assure that certain systems which were isolated but which might be desirable to use following an accident or transient, could be reopened and that operator controls of containment isolation were not ganged to reopen multiple systems with a single operator action.

The Seal Injection System, penetration M-18, falls under the review criteria of GDC 56. This penetration contains a check valve inside containment and, according to reference 2, a check valve outside.

GDC 56, however, does not allow check valves to be used as isolation valves outside containment. For this application an automatic isolation valve outside containment would be needed to replace the existing check valve.

The Ventilation Supply and Return lines, penetrations M-21 and 31, each contain two automaic isolation valves inside containment. GDC 56 requires that one of these isolation valves be located outside containment.

The Resin Sluice line, penetration M-23, contains, according to reference 2, two normally locked closed manual isolation valves located inside containment. GDC 55 requires that one of these valves be located outside containment.

The Waste Water System, penetrations M-22, 25 and 27, fall under the review criteria of GDC 56. The existing configuration consists of a normally locked closed manual valve in each of the three branch lines plus a common air operated globe valve shared by all three. All valves are located inside containment. GDC 56 requires that one of the isolation valves be located outside containment and consist of either an automatic isolation valve or locked closed isolation valve.

The Reactor Cavity Purge, penetration M-28, falls under the review criteria of GDC 56 and contains a single check valve outside containment. This arrangement is not acceptable since GDC 56 states that check valves

outside containment are not acceptable. In addition, an isolation valve is required inside containment.

The Containment Off-Gas Vent system, penetration M-29, falls under the review criteria of GDC 56. This penetration contains an automatic containment isolation valve inside containment and a remote manual air operated valve outside containment. GDC 56 states that the isolation valve outside containment should be automatic instead of remote manual.

It should be noted that the valve arrangements spelled out in GDC 54 through 57 are independent of the valve leakage measured during the Appendix J leak tests. The licensee has implied (reference 2) that since little leakage has been measured on most of these valves during the Type A and C tests of Appendix J deviations in the explicit GDC valve arrangements should be permitted. The staff, however, does not agree because the GDC requirements, when satisfied, insure an adequate degree of redundancy whereas the Appendix J tests are aimed strictly at providing and maintaining leakage measurement within acceptable limits.

Insufficient Isolation Provisions for Instrument Lines

The instrument lines through penetrations M-14 and M-16 are to the containment building water level transmitters which are required for ECCS purposes. These lines do not meet the containment isolation provisions of Reguatory Guide (R.G.) 1.11, "Instrument Lines Penetrating Primary Reactor Containment." R.G. 1.11 states that at least a self actuated excess flow check valve should be located outside containment. No valves are required inside containment for penetrations M-14 and M-16.

Similarly, the instrument lines through penetations 1A and 2B, to containment building pressure sensors, do not meet the R.G. 1.11 guidelines. These lines should also include an excess flow check valve outside containment.

Insufficient Leak Detection for Remote Manual Valves

SRP Section 6.2.4.II.6.q states that, based on GDC 54, in regard to remote manual isolation valve, they are acceptable if provisions are made to allow the operator in the main control room to know when to isolate fluid systems containing them. Such provisions may include instruments to measure flow rate, sump water level, temperature, pressure and radiation level. Licensee responses (reference 2) have indicated that, at most, the remote manual valves are tested annually for leakage and as part of the integrated (Type A) leakage test. There does not appear to be any mechanism present which allows the control room operator to monitor leakage through these valves. This is a deviation from the GDC 54 requirements.

Acceptable provisions may include instruments to measure flow rate, sump water level, temperature, pressure and/or radiation level.

VI. Conclusions

The following summarizes the deviations from review guidelines that have been identified and described in Section V of this report.

1. The containment isolation arrangements in the following essential systems deviate from the GDC 54 through 57 explicit requirements: the component cooling inlet and outlet lines, the demineralized

water line, the high pressure service water system, the control air system, the steam from the shutdown condenser and the off-gas vent from the shutdown condenser;

2. The containment isolation arrangements in the following non-essential systems do not meet the explicit GDC 54 through 57 requirements: Station Air, Decay Heat Removal Seal Injection, Ventilation Supply and Exhaust Damper, Resin Sluice, Heating Steam System Supply and Return, the Waste Water System, the Reactor Cavity Purge Air and the Off-Gas Vent Chimney;

