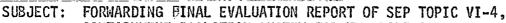
Docket No. 50-255 LS05-82- 02-048

SEE RAPS

Mr. David J. VandeWalle Nuclear Licensing Administrator Consumers Power Company 1945 W. Parnall Road Jackson, Michigan 49201

Dear Mr. VandeWalle:



CONTAINMENT ISOLATION SYSTEM FOR THE PALISADES

NUCLEAR POWER PLANT

Enclosed is a copy of our final evaluation of SEP Topic VI-4, Containment Isolation System. This assessment compares your facility, as described in Docket No. 50-255, with the criteria currently used by the regulatory staff for licensing new facilities.

In addition it was noted, by the staff during the recent site visit that at least one penetration (Number 19) had a threaded piped connection between the containment and the outer most isolation valve. The staff finds this practice to be unacceptable (See, ASME Code Section 3 NE). It is our position that the containment isolation valve and it's associated piping are to be designed to the same standards as the containment.

With respect to the potential modifications outlined in the conclusion in this report, a determination of the need to actually implement these changes will be made during the same integrated assessment. This topic assessment may be revised in the future if your facility design is changed ADD: or if NRC criteria relating to this topic are modified before the integrated assessment is completed.

Sincerely,

Thomas V. Wambach, Project Manager Operating Reactors Branch No. 5 Division of Licensing

Enclosure: As stated

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 See next page
 SEPB
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James G. Keppler, Regional Administrator Nuclear Regulatory Commission, Region III Office of Inspection and Enforcement 799 Roosevelt Road Glen Ellyn, Illinois 60137 Containment Systems Branch
Evaluation Report on SEP Topic VI-4,
Containment Isolation System for the
Palisades Nuclear Plant, Unit 1
Docket No. 50-255
Revision 1

I Introduction

The Palisades Nuclear Power Plant, Unit 1 began commercial operation in 1971. Since then safety review criteria have changed. As part of the Systematic Evaluation Program (SEP), the containment isolation system for the Palisades plant has been re-evaluated. The purpose of this evaluation is to document the deviations from current safety criteria as they relate to the containment isolation system. The significance of the identified deviations, and recommended corrective measures to improve safety, will be the subject of a subsequent, integrated assesment of the Palisades plant.

II Review Criteria

The safety criteria used in the current evaluation of the containment isolation system for the Palisades plant 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-75/087, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (SRP 6.2.4, Containment Isolation System).
- Regulatory Guide 1.11, Instrument Lines Penetrating Primary Reactor
 Containment.

ENCLOSURE

REGULATORY DOCKET FILE COPY

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 the Palisades plant. 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, Electrical Penetrations of Reactor Containment
- (11) NUREG-0737, Clarification of TMI Action Plan Requirements,

 Item II.E.4.2, 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

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 54, 55, 56 and 57 of Appendix A to 10 CFR Part 50 pertain to the containment isolation system of a nuclear power plant.

General Design Criterion 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 providions 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 at 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. SRP 6.2.4, at Item II.11, 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 at 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 at Item II.E.4.4).

The electrical power supply, instrumentation and controls systems should be designed to engineered safety features 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, at 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. Furthermore, 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.

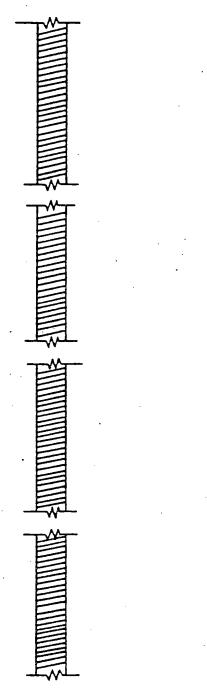
GDC 55, 56 and 57 establish explicit requirements for isolation valving in lines penetrating the containment. Specifically, they address the number and location of isolation valves (e.g., redundant valving with one located inside containment and the other located outside containment), valve actuation 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.

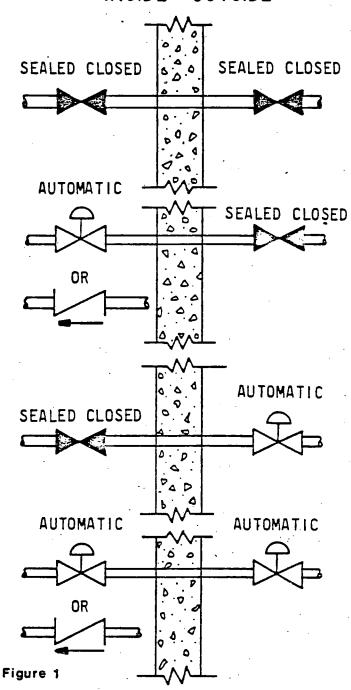
GDC 55 and 56 also permit containment isolation provisions for lines penetrating the primary containment boundary that differ from the explicit requirements, provided the basis for acceptability is defined. This proviso is typically invoked when establishing the containment isolation requirements for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

GENERAL DESIGN CRITERIA 55 AND 56 ISOLATION VALVE CRITERIA

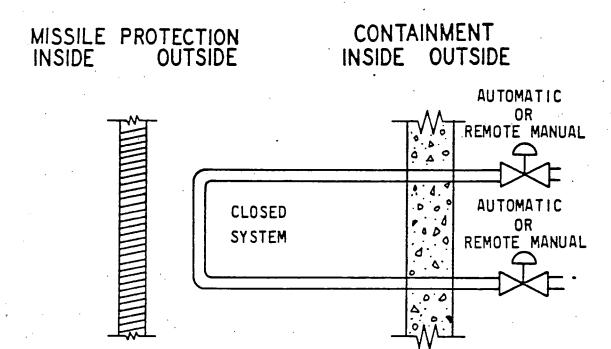
MISSILE PROTECTION INSIDE OUTSIDE

CONTAINMENT INSIDE OUTSIDE





GENERAL DESIGN CRITERION 57 ISOLATION VALVE CRITERIA



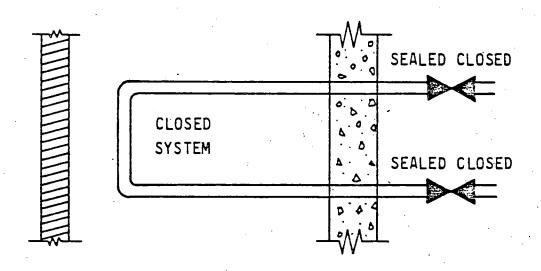


Figure 2

Standard Review Plan (SRP) 6.2.4 at Item II.3 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.

Evaluation

The containment isolation provisions for the lines penetrating the primary reactor containment of the Palisades Nuclear Power Plant, Unit 1 are tabulated in Table 1. This information was obtained from the documents referenced in Section VII. The containment isolation provisions, as tabulated 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 tabulated in Table 2. We have transmitted a draft evaluation to the licensee. As a result, Table 1 was revised and modified by the licensee to reflect changes in the plant. This revised evaluation report takes into account the comments and updated information received from the licensee.

Table 1 gives the licensee's penetration class designation for many of the lines penetrating containment. The isolation valve arrangements for these penetration classes are shown in Figures 3 and 4. The figures were obtained from Reference 8. Following are evaluations of these penetration classes against GDC 55, 56 and 57.

Penetration Class Al

Penetration Class Al shows influent and effluent lines open to the containment with two isolation valves in series outside containment.

GDC 56 applies to the lines in Penetration Class Al. GDC 56 specifies that one valve should be located inside containment and one valve should be located outside containment. Consequently, the isolation valving arrangement for Penetration Class Al differs from the explicit requirements of GDC 56 from the standpoint of valve location. Locating both containment isolation valves outside containment may be acceptable if the criteria used in the design of the piping between the containment the first valve are sufficiently conservative to provide adequate assurance of integrity. This matter is discussed under SEP Topiic III-1.

The following containment penetrations are included in Penetration Class A1: 1, 4, 4a, 52 and 68.

Penetration Class A2

Penetration Class A2 shows three isolation configurations that are open to the containment. GDC 56 applies to the lines in Penetration Class A2. One of the isolation configurations (i.e.,, the line having a locked-closed valve inside containment and a locked-closed valve outside containment) satisfies the explicit requirements of GDC 56. The following containment penetrations have this isolation configuration in Penetration Class A2: 64, 66 and 72.

The isolation configuration having a blind flange inside containment and a locked closed valve outside containment differs from the explicit requirements of GDC 56 from the standpoint of isolation barrier type.

GDC 56 does not address the use of blind flanges. However, a blind flange is an acceptable isolation barrier in lieu of a valve. The basis for this appears in SRP 6.2.4 at Item II.3. Also, the locked-closed valve could be an automatic isolation valve and still satisfy GDC 56. The following containment penetrations have this isolation configuration in Penetration Class A2: 18, 18a and 27.

With regard to penetration 27 (ILRT fill line), the power operated valve MOV-Pl outside containment is verified closed monthly under surveillance procedure MO 29 of the plant Technical Specifications. Since the line is flanged and gasket inside containment, the administrative control exercised over the valve is judged to be adequate. Therefore, the valve is a sealed closed isolation valve in accordance with the guidelines of SRP 6.2.4 at Item II.3.

The isolation configuration having both a locked closed valve and a simple check valve outside containment differs from the explicit requirements of GDC 56 from the standpoint of valve location and valve type. GDC 56 specifies that one valve should be located inside containment and one valve should be located outside containment, and that a simple check valve may not be used as an automatic isolation valve outside containment. For this configuration to be acceptable, the check valve should be located inside containment. Also, the locked closed valve could be an automatic isolation valve to satisfy GDC 56.

The following containment penetrations have the above isolation configuration in Penetration Class A2: 10 and 65. A judgment regarding the acceptability of the simple check valve outside containment as a bonafide containment isolation valve will be made in conjunction with the integrated assessment of the plant.

With regard to penetration 65 (instrument air line), the acutation provisions for valve CV 1211 differ from the explicit requirements of GDC 56 in that the valve is remote manually isolated. Since the instrument air line is non-essential, valve CV 1211 should be automatically isolated.

Penetration Class B1

Penetration Class B1 shows two series isolation valves outside containment in a line coming from the reactor coolant system. As shown, one of the valves is an automatic isolation valve and the other is a normally open, manual valve. Depending on the line, however, a simple check valve or remote manual valve is used. GDC 55 applies to the lines in Penetration Class B1. GDC 55 specifies that one valve should be located inside containment and one valve should be located outside containment, with the vaves being either locked closed or automatic isolation valves.

The isolation valving arrangement for Penetration Class B1, therefore, differs from the explicit requirements of GDC 55 from the standpoint of valve location, type, and actuation. Locating both itolation valves outside containment may be acceptable if piping and valve design criteria are sufficiently conservative to preclude a breach of integrity. This matter is

discussed under SEP Topic III-1. The use of a local manual valve for containment isolation is not acceptable, and should be upgraded to an automatic isolation valve.

The following containment penetrations are included in Penetration Class B1. 36, 40 and 45.

For penetration 36 (reactor coolant system letdown line), the parallel power operated valves CV 2012 and CV 2122 respond to controls to maintain a prescribed backpressure in the line. Although the valve controls are designed to ramp the valves closed in response to a drop in line pressure (e.g., as caused by a LOCA), the control circuitry is not safety-grade and does not assure valve closure throughout the course of an accident, Therefore, valves CV 2012 and CV 2122 should have automatic isolation capability in response to the sensing of diverse parameters characteristic of postulated accidents. Also, the isolation actuation circuitry should be safety-grade and capable of overriding valve control circuitry for normal plant operation. For penetration 45 (charging pump discharge line), the simple check valve outside containment is an inappropriate automatic isolation valve; a judgment regarding its acceptability will be made in conjunction with the integrated assessment of the plant. Also, the actuation provisions for the air operated valve CV 2111 differ from the explicit requirements of GDC 55 in that the valve is a remote manual isolation valve. A remote manual isolation valve is provided in lieu of an automatic isolation valve because the line has a post-accident safety function (emergency core cooling) which necessitates the valve being open in the event of an accident. Consequently, automatic isolation of

the line is not appropriate. However, the capability does exist to remote manually isolate the line if the need to do so should arise. The actuation provisions for the valve is acceptable based on the guidelines of SRP 6.2.4, at Item II.3.

Penetration Class B2

Penetration Class B2 shows a locked closed valve inside containment and a locked closed valve outside containment in a reactor coolant system effluent line. GDC 55 applies to the lines in Penetration Class B2. The isolation arrangement satisfies the explicit requirements of GDC 55.

The following containment penetration is included in Penetration Class B2: 35.

Penetration 35 shows two relief valves (RV 3164 and RV 0401), located between the two series isolation valves inside containment, which relieve to the containment. Consequently, the relief valves also have a containment isolation function in the reverse flow direction.

Penetration Class C1

Penetration Class C1 shows two types of valve arrangements for closed systems inside containment that are missile protected; namely, a single simple check valve outside containment for influent lines and a single automatic isolation valve outside containment for effluent lines. GDC 57 applies to the lines in Penetration Class C1. GDC 57 specifies that a single automatic, remote manual or locked closed isolation valve outside containment is acceptable, but a simple check valve is not an acceptable automatic isolation valve. The isolation valve arrangement having a

single simple check valve outside containment differs from the explicit requirements of GDC 57 from the standpoint of valve type.

The following containment penetrations are included in Penetration Class C1: 2, 3, 7, 8, 16 and 55.

For Penetrations 7 and 8, the main feedwater isolation valves (18"-N218R-0702 and 18"-N218R-0701, respectively) should be power operated, automatic isolation valves. In this regard, a power operated stop check valve would be acceptable. For penetrations 16 and 55, the containment isolations provisions satisfy the explicit requirements of GDC 57.

Penetration Class C2

Penetration Class C2 shows isolation valve arangements for influent and effluent lines of closed systems inside containment that are not missile protected. The valve arrangements consist of two valves in series, outside containment.

GDC 56 applies to the lines in Penetration Class C2. GDC 56 specifies that one automatic or locked closed valve should be located inside containment and one such valve should be located outside containment; also, a simple check valve may not be used as an automatic isolation valve outside containment.

The valve arrangements of Penetration Class C2 differ from the explicit requirements of GDC 56 from the standpoint of valve location and valve type. All valve arrangements would satisfy the explicit requirements of GDC 56 if one valve was located inside containment, particularly the simple check valve.