3. The instrument lines passing through penetrations M-1A, 2B, 14 and 16 do not meet the provisions of R.G. 1.11; and

4. Remote manual valves at LaCrosse do not have continuous leakage monitoring as required by SRP Section 6.2.4.II.6.g.

VII References

1. NRC letter, Crutchfield to Linder, May 26, 1981, and associated references used in its preparation:

   - LaCrosse Boiling Water Reactor, Application for Operating License, October 1974
   - LACBWR Responses to IE Bulletin 79-08:

     LAC-6256, April 27, 1979
     LAC-6262, May 2, 1979
     LAC-6297, May 18, 1979
     LAC-6315, May 23, 1979
     LAC-6319, May 29, 1979
     LAC-6474, August 16, 1979

- LACBWR Responses to TMI-2 Lessons Learned:

  LAC-6680, December 6, 1979
  LAC-6769, January 31, 1980
  "Info Required for NRC Generic Report on BWRs and In Response to NRC 7/17 and 7/27/79 letters," dated September 7, 1979

2. DPC letter, Linder to Crutchfield, LAC-7747, dated August 17, 1981.

3. NRC letter, Ziemann to Linder, dated April 25, 1980.

GENERAL DESIGN CRITERIA 55 AND 56
ISOLATION VALVE CRITERIA

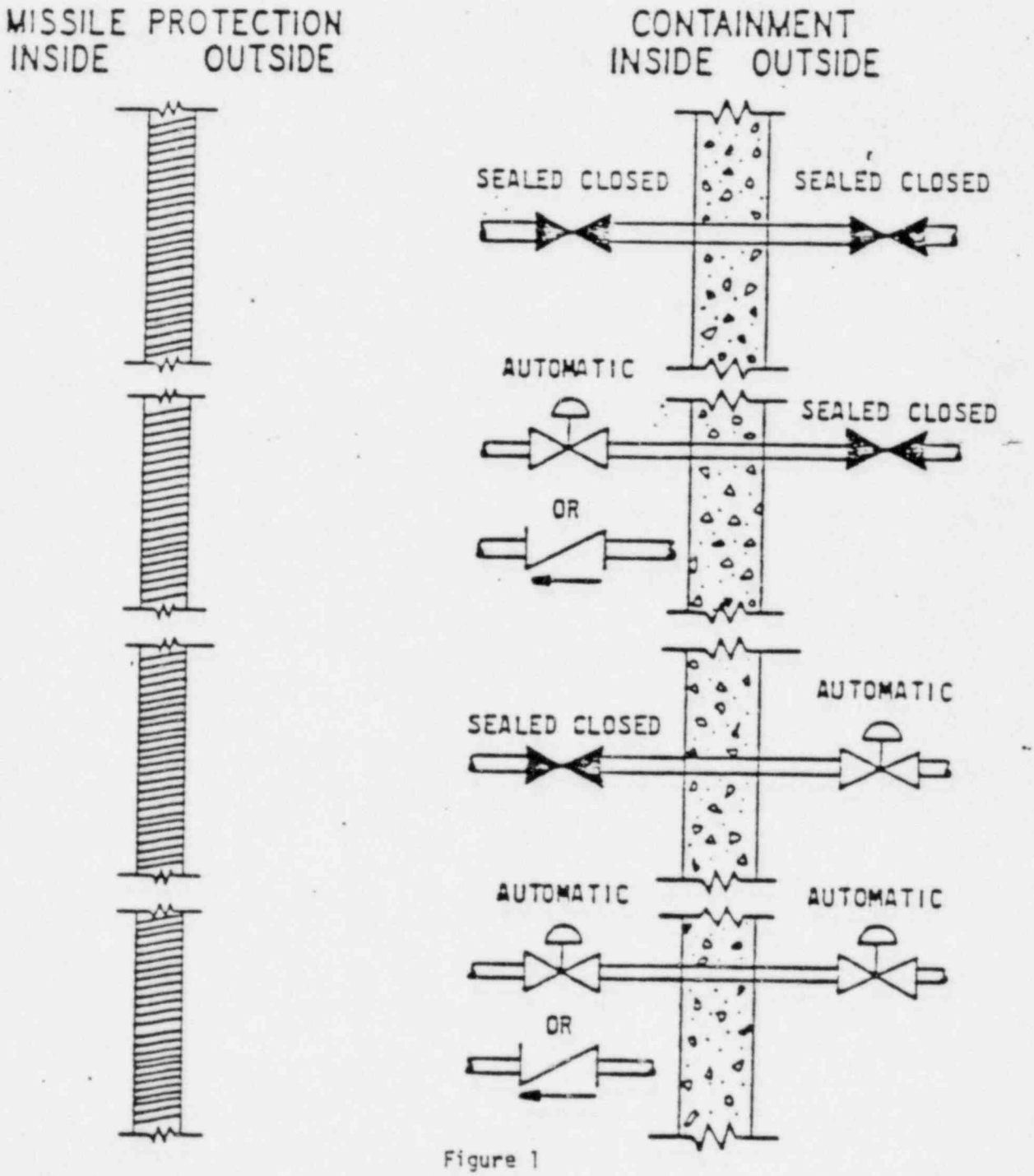

Figure 1

GENERAL DESIGN CRITERION 57
ISOLATION VALVE CRITERIA

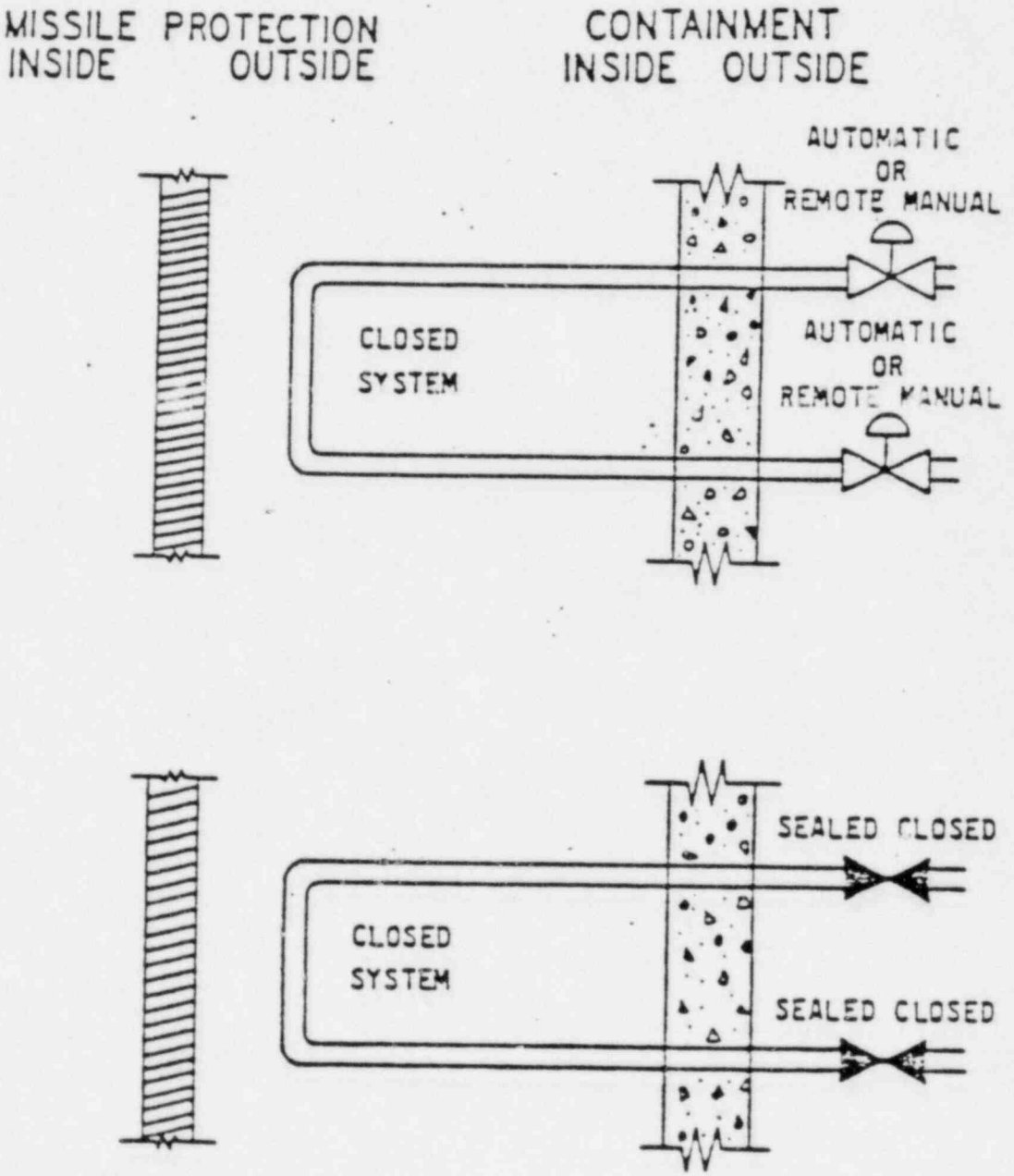

Figure 2

TABLE 1