GDC 56 permits isolation valve arrangements that differ from the explicit requirements provided the basis for acceptability is defined. With respect to Penetration Class C2, then, locating both isolation valves outside containment may be acceptable since missile protection is not provided inside containment. The acceptability of this is contingent on the criteria used in the design of the piping between the containment and first valve, and the first valve, which must provide adequate assurance of integrity.

The following containment penetrations are included in Penetration Class C2: 5, 6, 11, 14, 15, 25, 26, 37, 38, 40A, 40B, 41, 42, 44, 46, 47, 49, 67 and 69.

For penetrations 11, 14, 26, 27, 41, 42 and 67, the simple check valve is not an appropriate automatic isolation valve outside containment.

A power operated automatic isolation valve would be acceptable. However, a judgment decision regarding the acceptability of the simple check valve will be made at the time of the integrated assessment of the plant.

Penetration 25 shows a capped test connection which should be equipped with two locked closed isolation valves in series. Penetration 44 shows a manual isolation valve (3/4"-2084) which is not depicted by the isolation valve arrangements of Penetration Class C2, and which differs from the explicit requirements of GDC 56 from the standpoint of valve actuation; the subject valve should be a power operated valve that is automatically actuated.

Penetration Class C3

Penetration Class C3 shows two, locked closed isolation valves in series, outside containment, for effluent lines from systems that are closed inside containment and not missile protected. GDC 56 applies to the lines in Penetration Class C3. The valve arrangements described above differs from the explicit requirements of GDC 56 from the standpoint of valve location, namely, one valve should be located inside containment. However, locating both valves outside containment may be acceptable, based on the discussion under Penetration Class C2.

The following containment penetration is included in Penetration Class C3: 33.

The following discussion pertains to those containment penetrations not covered by the Penetration Classes discussed above.

a) Penetartions 9, 20, 24, 29, 34, 43, 57, 58, 59, 60, 61, 62, 63, 70, 71 and 73:

These containment penetrations are spares. Of these, penetrations 21, 29 and 73 show pipe caps and blind flanges being used as isolation barriers. Threaded and/or tack welded pipe caps, and blind flanges without leak testing provisions, are not suitable isolation barriers.

b) Penetrations 12 and 13:

These containment penetrations satisfy the explicit requirements of GDC 56, and are acceptable. However, with respect to the test, vent and drain lines, pipe caps are not suitable isolation barriers; two locked closed isolation valves in series should be provided for

these lines. Also, the flow element located between the isolation valves at penetration 13 should be moved downstream of the outboard isolation valves, or the licensee should justify that the flow element is an acceptable isolation barrier.

c) Penetrations 17 and 48:

These two containment penetrations serve the containment pressure instrumentation (8 lines). Since signals for the actuation of engineered safety features are derived from this instrumentation, it is imperative that these lines be open and remain open. Consequently, power-operated valves, which could potentially spuriously close, are not provided in these lines.

The instrument lines, however, are provided with test connections that are only capped. Again, pipe caps are not suitable isolation barriers; two locked closed isolation valves in series should be provided in each test line.

d) Penetrations 19, 50 and 51:

These containment penetrations are the personnel air lock, emergency access air lock and equipment hatch, respectively. Several lines are associated with these penetrations that are equipped only with pipe caps for isolation barriers. Pipe caps are not suitable isolation barriers and should be replaced with locked closed manual valves or blind flanges that are leak testable.

rationale for accepting the isolation provisions of the emergency sump recirculation lines appears in SRP 6.2.4, at Item II.3.

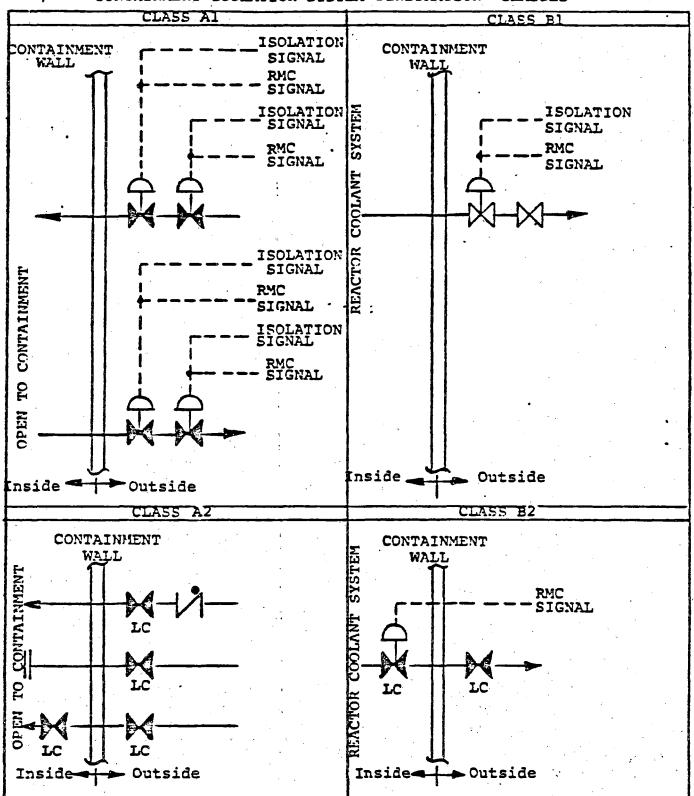
h) Penetrations 30 and 31:

With regard to penetrations 30 and 31 (containment spray pump discharge lines), the actuation provisions for the power operated valves CV-3001 (penetration 30) and CV-3002 (penetration 31) differ from the explicit requirements of GDC 56 in that they are remote manual isolation valves. Remote manual isolation valves are provided in lieu of automatic isolation valves because the lines, which are part of the containment spray system, have a post-accident safety function (depressurization of the containment following a pipe break accident) which necessitates their being opened in the event of an accident. Consequently, automatic isolation of these lines is not appropriate. However, the capability does exist to remote manually isolate these lines if the need to do so should arise. The actuation provisions for these valves are acceptable based on the guidelines of SRP 6.2.4, at Item II.3.

i) Penetration 39:

For penetration 39, the simple check valve outside containment is replaced with a blank flange during plant operation. To be an acceptable isolation barrier, the blank flange should be leak testable.

CONTAINMENT ISOLATION SYSTEM PENETRATION CLASSES



CONTAINMENT SOLATION SYSTEM PENETRATIC: CLASSES

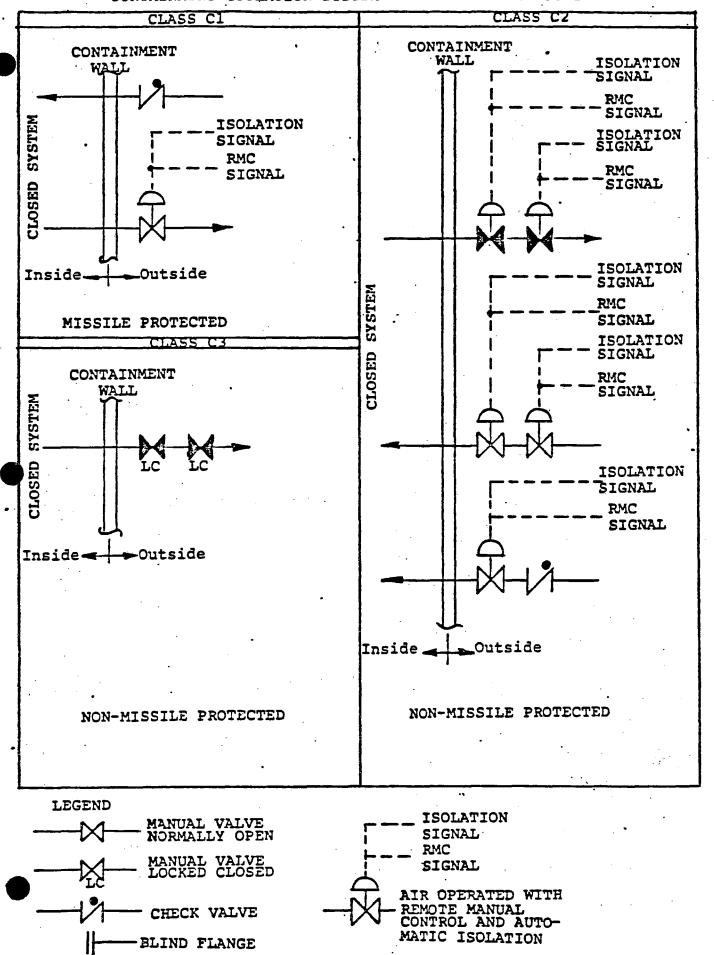


Figure 4

VI Conclusions

The following summarizes the deviations from review guidelines that have been identified and described in Section \boldsymbol{V} of this report:

1. The isolation valving arrangements of the following containment penetrations do not meet the requirements of GDC 55 or 56 from the standpoint of valve location: Penetrations 1, 4, 4a, 10, 11, 21, 21a, 25, 26, 28, 30, 31, 33, 36, 37, 38, 39, 40, 40a, 40b, 41, 42, 44, 45, 46, 47, 48, 49, 52, 52a, 52b, 56, 65, 67, 68 and 69.

The isolation valves in these penetrations are located outside containment. The acceptability of this is contingent on the acceptability of the piping design criteria. Also, the licensee should discuss the unique characteristics of the valves closest to the containment to terminate valve shaft or bonnet seal leakage, or the provisions in the plant for control of leakage.

2. The isolation valves of the containment penetration numbers listed below differ from the explicit requirements of GDC 55, 56 and 57 from the standpoint of valve type by using one check valve in series with other type isolation valves located outside containment: Penetrations 7, 8, 10, 11, 14, 26, 30, 31, 37, 39, 41, 42, 45, 65 and 67.

A simple check valve located outside containment is not an appropriate automatic isolation valve. The judgment regarding its acceptability will be made in conjunction with the integrated assessment of the plant.

For penetrations 7 and 8, the main feedwater line, those check valves should be power operated, automatic isolation valves.

3. The isolation barriers in the containment penetrations listed below differ from the explicit requirements of GDC 55, 56 and 57 from the standpoint that pipe caps or blind flanges are used as containment isolation barriers.

Penetrations having pipes or test connections capped outside containment: 13, 17, 17a, 21, 21a, 25, 27, 28, 29, 38, 39, 48 and 73;

Penetrations having blind flanges inside containment: 18, 27, 29 and 73; or outside containment: 1, 4 and 39.

A blind flange inside or outside containmennt is an acceptable isolation barrier in lieu of an isolation valve if the blind flange is leak testable.

Pipe caps used in lines penetrating containment or test connections are not acceptable isolation barriers and should be replaced with locked closed valves or blind flanges that are leak testable.

There are spare penetrations equipped with pipe caps, such as penetrations 21, 29 and 73. To be acceptable, the pipe cap should be fully welded with the same quality as the containment weld, or replaced with a blind flange that is leak testable.

- 4. The power operated valves CV-3001 (penetration 30) and CV-3002 (penetration 31) of the containment spray pump discharge lines differ from the explicit requirement of GDC 56 from the standpoint of valve actuation. Remote manual isolation valves are provided in lieu of automatic isolation valves because the systems have a post-accident safety function which necessitates their being opened in the event of an accident. The actuation provision for these valves are acceptable based on the guidelines of SRP 6.2.4, at Item II.3.
- The containment sump suction lines which are part of the ECCS and the containment heat removal system have post-accident safety functions. Therefore, automatic isolation of these lines (penetrations 53 and 54) is not desirable; remote manual isolation valves are acceptable.
- 6. Penetration 44 shows a manual isolation valve (3/4"-2084) in series with an air operated isolation valve, which differs from the explicit requirements of GDC 56 from the standpoint of valve acuation. This manual valve should be a power operated automatic isolation valve.
- 7. There are several lines associated with the following penetrations which are equipped with pipe caps: the personnel air lock (penetration 19); emergency access air lock (penetration 50); and equipment hatch (penetration 51).

These pipe caps are not suitable isolation barriers and should be replaced with locked closed manual valves or blind flanges that are leak testable.

loss of actuating power, take the position that provides greater safety. The position of an isolation valve for normal and shutdown operating conditions, and post-accident conditions, depends on the fluid system function. In the event of power failure to a valve operator, the valve position should be consistent with the line function. In this regard, separate power supplies for isolation valves in series may be required to assure the isolation of non-essential lines. The licensee has provided information (see Table 1) on the position of isolation valves, whether or not the line is essential and the isolation signals for each isolation valve. This information shows that automatic isolation valves assume positions of greater safety on loss of actuating power and, therefore, GDC 55 and 56 are satisfied.

CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NDP UNIT 11

PAGE 1 OF 13

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	ISYSTEM NAME	PENE	JVALVE	AVEA		TION	l	POST	TION		IESS-	ACTUA-	IREMARKS
	AND SERVICE		IDENT.	TYPE OR	OC.	IC	NOR-	SHUT	POST.	PWR	EN-	TION	
NO.	LINE SIZE	NO.	NUMBER	DESCRIPTION		ł	MAL	DN	LOCA	FAIL.	TIAL		}
1	Purge Air Supply (հՕ"Փ)	A1	CV1807 CV1808 508VAS	AO BUTF VLV AO BUTF VLV MAN GL TEST VLV TEST CONNECT	X X X		NC NC LC CAP	0/c 0/c c	C C	C -	H	CIS CIS -	Blank Flanged; Vent. Syst. Valves Presently Not Used in Modes 1-4
2	Main Stm Line (SGE50A) (36"Ø)	C1	CV0510 MOV0510A	POS CII'K VLV	x x		NC NO	C:	c c	C C	Y	LOW B/G PRESS RM	Loss of Air, CV-0510 Remains in Position Due to Cross Con- nections with High Press Air and Accumulators
3	Main Stm Line (SGE50B) (36"Ø)	C1	CV0501 MOV0501A	POS CH'K VLV MO BYPASS VLV	X		NO NC	c c	C C	C	Y	LOW 8/G PRESS RM	Loss of Air, CV-0501 Remains in Position Due to Cross Con- nection with High Press Air and Accumulators
'lı.	Purge Air Exhaust (հ8"Ø)	A1	CV1803 CV1805 CV1806 506VAS	AO BUTF VLV AO BUTF VLV AO BUTF VLV MAN GL TEST VLV	X X X		NC NC NC LC	0/c 0/c 0/c c	C C C	C .	N	C18 C18	Blank Flanged; Vent. Syst. Valves Presently Not Used in Modes 1-4
le	Purge Air Exhaust Sample Line (3"Ø)	Α1	100VAS 101VAS 507VAS	MAN GA VLV MAN GA VLV MAN GL TEST VLV TEST CONN /w CAP	X X X	·	C rc rc	C C C	C C C	- - -	И	-	
5	SIG (E50A) Bottom Blow Down (2"Ø)	C2	CV0767 CV0771 567MS	AO ANGLE VLY AO ANGLE VLY MAN GL TEST VLV TEST CONN /w CAP	X X X		NO NO LC C	c c	C C C	C	H	CIS CIS	
6	S/G (E50B) Bottom Blow Down (2"Ø)	C2	CV0768 CV0770 568MS	AO ANGLE VLV AO ANGLE VLV MAN GL TEST TEST CONN /w CAP	X X X		NO NO LC C	C C	c c	c c -	H	C18 -	`
7	Feedwater to S/O (E50A) (18"Ø)	C1 6' 18'	746FW N218K-704 N218R-702	MAN GL VLV CHECK VLV CHECK VLV	X X X		LC C	C C	C C	-	H Y Y	- Revap Revap	Aux FW Main FW

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CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NDP UNIT #1

NDP UNIT V1 PAGE 2 OF 13

TRATION	SYSTEM NAME AND SERVICE LINE SIZE	PENE CLASS NO.	VALVE IDENT. NUMBER	VALVE TYPE OR DESCRIPTION	OC LOCA		NOR- MAL	POST SHUT DN	TION POST LOCA	PWR FAIL.	ESS- EN- TIAL	ACTUA-	REMARKS
8	Feedwater to S/G (E50B)	C1 18"	ThTFW	MAN GL DRAIN VLV CHECK VLV CHECK VLV	х х . х		C C C	C 0 C	C C C		N Y Y	REVAP	Main FW Aux FW
. 9	Spare	-							<u></u>				
10	Service Air (2"Ø)	A2	122CAS 401CAS 142CA T	MAN GA VLV CHECK VLV MAN GL TEST VLV TEST CONN /w CAP	X X X		C C LC C	o/c o/c c	C C	-	n	- REVAP	
11	Condensate to Shield Cooling Surge Tank (1 ¹ 4"\$)	C2	CV0939 401CDS 536CD3 536ACD T	AO GA VLV CHECK VLV MAN GL TEST VLV MAN GL TEST VLV TEST CONN /w CAP	X X X X		NO LC LC C	0 0/c c c	C C C	c - - -	N	CIS REVAP	
12	Service Water Supply (16"∮)	X	CV08h7 CV0869 CV0865 CV0862 CV0870 5715W8 5705W 5085W 5605W 2665W 2655W	AC BUTF VLV MAN GA VLV	X	X X X X X X X X	NO NO NO LC LC LC LC LC LC	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Y Y Y Y N N N N	MAN MAN MAN MAN MAN - - -	
13	Service Water Return (16"Ø)	х	CV0821 5725W3 CV0867	AC BUTF VLV MAIN GA TEST VLV AC BUTF VLV	X	x .	NO LC NC	0 C	0 C 0	0 - 0	Y H Y	MAN - 818	818 Trips Normal Fan Which in Turn Opens Valve
			CVO8h3 CVO86h CVO863 CVO838 CVO873 CVO872	AO GL VLV AC BUFF VLV AC BUFF VLV AC BUFF VLV AC BUFF VLV AO GL VLV		X X X X X	NO NC NC NC NO NC	0 0 0 0 0	0 0 0 0 0	C C C C C I	И У И У И	TC 818 TC 818 TC 918 TC	

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CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NDP UNIT #1

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	THE ISHOES HO! ON												17/dc _5 0/ 15_
PENE-	SYSTEM NAME	PENE	VALVE	IVALVE	LOCA	TION	Ī	POST	TION		IESS-	ACTUA-	IREMARKS
TRATION	AND SERVICE	CLASS	IDENT.	TYPE OR	OC.		NOR-		TPOST	TPWR		TION	
	LINE SIZE	NO.	NUMBER	DESCRIPTION				DN	LOCA	FAIL.	TIAL		
	LINE STEE		HOLDEN	DESCRIPTION			1		Lock	1	11111	 	
1	•.	<u> </u>		1.0 minum 117.11	x	1	NO .	NO	c	0	N.	818	Auto Reopen on SIS Reset
14	Component	C5	CV0910	AC BUTF VLV	**	ľ	1			1 .	1 "	REV^P	Auto neopen on ozo neoco
	Cooling Water		257-0910CC	CHECK VLV	X	•	0	lc c	C	! -	1	WEAVE	1
ł	in (10"Ø)		507CC	MAN GL TEST VLV	X	ŀ	LC	LC	C	-	1	-	
\	·		<u> </u>	TEST CONN /w CAP	<u> </u>		C	 	 	 	- -	ļ. 	
		1					No	0		AI	N	SIS	Auto Reopen on SIS Reset
15	Component	C2	CV0911	AC BUTF/HD OP	X	İ	1 -	0	C	AI	14	SIS	CV-0911 & 0940 has Accumulator
·	Cooling Water	1	CA0210	AC DUTF/IID OP	X		NO		C	AI AI		212	for Loss of Air
1	Out (10"Ø)	ł	508CC	man gl test vlv	X	ļ	I.C	C	G	1 -	ł	1	IOL TORR OI VII
1 .		ŀ	_	TEST CONN /w CAP	Х	İ	C	ļ		ŀ	1		· ·
•		<u> </u>		TEST CONN /w CAP	<u> </u>	 	C	∤ —~	<u> </u>	ļ	 	} 	
			l			ļ	١٥	o/c	c	C	N	СІВ	
16	81G (E50A)	C1	CV0739	AO ANGLE VLV	Х	•	١٠	ן טייט	"	٠.٠	1 24	016	
	Surface Blow Down			·	l		İ	1	1		1	i	
<u> </u>	(2"ø)	ļ	 			ļ	 	ļ	}	<u> </u>	 	 	-
1 .			1802		x	1	LO	0	١٥		ΙΥ	· ·	PS-1802 (SIS & CIS Initiation)
17	Containment	N/A			l≎		lio	ŏ	lŏ	l _	1 -		PS-1802A (SIS & CIS Initiation)
	Pressure	ł	1802A		Ιŝ]	LC	Č	ľč	1] '	1 .		
ł	Instrumentation	j	1802B		Î	1	ic	ď	ľč	1 -	Į.	l	
1	(4-½"Ø)		1802C 180h		ÎŶ		ro	lŏ	lő		1	l	PS-1804 (SIS & CIS Initiation)
1		Ī .	1804 1804A		ΙŶ]	ro	ŏ	١ŏ	1 _	1	Ì	P-8-1804 (818 & CIS Initiation)
		1	1804B		Ŷ		LC	ď	١č	_	1	1	
1) .	1804C]	Ŷ	J	LC	ľċ	ľč	l _			
1 .	i i	1.	1812		Ιŝ	1	io	ŏ	lŏ	l -	1	1	PT-1812
		1		•	l Ç	•	LC	Č	C	1 _	1	'	
i	Ĭ	ŀ	1812A		x	ŀ	ro	۱ŏ.	١٥	_		٠.	PT-1812A
1]		1812B	l	♀	1	lic	c	l č	1 _		•	,
3	·		1812C 1814-	٠.	Î	1	io	ŏ	lŏ	_	1	i	PT-1814
		ļ	1814A		Ιŵ	١.	LC	C	l c	1 -	1		
1 .	}	1			1 ♀		LC	C	ľč	1 -	1	l	•
	ì	· ·	181hB		Î	1	LC	c	١č	-	1	ł	
	<u> </u>	<u> </u>	18140		 		1 110	 `	┝╩──	 	 		
1		· ·			l		1	l	1 _	1.	l	1	!
17a	Containment Sump	1	181hE		X	1	ro	0	0	-	N	1	· ·
1	Level Instrumenta-	1	618B-DRW	1	Х	l	C	C	C	-	1	l	•
1	tion	1	181 ^h F	٠.	Х	l	rc	С	C		ł	1	
1	,	٠,	181կն		X	ł	rc	C	C	-			
1 .			TEST /WCAP		X	!	CAP		<u> </u>	l	1		

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CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NOP UNIT #1

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				· · · · · · · · · · · · · · · · · · ·										·
PENE-				VALVE	-	LOCV.		L	POST				ACTUA-	REMARKS
TRATION	AHD SERVICE	CLASS		TYPE OR		OC	IC	NOR-	SHUT	POST	PWR		TION	i .
	LINE SIZE	NO.	NUMBER	DESCRIPTION	•	['	l	MAL	DN		FAIL.	TIAL	•	
18 &	Fuel Transfer Tube (36"0)	A2		MAN GA VLV 36" FLANGE	·	х	x	NC	C	C	-	N		Blind Flg w/ 2 O-Ring Seals Inside Ctmt
204	1 .		Ì_	h" FLANGE		i i	X	Ì	C	C	ł _	ł	ł	
19	Personnel Lock Outer Door	x	P5A	MAN GL TEST PRESS GAGE PRESS TUBE PRESS EQUAL	-		A	LC C CAP NC	0/C	LC	-			
	Inner Door			PRESS TUBE PRESS TUBE		 		CAP	ļ	<u> </u>				
20	Spare			PRESS EQUAL	VLV			NC						
21	Hydrogen Monitoring Return Line (4"0)		8V-2415A 8V-2415B MV-WG8731 CAP			X X X		C C	C C	0/C 0/C C	C C			
21a	llydrogen Monitoring Supply Line (1/4)		8V-2413A 8V-2413B MV-WGS730 CAP			X X X	 	C C	C C C	0/C 0/C C	c c			
22	Redundant High Pressure Safety Injection (6"Ø)	x	M03068 3250 M03066 3251 M0306h 3252 M03062 3253 RV326h M03072 CV3018 CV3036 3265	MO GI, VLV CII'K VLV MO GI, VLV CII'K VLV MO GL VLV CII'K VLV MO GI, VLV RELIEF VLV MO GA VLV AC GA VLV AC GA VLV MAN GI, VLV		X X X X	X X X X X X X	NC C HC C NC C NC C NC NC	000000000000000000000000000000000000000	0 0 0 0 0 0 0 0 0 0 0 0 0 0	AI - AI - AI - AI - C O	Y	\$18 816 819 618 818 918 818	ESF Related """ """ """ """ """ """ """ """ """

	SYSTEM NAME	PENE	VALVE	VALVE	LOCA			P051					REMARKS
TRATION	AND SERVICE	CLASS	IDENT.	TYPE OR	OC.	IC	NOR-	SHUT		PHR	EN-	TION	[
NO.	LINE SIZE	NO.	NUMBER	DESCRIPTION	Ì		MAL	DN	LOCA	FAIL.	TIAL	•	
													
23	High Pressure	X	M03007	MO GL VLV		х	NC	c	0	AI	Y	SIS	
(-	Safety Injection	1 "	3104	CH'K AFA	•	x	C	١č	ŏ		1 *	818	ESF Related
	Darety Injection		M03009	WO OF AFA		Î	NC	č	ő	AI		818	Actuation Signal Initiated
		1	3119	CH'K VLV		x	C	l č	o	^.		818	By Chp or Per/Ovp (21593Psia)
· ·		ĺ	M03011	MO GL VLV	ŀ	ၞ	NC	lč	ŏ	ĀI	j	818	Actuation Signal Initiated
F	Ĭ.	ł .	3134	CILIK AFA	ļ	1 0	C	C	ŏ	, AT	1	618	By Chp or Per/Owp (21593Psia)
ł ·	1		M03013	MO GL VLV	l	x	NC NC	l č	lő	ĀI	Į.	818	
Į.		}	MOZOTZ	HO GE VEV		^	l nc	"	"	VI	ł	910	Actuation Signal Initiated
	1	I .	211.0	CHIR MIN	ľ	ļ _		1 ~		ł	l .	} .	By Chp or Per/Owp (11593Psia)
	1		3149 RV3165	CH'K VLV RELIEF VLV	Ì	X	C	C	0	, -]] ·	1
1	i i					X	C	C	C	1 =	i	1	{
ł	I	1	CV3059	AC GA VLV	X	١.	NO	0	0/c	0	1	l ·	<u>{</u>
} .]		CV3037	VO CV AFA	X	{ ·	NC	0	0/0	0	1		av coor
i		i	3337	MAN GL TEST VLV	\\ \	l	0	۱ _		ł	1	1	8X-3337.
		ľ	3337A		X	ł	0	C	0	ļ	1	ļ	8X-3337
		ł	3180	MAN GL VLV	X	J	NO	0	0	-		[PT-0318
ļ	ļ	 	3180/	MAN GL VLV	_ <u>`</u>	 	l no	1		<u> </u>	 	ļ	PT-0318
. 24		1				i	Ì	ł			ł	}	
1 .24	Spare	[-		i	Ì	ł	ł	İ	į .	į.	1	İ	
 	·{	 	 	 	 -	 	 	 	 -	ļ	 		
25	Cléan Waste	C2	CV1064	VO GT ATA	١	}	NO.	0 .	c) c	N	cis	
25	Receiver Tank	1 62	CV1065		x	.	NO	1 6	C	C	, n	CIS	}
l .		1		AO GL VLV	X	į.		C		'	ł	C19 .	}
· .	Vent to Stack	1	512CRW	MAN GL TEST VLV	X	1.	LC .	1 6	C] -	1	l .	ļ ·
1	(2"ø)	1	647CRW	TEST CONN /W CAP		i	C	1]		l	m 106r
[1		MAN GL VLV	X	1	NO	0.	0	-	1	· ·	PT-1065
ļ	<u> </u>	- 	1358	DRAIN CONN/W CAP	<u>X</u>	 	C	 		 	 		
26	N.A	-	ava a co	AO GA W.W		f 1				_	1	470	
26	Nitrogen to	C5	CV1358	AO GA VLV	X		NC	C	C	C	N	CIB	
[.	Quench Tank	1	400N2	CHECK VLV	X	1	C	C	C				·
ľ	i	1	581N2	MAN GA TEST VLV	X	}	rc	C	C	(·-	1	[
	<u> </u>	·	ļ -	TEST CONNECT		 	C		[ļ	 		
	1	١	1			į.		1_	_	1	l		
27	Int Leak Rate Test	A2	MOV-P1	MO BUTF VLV	X	1	NC	C	C	C	N	MAN	Flanged w/Gasket
	Fill Line (6"\$)		604 VAS	WVH GT ATA	X	}	LC	C	C	-	1		Inside Containment
1	{ .	1	605 VAB	MAN GI. VLV	X	1	LC	C	C	-	1	· ·	Flanged w/Gasket
l	<u> </u>	<u> </u>	<u> </u>	TEST CONN /W CAP	<u> </u>	1	C.	<u> </u>	L	l	l	l	Inside Containment