SEP TOPIC VI-4 CONTAINMENT ISOLATION SYSTEM REVIEW ITEMS

PLANT: LA CROSSE

PENETRATION NO	SYSTEM NAME AND SERVICE LINE SIZE	PENE CLASS NO.	VALVE IDENT. NUMBER	VALVE TYPE OR DESCRIPTION	LOCATION		POSITION				ESSENTIAL	ACTUATION	REMARKS
					O.C.	I.C.	NORMAL	SHUTDN	POST LOCA	PWR FAIL.			
M-35	DOMESTIC WATER		—									—	
M-19	OFF-GAS VENT FROM SHUTDN. COND.		62-25-003	AO GATE		X	—	SHUT		—	E	DC	
M-13	STATION AIR		70-26-029	CHECK		X					NE	SELF	
M-12	CONTROL AIR		93-26-002 93-26-001	CHECK	X	X					E	SELF	
M-11	DEMINERALIZED WATER		67-26-001	CHECK		X					E	SELF	
M-8	HI PRES. WATER TO CORE SPRAY RING		75-26-003	CHECK		X					E	SELF	
M-6	MAIN STEAM		64-30-001	PLUG-COCK								DC	
M-7	FEEDWATER		05-26-001	CHECK		X						SELF	
M-9	TO REACTOR PLANT EQUIPMENT										E		
M-10	FROM REACTOR PLANT EQUIPMENT										E		
M-17	TO MAIN CONDENSER HOTWELL		56-25-001	AO GLOBE		X	—	SHUT		—	NE	AC	
M-18	TO SEAL INJECTION FROM CONDENSATE DRAIN		52-26-039	CHECK		X					NE	SELF	
M-26	TO & FROM REACTOR EQUIPMENT		73-25-021	AO GLOBE	X		O	O	C	C	NE	AC	
"	"		73-26-005	CHECK	X						NE	SELF	
M-22	FROM WASTE WATER STORAGE TANKS		54-25-006	AO GLOBE		X					NE	AC	
M-25	SUMP PUMP DISC. WASTE WATER STG.		54-25-006	"		X					NE	AC	
M-27	TO EVAP. FEED TANK WASTE DISPOSAL		54-25-006	"		X					NE	AC	