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	7.1213/1323 (13. 3/11												, rade <u>0</u> or <u>15</u>
PENE-	ISYSTEM NAME	(PENE	TAVE	IVALVE	LOCA	TION		POST	TION		lecs	ACTUA-	REMARKS
	AND SERVICE	CLASS	IDENT.	TYPE OR	OC	<u> </u>	NOR-	SILUT	POST	PWR	EN-	TION	VELNIKY2
			NUMBER		լտ	110	MOK-	121101				LITON	
NO.	LINE SIZE	NO.	NUMBER	DESCRIPTION	<u> </u>	 _	MAL	DN	LOCA	FAIL.	TIAL		
i	ł.	1) ·	ì	l	1		1	1	1 .	ſ		· ·
'28	Containment	1	TJIO AVR		l x	1	ro	lυ	0	! _	N	ļ	'
1 -	Air Sample Line	1 .	141 VAS	i	X	J .	LC	C	C	l -		i	1
1	(1.14)	1	142 VAS]	x	l	IC	l č	ď	_	Į.		1
1	(½,,\\phi)	1				(·	LC	ľď	č	-	1		Į.
1		(510 VAS		X	l		וי	G	1 -]	ł	1
l	<u> </u>			TEST CAP	X	 	C	ļ		 	ļ		
	Į.)	i			l		•	[i	l	i	
29	Capped Spare	1 -	-	PIPE FLANGE	1	X	C	i	1	l	N	1	.
		i	 -	PIPE END /W CAP	X		C	l	<u> </u>	1	i		
											1		
30	Containment Spray	x	. CV3001	VC GP APA	х	1	NC	C	0.	0	Y	CHP	ESF Related
1	l since and a property	1 ~	3258	MAN GATE VLV	x	l	10	lŏ	Ō	} <u> </u>	1	!	Auto Open On Chp
1	1	t	3226	CHECK AFA	x] .	C	C	ō	_	ľ		made open an amp
i	ł	1	33h4ES	GLOBE VLV		1	rc	l č	C	1	ſ		1
}] .	L	334463		X	1	•	١ ٠	١,٠	- .	ł		
1	1	1	i -	TEST CONN /W CAP	X	ł	C	_	_		}		
I	. (3227E8	GLOBE ALA	<u> </u>	 	LC	C	C		 -		
1			j .		1	!		1	1		i		1
31	Containment Spray	X	CA3005	AC GL VLV	X	(NC	C	0	0	Y	CHP	ESF Related
1 -	1	t	3259	MAN GA VLV	x	l	ro	0	0	-'	1		Auto Open on Chp
1	1 ·	1	3216	CHECK ATA	x		C	l c	0	-	[.		
1	j ·		3217ES	MAN GL VLV	X	1	rc	C	C	l –	ł.		
	1 .	1	3316ES	M GL TEST VLV	Ϊ́χ	ł	LC	Č	l č	l _	}		
ſ	ĺ	1 .	f	TEST CONN /W CAP	x	1	C	١ "	۱ ້		ł		1
	. . <u>. </u>			TEST COM /W CAP			<u> </u>				 		-
32			wanne	MO GL VLV	•	1 .	NC	C .	0	AI	Y	818	ESF Related
32	Low Pressure	X	MO3008		l	X			_) A1	, ·		FOL METEREG
1	Basety Injection	1	3103133	CHECK AIA	<u> </u>	X	C	C	0		ł	818	
Į.	(12"ø)	1 .	M03010	WO GP AFA	[X	NC	C	0	AI	1	818	
ŀ	· ·	1	3118FS	CHECK VLV	1	X	C	C	0	-	į	SIS	.]
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}	J	1	M0301h	MO GI, VI,V	l	X	NC	l c	lo	N	ł :	1818	1
	[·		3148ES	CHECK ATA	l	lπ	C	ľč	o	_)	818	
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	1	•	3197	MAN GA VLV	X	l	NO	1 -		-	j	144	1
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1	1	.1	CV3025	VO GF AFA	Х	Į.	NC	0	0/C	C	i i	MAM	1
J ·		1	3336	MVN GV ATA	Х	i	C	C.	C	-	Į į	l	
! ·	1	1	3108ES	MAN GA VLV	1	l x	0	0	0	-	1	۱.	FT-0307
1	i	1	3107E3	MAN GA VLV	1	lх	lo	lo	lo	-	i	[FT-0307
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CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NOP UNIT #1

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PENE-	ISYSTEM NAME	PENE	IVALVE	IVALVE	LOCA	TION	1	POST	TION		ESS-	ACTUA-	IREMARKS .
	AND SERVICE		IDENT.	TYPE OR	OC		NOR-	ISINT	Post	PWR	EN-	TION	WEI WHILE
		•	NUMBER	DESCRIPTION	00	1.0	MAL	DN	LOCA	FAIL.	TIAL	11:00	
110.	LINE SIZE	NO.	MOMBER	DESCRIPTION			FINL	ווען	LOCA	FAIL.	IIAL	<u> </u>	
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32	Lov Pressure	ł	1155PC	MAN GA VLV		X	lc ·	C	l C	l -	Y	ł	}
cont.	Safety Injection	1.	3123FS	MAN GA VLV	Ì	х	0	0	lo	i –	ĭ	i	FT-0309
1	1	1	3122ES	MAN GA VLV	1 1	x	O	lo	lo	l _	Į	j	FT-0309
1		1	1156PC	MAN GA VLV	1	x	C	C	Č	_	ł	1	1
ł	\$	ł			1	x	ő	lő	lŏ	, -	i	ł	FT-0311
} .	1	ì	3138ES	MAN. GA VLV	[')	ļ -	ĺ	{	
].	t .	. 1	3137ES	MAN GA VLV		Х	0	0	0	-	1	· ·	FT-0311 .
1	i	1	1157PC	MAN GA VLV		X	C	C	l c	-	1	ł	1
į.		ł	3153ES	MAN GA VLV	ł	X	0	0	0] -	l	ł	FT-0314
I	1	j	3152ES	MVN GV AFA	[x	0	0	0	} _	1	5	FT-0314
1	l .	1 .	1158PC	MAN GA VLV		х	C	c	c	_	Į	1	
}	1	1	RV-3162	RELIEF	} •	Ιχ̈́	ľč	C	C] _	į .	ì	
		- 	WA-3105	WEDTER			 	 ~	 ~	 	 		
I	1		2021.50			j	1	1 .	۱,	ł	1_	I	1
33	Safety Injection	C3	3234ES	MAN GA VLV	X	1	rc	C	C	-	M	ļ	j .
ł	Tank Drain	1	3237ES	MAN GV AFA	Х	ł	rc	C	C.	, -	ì	ł	1.
ł	(2"Ø)	i	3348ES	Man GL Test VLV	X	t	LC	C	C] · -	j	1	
Ī	ł .	1	j -	TEST CONN /W CAP	X	1	C	i .	ł	ł	<u>} </u>	1	
ļ.	5	ł	3227ES	MAN GL VLV	x	ł	LC	C	c	l -	ł	1 .	
}	1 .	1	3236ES	MAN GA VLV	Х	Ì	LC	C	C	!	i	ł .	1
ì	1 .	j	3235ES	M SAMPL LINE GAV	x	ľ	LC	Č	C	l -	j	į	İ
j	1	1 .	3217ES	MAN GL VLV	x	1	LC	C	C	-	ł		j
}	 		351100	PIAN OF ADA	 ^ -		110	 	 	 	 	 	
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34	Spare	-	ĵ	į	ŀ	[1	j	l	ł	ł	}	•
L	<u> </u>]			ļ		<u> </u>	ļ		 		
		1	ł	}	(i	l	! .		1	i	1	· .
35	Shutdown	B2 '	MOV 3016	MO GA VLV		X.	ELC	0	o/c	C	N	MAN	Manual Control
1	Cooling Return	ł	MOV3015	MO GA VLV		x	ELC	0	O/C	c	ł	}	
′	(14"Ø)	ł	RV3164	RELIEF VLV	·	x	NC	C	C	۱ ـ	i	,	ł
ì	114 67		RV0101	RELIEF VLV	ĺ	x	NC	lc	Č		ſ	ţ	1
(1		•		^	LC	Č	č	} _	l	}	[
1	i	1	320 LES	MAN GL VLV	X	{·				l -	1 .	ł	
1	1		3205	MAN GA VLV	Х	{	IC	C	C	∸	į į	t	
i] .	(-	PIPE FLANCE	X	ſ	C	C	C	-	Į.	}	•
1.	i	1	MO-3190	MO GA VLV	х	ļ.	ELC	0	0	IA	ł .	1	1
1	1	1	MO-3199	MO GL VLV	x	1	ELC	0	0	IA I	i	ł	1
ł		1	3163	MAN GA VLV	X	İ	C	C	C	l –	j	İ	1
[-	1-2403	1		 	 	 	 	 	1	 	
36	Letdown To	D1	CV2009	VO OF AFA	x	ł	NO	0	C	c	l n	C18	
30	■ ***	B1		•		ł				_	1 "	1 110	
•	Purification		2320CVC	MAN GL TEST VLV	X	[rc	C	C	-	1	Í	
1	Ion Exchanger	1	1 -	TEST CONN /W CAP	Х].	C	İ	i	ł	1	}	j l
}	(1 ¹ / ₂ "Ø)		2010CVC	WAN GV AFA	Х	ł	NO	0	0	-	į.	ł	}
ł	1	Ī	l .	Į.	(ſ		ł			j .	(1
			.7									`	· '···································

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CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NDP UNIT #1

PENE-	SYSTEM NAME	PENE	JVALVE	JANTAE	LOCA	TION	1	POST	TION		IFSS-	ACTUA-	PAGE _8_ OF _13_
	AND SERVICE		IDENT.	TYPE OR	ŌĈ	1C	NOR-	SHUT	POST.	PWR	EN-	TION	WELMUK?
10.	LINE SIZE	NO.	NUMBER	DESCRIPTION	ļ	ļ	MAL	DN	LOCA	FAIL.	TIAL	<u> </u>	
36	Letdown To	B1	2140A	MAN GA VLV	x	Ĭ	NO	0	0	_	N		
cont.	Purification		CV2012	AO GL VLV	Х		NO	0	O/C	c	"		
Ì	Ion Exchanger	}	21491	MAN GA VLV	X	4	NO	0	0	-	1	1	
	(1 ¹ 4"Ø)		CA5155	VO CP AFA	_X_	 -	NC	C	C	C	·}	 	
37	Primary System	C2	CV1001	VO GF AFA	x		NC.	C	C	C	N	C18	
	Drain Pump		403CRW	CHECK VLV	Х		C	C	c	C		1	
	Recirc (1½"Ø)		503CRW	MAN GL TEST VLV	Х	1	rc	C	C	-	1	i	
		i		TEST CONN /W CAP	<u>X</u> _	 	C	 	 	 	-	ļ	
38	Condensate Return	C2	CV1501	AO GA VLV	x	ĺ	NC	0/c	c	Č.	l _N	CIS	The second of th
	From Steam Heating		CV1502	VO CV AFA	X	1	NC	O/C	C	C	1		
	Units (2"Ø)	:	502VA	MAN OL TEST VLV	X		re	C	C	-	1		
	,			VENT CONN /W CAP	X	1	C	1	1	1	1	[.	
				TEST COMM / W CAT			 	 	 		┧~~~		
39	Containment	х	CV1503	AO GA VLV	X		NC	C	C	C	N	CIS	Check Valve Replaced w/Blank
	Reating System		-	CHECK VLV	X			l _ ·	_		1		Flange When At Pover
•	(4"ø)		503VA	MAN GL TEST VLV TEST CONN /4 CAP	X		C	C	C	_	1		
			_	VENT CONN /W CAP	X		Ċ				!		
										_			
40	Pri-Cooling System Sample Line	B1	CV1910 CV1911	VO GP AFA	X		0/C 0/C	0/C	C	C	N	CIS	
	(7.0)		1170A	MAN GL TEST VLV	X		LC	C	c	-	+1		
			1170B	MAN OL TEST VIV	x		LC	Č	c	-			
				TEST CONN /W CAP			C	 			ļ		
. 40a	Hydrogen Monitoring	, 1	5V-2414A	SOLENOID	x		С	C	o/c	c		MAN	
- 10a	Return Line		8V-2414B	SOLENOID	x		c	Č	0/C	Č	["]	MAN	· ·
,	(Degasifier Room).		729WGS	WAN OF AFA	X		C	C	C	_	ł i		
	(13"\$)			TEST CONN /W CAP			C						
40ъ	Hydrogen Monitor		5V-2112A	SOLENOID	x	٠.	c	C	0/C	C			1
-00	Supply Line	Í	SV-2412B	SOLENOID	x		Č	Č	0/C	Č	1 1	·.	
	(Degasifier Room)	ł	728WG8	MAN GL VLV	х		C	C	C	٠	1		
	3"Ø		-	TEST CONN /W CAP	X		С		i				

CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NOP UNIT #1

PAGE _ 9 OF _13

PENE-	ISYSTEM NAME	IPENE	[VALVE	IVALVE	li oca	T100			***	·	1	·	PAGE _ 9 OF _13_
	AND SERVICE LINE SIZE	CLASS NO.	IDENT. NUMBER	TYPE OR DESCRIPTION	OC	T10N IC	NOR- MAL	POST SIJUT DN	POST	PWR FAIL.	ESS- EN- TIAL	ACTUA- TION	REMARKS
h1	Degassifier Pump Discharge (3"\$)	C5	CV100h h07CRW 506CRW	AO GI, VLV CHECK VLV MAN GL TEST VLV TEST CONN /W CAP	X X X		NO LC C	C O	C C C	c - -	N	CIB	
42	Demineralized Water To Quench Tank (2"Ø)	C2	CV0155 V0155B 1126PC	AO GI. VLV CHECK VI.V MAN GI. TEST VLV TEST CONN /W CAP	X X X		NC C LC C	c c	C C C	c 	N	CIS	
43	Spare												
եկ	Controlled Bleed Off From RCP'S (3/4"Ø)	C2	CV2083 2084 2083 2083A	AO GL VLV MAN GL VLV MAN GA TEST VLV MAN GA TEST VLV TEST CONN /W CAP	X X X X	,	NO NO LC LC	0 C C	C O C C	C 1 - 1	N	CIB	
45	Charging Pump Discharge (2"0)	B1	2110 CV2111	CHECK VLV AC GL VLV (W/ HD OPERATOR)	X X		O NO	0	0 0	0	Y	MAN	
46	Containment Vent Header (4"Ø)	C5	CV1101 CV1102 511WGS	AO GL VLV AO GL VLV MAN GL TEST VLV TEST CONN /W CAP	X X X		NO NO LC C	0 0 c	С С С	C C	N	CIB	
47	Primary System Drain Tank Pump Suction	C2	CV1002 CV1007 502CRW	AO GL VLV AO GL VLV MAN GL TEST VLV TEST CONN /W CAP	X X X		C NO NO	0 0	C C	C C -	N	CIS	
1,8	Containment Pressure Instrumentation (4-12"Ø Lines)	X	V-1801 V-1801A V-1801B V-1801C V-1803 V-1803A	MAN GA VLV MAN GA VLV MAN GA VLV MAN GA VLV MAN GA VLV	X X X X X		ro rc rc ro	00000	0 0 C C: O O .	- - - -		•	PS-1801 (SIS & CIS Initiation) PS-1801A (SIS & CIS Initiation) PS-1803 (SIS & CIS Initiation) PS-1803A (SIS & CIS Initiation)

<u>ω</u>

CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NOP UNIT 11

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	ACUCTEN MANG	I DENE	lva ve	luarur	LOCA	T1011		DOC I	- 1 ON		less	lecrus	Incusave
			YALVE	TYPE OR	CCV	TION	NOR-	1209	POST	PWR		ACTUA-	REMARKS
			IDENT. NUMBER	DESCRIPTION	1 00	116	MVF.	SHUT		FAIL.	EN-	TION	Í
NO.	LINE SIZE	NO.	MODER .	DESCRIPTION	 -	 	ILIVIT -	DIA	LUCA	LWIT.	TIME		}
1,8	Containment	x	V~1803B	MAN GA VIV	x	į	LC	C	c	l · _	}	ļ.	1
cont.	1	1 ^	V-1803C	MAN GA VLV	x	1	LC	Č	ď]	1	i	1
	Instrumentation	ł .	V-1805	MAN GA VLV	ĺχ		LO	lŏ	ŏ	_	l	ł	PT~1805
	(4-3"Ø Lines)	ţ	V-1805A	MAN GA VLV	X	}	LC	C	C		ì	ł	}
}	}	1	V~1805B	MAN GA VLV	X	į	ro	o	0	[-	1	Ì	PT-0105A .
		[V-1805C	MAN GA VLV	X		rc	C	C	-	()	1	
			V-1815	MAN GA VLV	X	1	ro	0	0	_	1		PT-1815
		}	V-1815A	MAN GA VLV	Х	ł	ľC	C	·C	! -	}	J	1
·	1]	V-1815B	MAN GA VLV	X	ł	LC	C	C	-	1	}	
			V-1815C	MAN GA VLV	<u> </u>	<u> </u>	LC	C	C.		<u> </u>	<u> </u>	<u> </u>
١.,		00	ave on the	10.01		ļ.	1	1	l _	1 _	l		1
49	Clean Waste	C2	CV1038	AO GL VLV	X	1	NO	0	C	C	N	AUTO BY	·
<u>}</u>	Receiver Tank	l	CV1036	VO OF AFA	X	J	NO	0	C	U	i	CIS	
1	Circulation Pump Suction (3"\$)	i	513CRW	MAN GL TEST VLV TEST CONN /W CAP		1	C	ן ני	C	[-	1	1	
ļ	buccion (3 b)	1 ·	514CRW	MAN DRAIN VLV	Î	ł .	rc	c	c	_	1	1	į.
	 	 	2140111	I'M DIWIN YDY	 ^	 	- <u>\</u>	 	 	 	 		<u> </u>
50	Emergency Access	l x		PRES EQUAL VLV	l	X	NC	ł	}	1	И	}	
1	Inside Ctmt	1) _	PRESS TUDE	1	X	CAP	1	1	ł	} "	ļ.	}
l	· ·	1		PRESS TUBE	1	X	CAP	ì	1	ł	ł		1
ĺ	Outside Ctmt	}	-	PRESS EQUAL VLV	X	1	NC	İ	l	l	1.	1	
ĺ	1	ł	-	PRESS CAGE	X	1	C	İ	()	Ì	1.		
	ſ	l	-	PRESS TUBE	X	1		1	1	{	1	ł	<u>}</u> ·
] .	Į.	P6VA	MAN G TEST VLV	X	l .	LC]	1	1	1	i .	
į		i	-	TEST CONN /W CAP		ł	C	1	ļ	j	[İ	1
		 	 	O-RING TEST CONN	X	l	C	ļ			<u> </u>	<u> </u>	
١,	Baulamank Bass	_	}	O DING MOCH	1			ł	ł	1	ļ	1	All mules Bakerson mass diese
51	Equipment Door	X	-	O-RING TEST CONNECT /W CAP	í	X	C	ł	ł	·	1	1	k" Tube Between The Seals
	 	 	 	CONNECT /W CAP	 	 	{	 	 	 		 	Capped
52	Containment Sump	A1	CV1103	AO GI, VI,V	X	1	NC NC	C	C	c	H	818	.}
, ,,,	Drain to Sump Tank	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	CV1104	VO CP APA	Î	}	NC NC	č	lč	Č	1 "	CHR	
1	Jackin oo bump kutta	1	500DRW	MAN GL TEST VLV	x		LC	C	l č	_	1	"""	{
}	1	1	1	TEST CONN VLV	x	1	C]	}]	{	{	1

C.

CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NDP UNIT #1

PAGE 11 OF 13

	SYSTEM NAME		IVALVE	VALVE	LOCA			POST	TION		ESS-	ACTUA-	REMARKS
TRATION	AND SERVICE	CLASS	IDENT.	TYPE OR	OC	1C	HOR-	SHUT	POST	PWR	EN-	TION	
нО	t. INE - 5171.	NO.	NUMBER	DESCRIPTION	Ĺ	l	MAL	DN	LOCA	FAIL.	TIAL		
			l								1		
52a	Containment	[610DRW	WVN CV AFA	Х	i	10	0	0	-	ł	Ì	
•	Sump Level		618FDRW	WWW GW AFA	Х	1	LC	C	C		l .		1
	Instrumentation	(618HDRW	MVH GV AFA	Х	l	rc	C	C	-	1	ł	}
•	(3/8"ø)	1 .	618EDRW	MAN GA VIJV	Х	1	rc	C	C	-		ł	<u> </u>
	[i	618gbrw	MAN GA VLV	Х	ł	LC .	C	C	-	1	ļ	
. •		ļ .	618ADRW	MAN GA VLV	X	i	ro	0 .	0	-	i i		LT-0382
	{		618bbnw	MVM GV AFA	X	ł	rc	C	c	1 -	1	1	l
		1	618CDRW	MAN GA VLV	Х	1	I.C	C	C	-	1		
	1	ł	618DDRW	MVM CV AFA	Х	l	LC	C	C	j -	J	}	· ·
	1		l -	3 TEST CONN/WCAP	Х		C			<u> </u>	<u> </u>	<u> </u>	
					}	1	1	1	1	1	1	J	
52b	Containment		619DRW	MAN GA VLV	Х	l	ľO	0	0	-	I	l .	1
•	Sump Level	ł	619FDRW	WVN CV AFA	Х	Į .	LC	C	C	-	J .	1	
	Instrumentation	ļ	619IIDRW	MAN GA VŁV	X	1	rc	C	C	ļ -	1	•	
	ł	1	619EDRW	MAN GA VLV	X	•	rc	C	C	-		1	<u>'</u>
_		ł .	619GDRW	MAN GA VLV	X	1	rc	C	C	-	1	ĺ	
	ŀ	ļ	619ADRW	MAN GA VLV	Х	l	TO .	0	0	1 -	1		LT-0383
		ł	619BDRW	MAN GA VLV	х	•	rc	C	C	!	1	1	,
	1	ļ	619CDRW	MAN GA VLV	х	1	LC	C	C	-	1	·	·
	1		619DDRW	MAN GA VLV	X	ſ	rc	C	C	f -	1	i	•
]	l	-	3 TEST CONN/WCAP	<u> </u>		C	<u> </u>	<u> </u>	.l	 	ļ	
		T .			1 .					ļ ·	i	(·	
:	1		CV 3029	AIR OP VLV	x	[NC	c	lo	AI	l x	BIRWT	Post Loca Open On Sirv LL
53	Containment Spray	χ			ı	l	rc	c	c		1	LL	
'	Pump Suction	1	3182ES	MAN GL TEST VLV	X	1	C	١,	١٣	_			
		ļ	 	TEST CONN /W CAP	X	 	 ` 	 	 	 	 	 	
]	1	l		١.,	1	NC	c.	0	AI	Y	BIRWT	Post Loca Open On Sirw LL
514	Containment Spray	X	CV 30 30	AIR OP VLV	X	l	LC NC	lc	C	1 ^*	1 *	LL	
	Pump Suction	1	3167ES	MAN TEST VLV	X		C	"	١ ٠	-	1	1 ~~	· · · · · · · · · · · · · · · · · · ·
		<u> </u>	<u> </u>	TEST CONN /W CAP	X	 	٠	 	 	 	 		
		'	1			1	0	0/c	C	l c	N	CIS	
55	SIG (E50B) Surface	C1	cv0738	AO VLV	Х	l	י ט	1 0/6	١٠	"	} "	Cio	
	Blowdown (2"Ø)	<u> </u>		W/ HAND OPERATOR		ļ			 	 	 -	 	
		1				l	1.O	0	0	1 _	1	l	1.T-0383
56	Containment Sump	! .	606A-VAS	,	X	1		C	ď	-	1	1.	
	Level	1	619B-DRW		X	1	C	C	c] _	1.	1 '	}
•	Instrumentation	1.	606B-VAS		X	l	PC PC	C	C	-	ŀ	l .	
		1	606C-VV2	merum down /// dath	X	Į .	C) ⁽	ן נ	J -	j	l i	
		ļ	<u> </u>	TEST CONN /W CAP	X	 	 		 	 	 		
	1	1	I	1]	1	١.	j .	1	ļ	i	1	
57	Spare	<u> </u>	<u> </u>	<u> </u>	l	I	I	l	ــــــــــــــــــــــــــــــــــــــ				

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TABLE 1

CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NDP UNIT #1

	17/210/10/20 110/ 0/												P	AGE <u>12</u>	OF <u>13</u>
PENE-	SYSTEM NAME	PENE	VALVE	VALVE	LOCA	TION	i	POST	TION	·——,—	IFSS-	ACTUA-	REMARKS		
NO.	AND SERVICE LINE SIZE	CLASS NO.	IDENT. NUMBER	TYPE OR DESCRIPTION	OC.	IC	NOR-	SHUT	POST	PWR FAIL.	EN-	TION	HELMKK2		
58	Spare														
59	Spare														
60	Spare							ļ	<u> </u>		ļ	 		 -	
61	Spare	<u> </u>					<u> </u>	<u> </u>	<u> </u>	ļ	<u> </u>			·	·
- 62	Spare	<u> </u>					ļ	ļ							
63	Spare	<u> </u>				ļ	ļ		<u> </u>	} }					<u>:</u>
64	Reactor Cavity Fill & Recirc (6"Ø)	A2	121SFP 120SFP 514SFP	MAN GA VLV MAN GA VLV MAN GL TEST VLV TEST CONN /W CAP	X X X	х	C LC LC	c c c	C C C	-					
65	Instrument Air (2"Ø)	A2	CV1211 400CAS 612CAS - 611CAS	AC GL VLV CHECK VLV MAN GL TEST VLV TEST CONN /W CAP MAN GA VLV	X X X X		NO O LC C NO	0 0 0	0 0 0		Й	MAN	PS1220		
66	ILRT Instrument Line (1½"Ø)	x	601VAS 16VAS 603VAS - 602VA	MAN GA VLV MAN GA VLV MAN GL TEST VLV TEST CONN /W CAP MAN GL TEST VLV TEST CONN /W CAP	X X X X	х	C C C LC LC	c c c	C C C	-	N				
67	Clean Waste Receiver Tank Pump Recirc (3"Ø)	C2	CV1037 1410-CRW 515CRW	AO GL VLV CHECK VLV MAN GL TEST VLV TEST CONN /W CAP	X X X		NO O LC	0 0	C C C	C -	н	CIB			

CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NDP UNIT #1

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_	THE ISABES HOL OIL												LVOE OF
PENE- TRATION NO.	SYSTEM NAME AND SERVICE LINE SIZE	PENE CLASS NO.	VALVE IDENT. NUMBER	VALVE TYPE OR DESCRIPTION	LOCA OC	TION	HOR- MAL	POS 11 SHUT DN	POST	PWR FAIL.		ACTUA- TION	REMARKS
68	Air Supply To Air Room (12"Ø)	Al	CV1813 CV1814 505VAS	AO BUTF VLV AO BUTF VLV MAN GL TEST VLV TEST CONN /W CAP	X X X		LC LC LC .	0/c 0/c c	C C	C C	И	CIS	Air Supply To CV-1813 & CV-1814 Is Also Tested Under LLRT
69	Clean Waste Receiver Tank Pump Suction (h"Ø)	C2	CV1045 CV1044 518CRW	AO GL VLV AO GL VLV MAN GL TEST VLV TEST CONN /W CAP	X X X		NO NO LC C	0 0	C C	c c -	N	CIB	
70	Spare						ļ			ļ			
71	Spare					<u> </u>	<u> </u>			 	 		
72	Reactor Refueling Cavity Drain (8"Ø)	A2	117SFP 118SFP 515SFP	MAN GA VALVE MAN GA VALVE MAN GL TEST VLV TEST CONN /W CAP	XXX	x	C LC LC	C C	C C	<u>-</u> -	N		
73	Capped Spare	-	- 509YAS	PIPE FLANGE PIPE END /W CAP MAN GL TEST VLV TEST CONN /W CAP	X	x	BC C I.C	C C C	C C C	- - -	H		
												, ,	
												,	
					<u> </u>								