M-23	RESIN SLUICE TO WASTE DISP. BLDG.		54-26-004	CHECK	X						NE	AC	

TABLE 1

SEP TOPIC VI-4 CONTAINMENT ISOLATION SYSTEM REVIEW ITEMS

PLANT: LaCrosse

PENE-TRATION NO.	SYSTEM NAME AND SERVICE LINE SIZE	PENE CLASS NO.	VALVE IDENT. NUMBER	VALVE TYPE OR DESCRIPTION	LOCATION		POSITION				ESS-EN-TIAL	ACTUA-TION	REMARKS
					O.C.	I.C.	NOR-MAL	SHUT DN	POST LOCA	PWR FAIL.			
M-29	off-GAS VENT TO STACK		55-25-003	AO GLOBE		X	—	SHUT		—	NE	AC	
M-34	STEAM FROM SHUTDOWN COND. TO ATM.										E		
M-32	VACUUM BREAKER		37-27-001	MECHANICAL GLOBE		X	—	SHUT		—	E		
M-36	" "		37-27-002	MECHANICAL GLOBE		X	—	SHUT		—	E		
M-31	VENTILATION SUPPLY		73-25-001 73-25-002	AO BUTTERFLY		X	O	O	C	C	NE	AC	
M-21	EXHAUST TO PIPING TUNNEL & STACK		73-25-005 73-25-006	AO BUTTERFLY		X	O	O	C	C		AC	
M-33	SLEEVE												
M-24	WELDED CAPPED SPARES												
M-15, 3920	DITTO												
M-16	CONTAINMENT BLDG. LEVEL		37-28-008 37-28-010	MANUAL GLOBE	X		O	O	O	O	E		
M-14	DITTO		37-28-003	MANUAL GLOBE	X		O	O	O	O	E		
2B	PRESSURE LEVEL										E		
1A	CONT. BLDG. DRAIN SUCTION		38-23-009 38-23-010	MANUAL GATE	X		—	SHUT		—	NE		
1A	ISOLATION RHRSW DIESEL START		37-28-001 37-28-002	MANUAL GLOBE	X		—	OPEN		—			
1A	ALTERNATE CORE SPRAY										E		
M-28	REACTOR CAVITY PURGE AIR		55-26-006	CHECK	X		O	C	C	C	NE	DC	