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TABLE 1 NOTES

- 1. Valve Type or Description AO means air-to-open and AC means air-to-close.
- 2. Normal Position NO Normally open

NC - Normally closed

BC - Bolted Closed (e.g. flange)

LO - Locked Open

LC - Locked Closed

ELO - Electrically Locked Open (key lock switch)

ELC - Electrically Locked Closed (key lock switch)

- 3. Shutdown Position Assumes normal shutdown with the plant on shutdown cooling.
- 4. Power Failure Position Position shown is for either loss of power or loss of air unless otherwise noted.
- Actuation Signal which automatically causes valve to reposition unless otherwise specified. Symbols are:

CIS - Containment Isolation Signal

SIS - Safety Injection Signal

CHP - Containment High Pressure Signal

CHR - Containment High Radiation Signal
MAN - Remotely actuated by Manual Operator action

<u></u>				TA	BLE	7			
CO	NTAINMENT ISC	DLATI	ON.	SYS	TEM	1			PLANT: PALISADES PLANT UNIT 1
	P REVIEW FINE	_			EXC	CEF	77/	2//3	
S.WETBATA.	SERVICE	400/CA8/2	10/0/18/19/19/19/19/19/19/19/19/19/19/19/19/19/	20/2	N. S. C. C.	(u / i	30/15	2018	REVIEWER'S COMMENTS
1	Pulge Air Supply (48"\$)	56	×						
2	MAINSTEAM LING (SGESOA) (36"\$)	57							
3	MAIN STEAM LINE (SGESOB) (36"4)	57							
4	PURGE AIR GYHAUST (48"4)	56	X						
40	PURGE AIR EXHAUST SAMPLE LINE (3"\$)	56	×					•	
5	S/G(ESOA) BOTTOM Blow DOWN (2"4)	56					-		; '
6	S/G(ESOB)BOTTOM BLOW DOWN (2"\$)	56			·				
7	FEEDWATER TO S/G (ESOA) (1814)	57		·	X				MFW ISOLATION VALVES SHOULD BE POWER OPE- PATED, AUTOMATIC ISOLATION VALVES TO SATISFY SDC-57 & AIDIMMSLE ACCIDENT MITIGATION.
8	FEEDWATER TO S/G(ESOB)	57		·	X	·		·	71
9	SPARE-			·		·			
10	SERVICE AIR (2"4)	56	×		X				DECISION ON ACCEPTABILITY OF SIMPLE CHECK VALVE OUTSIDE CONTAINMENT IS NEEDED.
	CONDENSATE TO SHIELD COCLING SURGE TANK	56	×		×				"
12	SERVICE WATER	56							

				TA	BLE	7	,		
CC	NTAINMENT ISC	CLATI	ON.	SYS	TEM	1		,	PLANT: PALISADES PLANT UNIT. 1
	P REVIEW FINE	DING			EXC		77/	2//	
PENETRAL AMERICAN	LINE	100 /28/20 0 /28/20 0 /28/20	3000	70 X	T TO THE PERMIT	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	(a)	10 J	REVIEWER'S COMMENTS
\$ \$	SERVICE	100	18	<u> </u>	15	10	1		/
13	SERVICE WATER RETURN (16"4)	56							PIPE CAPS ARE NOT ACCEPTABLE ISOCATION BARRIERS.
14	COMPONENT COOLING WATER IN (10"\$)	56	·		X				DECISION ON ACCEPTABILITY OF SIMPLE LHECK VALVE OUTSIDE CONTAINMENT IS NEEDED
15	COMPONENT COOLING WATER OUT (10"\$)	56							
16	SIG(ESOA) SURFACE Blow DOWN (21/4)	57						·	
17	Courte WILLIAM IT WESSIIDE		,	X					PIPE CAPS ARE NOT ACCEPTABLE ISOCATION BARRIER; GDC 56 MET ON SOME OTHER DEFINED BASIS.
179	CONTAWNENT SUMP LEVEL INSTRUMENTATION	56	·			·			NO INFORMATION ON ISOLATION VALVES ARRANGENIENT (SKETCH REQUIRED)
18 & 18 a	FUEL TRANSFER TUBE (36"4)	56			×				GDC 56 MET ON SOME OTHER DEFINED BASIS () EE SRPG.Z.4, ITEMIL, 3).
19	PERSONNEL LOCK OUTER DOOR INNER DOOR								PIPE CAPS ARE NOT ACCEPTABLE 150 LATION BARRIERS
20	SPARE								
L	100 ANOC 412 4)	56	×					·	NO INFORMATION ON ISOCATION VALVES ARRANGENENT. (SKETCH KGRUIRED).
219	HYDROGEN MONITORING SUPPLY LINE (1/2"4)		×						<i>)</i>
22	REDUNDANT HIGH PRESS. SAFETY INJECTION (GB)	55					•		
23	HIGH PRESSURE SAFETY INJECTION	55							

TABLE___

CC	INTAINMENT ISC	DLATI	ON	SYS	TEM	1		•	PLANT: PALISADES PLANT, UNIT 1
	P REVIEW FINI	DING			EXC	CEF	77/	2//	S 7 PAGE 3 OF 7
PENETAL	SERVICE	160 X 80 X 80 X 80 X 80 X 80 X 80 X 80 X		30,3	7.	(4) (5)		10 m	REVIEWER'S COMMENTS
24	1	_							
25	CLEAN WASTERCEIVER TANK VENT TO STACK	56	X						TEST CONNECTION NEEDS TWO L.C. VALVES.
26	NITROGEN TO QUENCH	56	×		X				DECISION ON ACCEPTABILITY OF SIMPLE CHECK VALVE OUTSIDE CONTAINMENT IS NEEDE
27	INT. LEAK RATE TEST FILL LINE (6"4)	56							VALVE MOV-PI IS A SEAL CLOSED ISOLATION BARLIER (SEE SRPG.Z.4, ITEM II, 3)
28	CONTAINMENT AIR SAMPLE LINE (1/2"\$)	56	X						PIPE CAP IS NOT ACCEPTABLE ISOLATION BARRIER
29	CAPPED SPARE-	<u> </u>				·			BLIND FLANGE MUST BE LEAK TESTABLE; PIPE CAP ISNOT ACCEPTABLE ISOLATION VALVE.
30	CONTAINMENT SPRAY	56	×		×		X		ACTUATION PROVISIONS OF CV-3001 AND CV-300 Z MEET GDC 56 ON SOME OTHER
31	CONTAINMENT SPRAY	56	X		X		×		DEFINED BASIS (SEE SRPG.Z.4, FTEM II, 3) DECISION ON ACCEPTABILITY OF SIMPLE CHECK VALVES OUTSIDE CTMT IS NEEDED.
32	LOW PRESSURE SAFETY INJECTION	55							
33	SAFETY INJECTION TANK DRAIN	56	X						
34	SPARE								
35	7-70-74 (17-47)	55		·					
36	LETDOWN TO PURIFICATION ICM EXCHANGER (1/2/4)	55	X				X		CV-2012 & CVZ/ZZ SHOULD BE AUTOMATIC ISOLATION VALVES.

				TA	BLE.	2			
CO	NTAINMENT ISC	DLATI	ON	SYS	TEM	1		,	PLANT: PALISADES PLANT UNIT!
	P REVIEW FINE				$\mathcal{E}X$	EF	PTIG	2//	5 7 PAGE 4 OF 7
PENETRATE.	SERVICE	40PL/CAB/	10/19	30,3	77	4/2		10 × 10 × 10 × 10 × 10 × 10 × 10 × 10 ×	REVIEWER'S COMMENTS
120	PRIMARY SYSTEM DRAIN PUMP RECIRC. (1/2 p)	56	1 .		X	L			DECISION ON ACCEPTABILITY OF SIMPLE . CHECK VALVE OUTSIDE CONTAINMENT IS NEEDED.
$1 \prec x$	CONDENSATE RETURN FROM STM HEATING UNITS	56	×			,			
39	CONTAINMENT HEATING SYSTEM (4"4)	56	X		X				
40	PRI-COOLING SYSTEM SAMPLE LINE (1/2"4)	55	×			·			ISOLATION SIGNALS DO NOT PROVIDE APPROPRIATE DIVERSITY
40a	HYDROGEN MONITORING RETURN LINE (1/2"4)	56	X.					X	NON-ESSENTIAL LINE SHOULD BE AUTOMATICALLY ISOLATED.
406	HYDROGEN MONITOR SUPPLY LINE (1/2")	56	×					X	"
111	DEGASSIFIER PUMP DiscHARGE (3"4)	56	×	·	X				DECISION ON ACCEPTABILITY OF SIMPLE CHECK VALVE OUTSIDE CONTAINMENT 13 NEEDED
42	DEMINERALIZED WATER TO QUENCH TANK (214)	56	×		X		·), "
43	SPARE-								
44	CONTROLLED BLEED OFF FROM RCP'S (3/4"4)	56	×				×		CV-2084 SHOULD BE AN AUTOMATIC
45	CHARGING PUMP DiscHARGE (2"4)	55	×		X		X.	,	CV-ZIII ACTUATION PROVISIONS MEET GDC55 CN DOME OTHER DEFINED BASIS (SRPG, 2.4. ITENII.3). SIMPLE CHECK VALVE OUTSIDE CTAIT IS NOT APPLOPULATE.
46	CONTAINMENT VENT HEADER (4"4)	56	X			·			
47	PRIMARY SYSTEM DRAIN TANK PUNIP SULTION	56	X						

VI. Reference

- License DPR-20-Palisades Plant response to SEP Topic VI-4 -Containment Isolation System, 7/14/80.
- Independent review of containment penetrations, MPR-639, Vol. I
 & II, MPR Association, Inc, 11/15/79.
- License DPR-20-Palisades Plant IE Bulletin 79-06B response update, 8/16/79.
- 4. DPR-20-Palisades Plant requirements resulting from review of TMI-2 accident actions taken in response to NRC, 12/27/79.
- Consumers Power Co. Licensee event report 80-021, Rev. 1,
 Misaligned containment sump valve, 8/20/80.
- CE Post-TMI evaluation task 5 containment isolation, 12/13/79.
- 7. Palisades plant design drawing: M-201 (rev. 22), M-202(21), M-203(19), M-204(16), M-205(23), M-206(11), M-207(33), M-208(19), M-214(15), M-215(14), M-218(20), M-219(10), M-220(17), M-221(10), M-222(10), M-223(7), M-224(7), M-225(8), M-226(8), E-15(1), E-16(1), E-17(6).
- 8. Palisades plant #1, Final Safety Analysis Report, Vols. 1, 2 & 3.
- 9. Letter from R. A. Vincent (Consumers Power Company) to D. M. Crutchfield, dated August 10, 1981, Providing Comments on CSB Evaluation Report on SEP Topic VI-4 for the Palisades Nuclear Plant, Unit 1.
- 10. Letter from R. A. Vincent (Consumers Power Company) to
 D. M. Crutchfield, dated January 4, 1982, Providing Information
 on SEP Topic VI-4 for the Palisades Nuclear Plant, Unit 1.

Containment Systems Branch
Evaluation Report on SEP Topic VI-4,
Containment Isolation System for the
Palisades Nuclear Plant, Unit 1
Docket No. 50-255
Revision 1

I Introduction

The Palisades Nuclear Power Plant, Unit 1 began commercial operation in 1971. Since then safety review criteria have changed. As part of the Systematic Evaluation Program (SEP), the containment isolation system for the Palisades plant has been re-evaluated. The purpose of this evaluation is to document the deviations from current safety criteria as they relate to the containment isolation system. The significance of the identified deviations, and recommended corrective measures to improve safety, will be the subject of a subsequent, integrated assesment of the Palisades plant.

II Review Criteria

The safety criteria used in the current evaluation of the containment isolation system for the Palisades plant 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-75/087, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (SRP 6.2.4, Containment Isolation System).
- Regulatory Guide 1.11, Instrument Lines Penetrating Primary Reactor
 Containment.

ENCLOSURE

REGULATORY DOCKET FILE COPY

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 the Palisades plant. 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, Electrical Penetrations of Reactor Containment
- (11) NUREG-0737, Clarification of TMI Action Plan Requirements,

 Item II.E.4.2, 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

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 54, 55, 56 and 57 of Appendix A to 10 CFR Part 50 pertain to the containment isolation system of a nuclear power plant.

General Design Criterion 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 providions 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 at 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. SRP 6.2.4, at Item II.11, 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 at 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 at Item II.E.4.4).

The electrical power supply, instrumentation and controls systems should be designed to engineered safety features 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, at 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. Furthermore, 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.

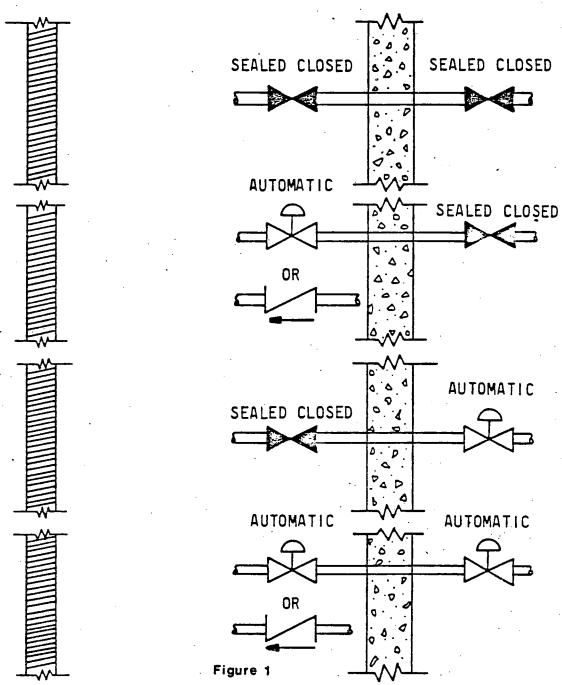
GDC 55 and 56 also permit containment isolation provisions for lines penetrating the primary containment boundary that differ from the explicit requirements, provided the basis for acceptability is defined. This proviso is typically invoked when establishing the containment isolation requirements for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

GENERAL DESIGN CRITERIA 55 AND 56 ISOLATION VALVE CRITERIA

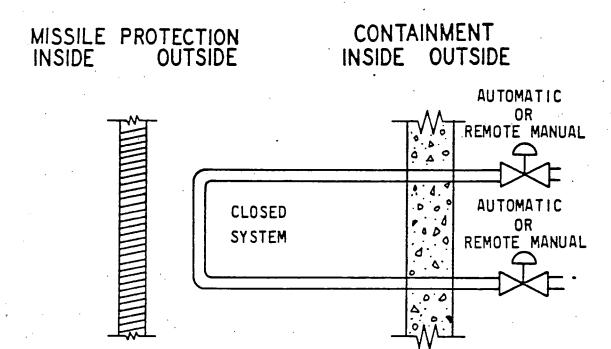
MISSILE PROTECTION **OUTSIDE** INSIDE

CONTAINMENT INSIDE OUTSIDE

AUTOMATIC



GENERAL DESIGN CRITERION 57 ISOLATION VALVE CRITERIA



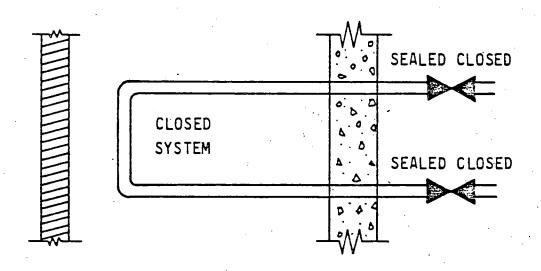


Figure 2

Standard Review Plan (SRP) 6.2.4 at Item II.3 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.

Evaluation

The containment isolation provisions for the lines penetrating the primary reactor containment of the Palisades Nuclear Power Plant, Unit 1 are tabulated in Table 1. This information was obtained from the documents referenced in Section VII. The containment isolation provisions, as tabulated 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 tabulated in Table 2. We have transmitted a draft evaluation to the licensee. As a result, Table 1 was revised and modified by the licensee to reflect changes in the plant. This revised evaluation report takes into account the comments and updated information received from the licensee.

Table 1 gives the licensee's penetration class designation for many of the lines penetrating containment. The isolation valve arrangements for these penetration classes are shown in Figures 3 and 4. The figures were obtained from Reference 8. Following are evaluations of these penetration classes against GDC 55, 56 and 57.

Penetration Class Al

Penetration Class Al shows influent and effluent lines open to the containment with two isolation valves in series outside containment.

GDC 56 applies to the lines in Penetration Class Al. GDC 56 specifies that one valve should be located inside containment and one valve should be located outside containment. Consequently, the isolation valving arrangement for Penetration Class Al differs from the explicit requirements of GDC 56 from the standpoint of valve location. Locating both containment isolation valves outside containment may be acceptable if the criteria used in the design of the piping between the containment the first valve are sufficiently conservative to provide adequate assurance of integrity. This matter is discussed under SEP Topiic III-1.

The following containment penetrations are included in Penetration Class A1: 1, 4, 4a, 52 and 68.

Penetration Class A2

Penetration Class A2 shows three isolation configurations that are open to the containment. GDC 56 applies to the lines in Penetration Class A2. One of the isolation configurations (i.e.,, the line having a locked-closed valve inside containment and a locked-closed valve outside containment) satisfies the explicit requirements of GDC 56. The following containment penetrations have this isolation configuration in Penetration Class A2: 64, 66 and 72.

The isolation configuration having a blind flange inside containment and a locked closed valve outside containment differs from the explicit requirements of GDC 56 from the standpoint of isolation barrier type.

GDC 56 does not address the use of blind flanges. However, a blind flange is an acceptable isolation barrier in lieu of a valve. The basis for this appears in SRP 6.2.4 at Item II.3. Also, the locked-closed valve could be an automatic isolation valve and still satisfy GDC 56. The following containment penetrations have this isolation configuration in Penetration Class A2: 18, 18a and 27.

With regard to penetration 27 (ILRT fill line), the power operated valve MOV-Pl outside containment is verified closed monthly under surveillance procedure MO 29 of the plant Technical Specifications. Since the line is flanged and gasket inside containment, the administrative control exercised over the valve is judged to be adequate. Therefore, the valve is a sealed closed isolation valve in accordance with the guidelines of SRP 6.2.4 at Item II.3.

The isolation configuration having both a locked closed valve and a simple check valve outside containment differs from the explicit requirements of GDC 56 from the standpoint of valve location and valve type. GDC 56 specifies that one valve should be located inside containment and one valve should be located outside containment, and that a simple check valve may not be used as an automatic isolation valve outside containment. For this configuration to be acceptable, the check valve should be located inside containment. Also, the locked closed valve could be an automatic isolation valve to satisfy GDC 56.

The following containment penetrations have the above isolation configuration in Penetration Class A2: 10 and 65. A judgment regarding the acceptability of the simple check valve outside containment as a bonafide containment isolation valve will be made in conjunction with the integrated assessment of the plant.

With regard to penetration 65 (instrument air line), the acutation provisions for valve CV 1211 differ from the explicit requirements of GDC 56 in that the valve is remote manually isolated. Since the instrument air line is non-essential, valve CV 1211 should be automatically isolated.

Penetration Class B1

Penetration Class B1 shows two series isolation valves outside containment in a line coming from the reactor coolant system. As shown, one of the valves is an automatic isolation valve and the other is a normally open, manual valve. Depending on the line, however, a simple check valve or remote manual valve is used. GDC 55 applies to the lines in Penetration Class B1. GDC 55 specifies that one valve should be located inside containment and one valve should be located outside containment, with the vaves being either locked closed or automatic isolation valves.

The isolation valving arrangement for Penetration Class B1, therefore, differs from the explicit requirements of GDC 55 from the standpoint of valve location, type, and actuation. Locating both itolation valves outside containment may be acceptable if piping and valve design criteria are sufficiently conservative to preclude a breach of integrity. This matter is

discussed under SEP Topic III-1. The use of a local manual valve for containment isolation is not acceptable, and should be upgraded to an automatic isolation valve.

The following containment penetrations are included in Penetration Class B1. 36, 40 and 45.

For penetration 36 (reactor coolant system letdown line), the parallel power operated valves CV 2012 and CV 2122 respond to controls to maintain a prescribed backpressure in the line. Although the valve controls are designed to ramp the valves closed in response to a drop in line pressure (e.g., as caused by a LOCA), the control circuitry is not safety-grade and does not assure valve closure throughout the course of an accident, Therefore, valves CV 2012 and CV 2122 should have automatic isolation capability in response to the sensing of diverse parameters characteristic of postulated accidents. Also, the isolation actuation circuitry should be safety-grade and capable of overriding valve control circuitry for normal plant operation. For penetration 45 (charging pump discharge line), the simple check valve outside containment is an inappropriate automatic isolation valve; a judgment regarding its acceptability will be made in conjunction with the integrated assessment of the plant. Also, the actuation provisions for the air operated valve CV 2111 differ from the explicit requirements of GDC 55 in that the valve is a remote manual isolation valve. A remote manual isolation valve is provided in lieu of an automatic isolation valve because the line has a post-accident safety function (emergency core cooling) which necessitates the valve being open in the event of an accident. Consequently, automatic isolation of

the line is not appropriate. However, the capability does exist to remote manually isolate the line if the need to do so should arise. The actuation provisions for the valve is acceptable based on the guidelines of SRP 6.2.4, at Item II.3.

Penetration Class B2

Penetration Class B2 shows a locked closed valve inside containment and a locked closed valve outside containment in a reactor coolant system effluent line. GDC 55 applies to the lines in Penetration Class B2. The isolation arrangement satisfies the explicit requirements of GDC 55.

The following containment penetration is included in Penetration Class B2: 35.

Penetration 35 shows two relief valves (RV 3164 and RV 0401), located between the two series isolation valves inside containment, which relieve to the containment. Consequently, the relief valves also have a containment isolation function in the reverse flow direction.

Penetration Class C1

Penetration Class C1 shows two types of valve arrangements for closed systems inside containment that are missile protected; namely, a single simple check valve outside containment for influent lines and a single automatic isolation valve outside containment for effluent lines. GDC 57 applies to the lines in Penetration Class C1. GDC 57 specifies that a single automatic, remote manual or locked closed isolation valve outside containment is acceptable, but a simple check valve is not an acceptable automatic isolation valve. The isolation valve arrangement having a

single simple check valve outside containment differs from the explicit requirements of GDC 57 from the standpoint of valve type.

The following containment penetrations are included in Penetration Class C1: 2, 3, 7, 8, 16 and 55.

For Penetrations 7 and 8, the main feedwater isolation valves (18"-N218R-0702 and 18"-N218R-0701, respectively) should be power operated, automatic isolation valves. In this regard, a power operated stop check valve would be acceptable. For penetrations 16 and 55, the containment isolations provisions satisfy the explicit requirements of GDC 57.

Penetration Class C2

Penetration Class C2 shows isolation valve arangements for influent and effluent lines of closed systems inside containment that are not missile protected. The valve arrangements consist of two valves in series, outside containment.

GDC 56 applies to the lines in Penetration Class C2. GDC 56 specifies that one automatic or locked closed valve should be located inside containment and one such valve should be located outside containment; also, a simple check valve may not be used as an automatic isolation valve outside containment.

The valve arrangements of Penetration Class C2 differ from the explicit requirements of GDC 56 from the standpoint of valve location and valve type. All valve arrangements would satisfy the explicit requirements of GDC 56 if one valve was located inside containment, particularly the simple check valve.

GDC 56 permits isolation valve arrangements that differ from the explicit requirements provided the basis for acceptability is defined. With respect to Penetration Class C2, then, locating both isolation valves outside containment may be acceptable since missile protection is not provided inside containment. The acceptability of this is contingent on the criteria used in the design of the piping between the containment and first valve, and the first valve, which must provide adequate assurance of integrity.

The following containment penetrations are included in Penetration Class C2: 5, 6, 11, 14, 15, 25, 26, 37, 38, 40A, 40B, 41, 42, 44, 46, 47, 49, 67 and 69.

For penetrations 11, 14, 26, 27, 41, 42 and 67, the simple check valve is not an appropriate automatic isolation valve outside containment.

A power operated automatic isolation valve would be acceptable. However, a judgment decision regarding the acceptability of the simple check valve will be made at the time of the integrated assessment of the plant.

Penetration 25 shows a capped test connection which should be equipped with two locked closed isolation valves in series. Penetration 44 shows a manual isolation valve (3/4"-2084) which is not depicted by the isolation valve arrangements of Penetration Class C2, and which differs from the explicit requirements of GDC 56 from the standpoint of valve actuation; the subject valve should be a power operated valve that is automatically actuated.

Penetration Class C3

Penetration Class C3 shows two, locked closed isolation valves in series, outside containment, for effluent lines from systems that are closed inside containment and not missile protected. GDC 56 applies to the lines in Penetration Class C3. The valve arrangements described above differs from the explicit requirements of GDC 56 from the standpoint of valve location, namely, one valve should be located inside containment. However, locating both valves outside containment may be acceptable, based on the discussion under Penetration Class C2.

The following containment penetration is included in Penetration Class C3: 33.

The following discussion pertains to those containment penetrations not covered by the Penetration Classes discussed above.

a) Penetartions 9, 20, 24, 29, 34, 43, 57, 58, 59, 60, 61, 62, 63, 70, 71 and 73:

These containment penetrations are spares. Of these, penetrations 21, 29 and 73 show pipe caps and blind flanges being used as isolation barriers. Threaded and/or tack welded pipe caps, and blind flanges without leak testing provisions, are not suitable isolation barriers.

b) Penetrations 12 and 13:

These containment penetrations satisfy the explicit requirements of GDC 56, and are acceptable. However, with respect to the test, vent and drain lines, pipe caps are not suitable isolation barriers; two locked closed isolation valves in series should be provided for

these lines. Also, the flow element located between the isolation valves at penetration 13 should be moved downstream of the outboard isolation valves, or the licensee should justify that the flow element is an acceptable isolation barrier.

c) Penetrations 17 and 48:

These two containment penetrations serve the containment pressure instrumentation (8 lines). Since signals for the actuation of engineered safety features are derived from this instrumentation, it is imperative that these lines be open and remain open. Consequently, power-operated valves, which could potentially spuriously close, are not provided in these lines.

The instrument lines, however, are provided with test connections that are only capped. Again, pipe caps are not suitable isolation barriers; two locked closed isolation valves in series should be provided in each test line.

d) Penetrations 19, 50 and 51:

These containment penetrations are the personnel air lock, emergency access air lock and equipment hatch, respectively. Several lines are associated with these penetrations that are equipped only with pipe caps for isolation barriers. Pipe caps are not suitable isolation barriers and should be replaced with locked closed manual valves or blind flanges that are leak testable.

rationale for accepting the isolation provisions of the emergency sump recirculation lines appears in SRP 6.2.4, at Item II.3.

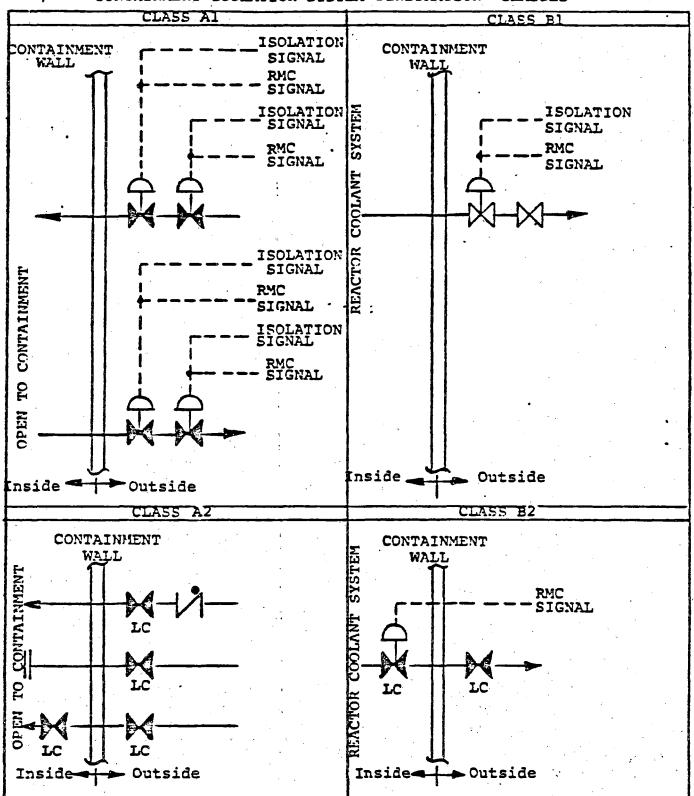
h) Penetrations 30 and 31:

With regard to penetrations 30 and 31 (containment spray pump discharge lines), the actuation provisions for the power operated valves CV-3001 (penetration 30) and CV-3002 (penetration 31) differ from the explicit requirements of GDC 56 in that they are remote manual isolation valves. Remote manual isolation valves are provided in lieu of automatic isolation valves because the lines, which are part of the containment spray system, have a post-accident safety function (depressurization of the containment following a pipe break accident) which necessitates their being opened in the event of an accident. Consequently, automatic isolation of these lines is not appropriate. However, the capability does exist to remote manually isolate these lines if the need to do so should arise. The actuation provisions for these valves are acceptable based on the guidelines of SRP 6.2.4, at Item II.3.

i) Penetration 39:

For penetration 39, the simple check valve outside containment is replaced with a blank flange during plant operation. To be an acceptable isolation barrier, the blank flange should be leak testable.

CONTAINMENT ISOLATION SYSTEM PENETRATION CLASSES



CONTAINMENT SOLATION SYSTEM PENETRATIC: CLASSES

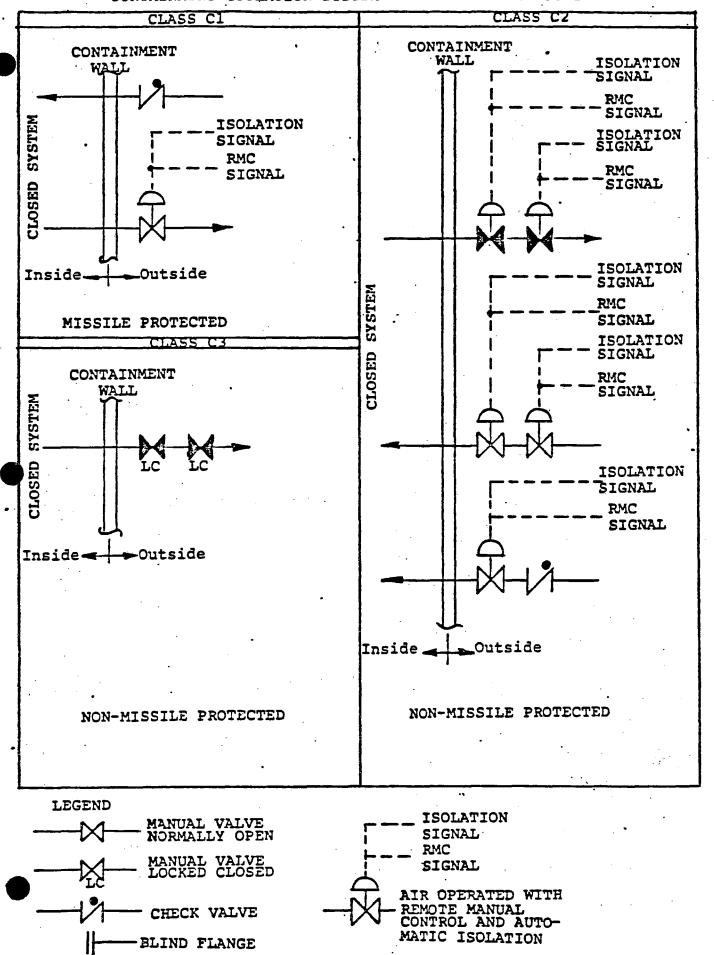


Figure 4

VI Conclusions

The following summarizes the deviations from review guidelines that have been identified and described in Section \boldsymbol{V} of this report:

1. The isolation valving arrangements of the following containment penetrations do not meet the requirements of GDC 55 or 56 from the standpoint of valve location: Penetrations 1, 4, 4a, 10, 11, 21, 21a, 25, 26, 28, 30, 31, 33, 36, 37, 38, 39, 40, 40a, 40b, 41, 42, 44, 45, 46, 47, 48, 49, 52, 52a, 52b, 56, 65, 67, 68 and 69.

The isolation valves in these penetrations are located outside containment. The acceptability of this is contingent on the acceptability of the piping design criteria. Also, the licensee should discuss the unique characteristics of the valves closest to the containment to terminate valve shaft or bonnet seal leakage, or the provisions in the plant for control of leakage.

2. The isolation valves of the containment penetration numbers listed below differ from the explicit requirements of GDC 55, 56 and 57 from the standpoint of valve type by using one check valve in series with other type isolation valves located outside containment: Penetrations 7, 8, 10, 11, 14, 26, 30, 31, 37, 39, 41, 42, 45, 65 and 67.

A simple check valve located outside containment is not an appropriate automatic isolation valve. The judgment regarding its acceptability will be made in conjunction with the integrated assessment of the plant.

For penetrations 7 and 8, the main feedwater line, those check valves should be power operated, automatic isolation valves.

3. The isolation barriers in the containment penetrations listed below differ from the explicit requirements of GDC 55, 56 and 57 from the standpoint that pipe caps or blind flanges are used as containment isolation barriers.

Penetrations having pipes or test connections capped outside containment: 13, 17, 17a, 21, 21a, 25, 27, 28, 29, 38, 39, 48 and 73;

Penetrations having blind flanges inside containment: 18, 27, 29 and 73; or outside containment: 1, 4 and 39.

A blind flange inside or outside containmennt is an acceptable isolation barrier in lieu of an isolation valve if the blind flange is leak testable.

Pipe caps used in lines penetrating containment or test connections are not acceptable isolation barriers and should be replaced with locked closed valves or blind flanges that are leak testable.

There are spare penetrations equipped with pipe caps, such as penetrations 21, 29 and 73. To be acceptable, the pipe cap should be fully welded with the same quality as the containment weld, or replaced with a blind flange that is leak testable.

- 4. The power operated valves CV-3001 (penetration 30) and CV-3002 (penetration 31) of the containment spray pump discharge lines differ from the explicit requirement of GDC 56 from the standpoint of valve actuation. Remote manual isolation valves are provided in lieu of automatic isolation valves because the systems have a post-accident safety function which necessitates their being opened in the event of an accident. The actuation provision for these valves are acceptable based on the guidelines of SRP 6.2.4, at Item II.3.
- The containment sump suction lines which are part of the ECCS and the containment heat removal system have post-accident safety functions. Therefore, automatic isolation of these lines (penetrations 53 and 54) is not desirable; remote manual isolation valves are acceptable.
- 6. Penetration 44 shows a manual isolation valve (3/4"-2084) in series with an air operated isolation valve, which differs from the explicit requirements of GDC 56 from the standpoint of valve acuation. This manual valve should be a power operated automatic isolation valve.
- 7. There are several lines associated with the following penetrations which are equipped with pipe caps: the personnel air lock (penetration 19); emergency access air lock (penetration 50); and equipment hatch (penetration 51).

These pipe caps are not suitable isolation barriers and should be replaced with locked closed manual valves or blind flanges that are leak testable.

loss of actuating power, take the position that provides greater safety. The position of an isolation valve for normal and shutdown operating conditions, and post-accident conditions, depends on the fluid system function. In the event of power failure to a valve operator, the valve position should be consistent with the line function. In this regard, separate power supplies for isolation valves in series may be required to assure the isolation of non-essential lines. The licensee has provided information (see Table 1) on the position of isolation valves, whether or not the line is essential and the isolation signals for each isolation valve. This information shows that automatic isolation valves assume positions of greater safety on loss of actuating power and, therefore, GDC 55 and 56 are satisfied.

CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NDP UNIT 11

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													1 NOL 01
	ISYSTEM NAME	PENE	JVALVE	AVEA		TION		POS1	TION		IESS-	ACTUA-	IREMARKS
	AND SERVICE		IDENT.	TYPE OR	OC.	IC	NOR-	SHUT	POST.	PWR	EN-	TION	
NO.	LINE SIZE	NO.	NUMBER	DESCRIPTION		ł	MAL	DN	LOCA	FAIL.	TIAL		}
1	Purge Air Supply (հՕ"Փ)	A1	CV1807 CV1808 508VAS	AO BUTF VLV AO BUTF VLV MAN GL TEST VLV TEST CONNECT	X X X		NC NC LC CAP	0/c 0/c c	C C	C C	H	CIS CIS -	Blank Flanged; Vent. Syst. Valves Presently Not Used in Modes 1-4
2	Main Stm Line (SGE50A) (36°Ø)	C1	CV0510 MOV0510A	POS CH'K VLV MO BYPASS VLV	x x		NC NO	C:	c c	C C	Y	LOW B/G PRESS RM	Loss of Air, CV-0510 Remains in Position Due to Cross Con- nections with High Press Air and Accumulators
3	Main Stm Line (SGE50B) (36"Ø)	C1	CV0501 MOV0501A	POS CH'K VLV MO BYPASS VLV	X		NO NC	c c	C C	C	Y	LOW 8/G PRESS RM	Loss of Air, CV-0501 Remains in Position Due to Cross Con- nection with High Press Air and Accumulators
h.	Purge Air Exhaust (հ8"Ø)	A1	CV1803 CV1805 CV1806 506VAS	AO BUTF VLV AO BUTF VLV AO BUTF VLV MAN GL TEST VLV	X X X		NC NC NC LC	0/c 0/c 0/c c	C C C	C .	N	C18 C18	Blank Flanged; Vent. Syst. Valves Presently Not Used in Modes 1-4
le	Purge Air Exhaust Sample Line (3"Ø)	Λ1	100VAS 101VAS 507VAS	MAN GA VLV MAN GA VLV MAN GL TEST VLV TEST CONN /w CAP	X X X	·	C rc rc	C C C	C C C	- - -	И	-	
5	SIG (E50A) Bottom Blow Down (2"Ø)	C2	CV0767 CV0771 567MS	AO ANGLE VLY AO ANGLE VLY MAN GL TEST VLV TEST CONN /w CAP	X X X		NO NO LC C	c c	C C C	C	H	CIS CIS	
. 6	S/G (E50B) Bottom Blow Down (2"Ø)	C2	CV0768 CV0770 568MS	AO ANGLE VLV AO ANGLE VLV MAN GL TEST TEST CONN /w CAP	X X X		NO NO LC C	C C	c c	c c -	H	C18 -	`
7	Feedwater to S/O (E50A) (18"Ø)	C1 6' 18'	746FW N218K-704 N218R-702	MAN GL VLV CHECK VLV CHECK VLV	X X X		LC C	C C	C C	-	H Y Y	- Revap Revap	Aux FW Main FW

CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NDP UNIT #1

NDP UNIT V1 PAGE 2 OF 13

TRATION	SYSTEM NAME AND SERVICE LINE SIZE	PENE CLASS NO.	VALVE IDENT. NUMBER	VALVE TYPE OR DESCRIPTION	OC LOCA		NOR- MAL	POST SHUT DN	TION POST LOCA	PWR FAIL.	ESS- EN- TIAL	ACTUA-	REMARKS
8	Feedwater to S/G (E50B)	C1 18"	ThTFW	MAN GL DRAIN VLV CHECK VLV CHECK VLV	х х . х		C C C	C 0 C	C C C		N Y Y	REVAP	Main FW Aux FW
. 9	Spare	-							<u></u>				
10	Service Air (2"Ø)	A2	122CAS 401CAS 142CA T	MAN GA VLV CHECK VLV MAN GL TEST VLV TEST CONN /w CAP	X X X		C C LC C	o/c o/c c	C C	-	n	- REVAP	
11	Condensate to Shield Cooling Surge Tank (1 ¹ 4"\$)	C2	CV0939 401CDS 536CD3 536ACD T	AO GA VLV CHECK VLV MAN GL TEST VLV MAN GL TEST VLV TEST CONN /w CAP	X X X X		NO LC LC C	0 0/c c c	C C C	c - - -	N	CIS REVAP	
12	Service Water Supply (16"∮)	X	CV08h7 CV0869 CV0865 CV0862 CV0870 5715W8 5705W 5085W 5605W 2665W 2655W	AC BUTF VLV AC BUTF VLV AC BUTF VLV AC BUTF VLV AC BUTF VLV MAN GA VLV MAN GA VLV MAN GA VLV MAN GA VLV MAN GA VLV MAN GA VLV MAN GA VLV MAN GA VLV	X	X X X X X X X X	NO NO NO LC LC LC LC LC LC	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Y Y Y Y N N N N	MAN MAN MAN MAN MAN - - -	
13	Service Water Return (16"Ø)	х	CV0821 5725W3 CV0867	AC BUTF VLV MAIN GA TEST VLV AC BUTF VLV	X	x .	NO LC NC	0 C	0 C 0	0 - 0	Y H Y	MAN - 818	818 Trips Normal Fan Which in Turn Opens Valve
			CVO8h3 CVO86h CVO863 CVO838 CVO873 CVO872	AO GL VLV AC BUFF VLV AC BUFF VLV AC BUFF VLV AC BUFF VLV AO GL VLV		X X X X X	NO NC NC NC NO NC	0 0 0 0 0	0 0 0 0 0	C C C C C I	И У И У И	TC 818 TC 818 TC 918 TC	

CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NDP UNIT #1

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	THE ISHOES HO! ON												1/10L _5 01 15
PENE-	SYSTEM NAME	PENE	VALVE	IVALVE	LOCA	TION	Ī	POST	TION		IESS-	ACTUA-	IREMARKS
TRATION	AND SERVICE	CLASS	IDENT.	TYPE OR	OC		NOR-		TPOST	TPWR		TION	
	LINE SIZE	NO.	NUMBER	DESCRIPTION				DN	LOCA	FAIL.	TIAL		
	LINE STEE		HOLDEN	DESCRIPTION			1	Dit	Lock	1	11111	 	
1	•.	<u> </u>		1.0 minum 117.11	x	1	NO .	NO	c	0	N.	818	Auto Reopen on SIS Reset
14	Component	C5	CV0910	AC BUTF VLV		ľ	1			1 .	1 "	REV^P	Auto neopen on ozo neoco
	Cooling Water		257-0910CC	CHECK VLV	X	•	0	lc o	C	! -	1	WEAVE	1
ł	in (10"Ø)		507CC	MAN GL TEST VLV	X	ŀ	I.C	LC	C	-	1	-	
\	·		<u> </u>	TEST CONN /w CAP	<u> </u>		C	 	 	 	- -	ļ. 	
		1					No	0		AI	N	SIS	Auto Reopen on SIS Reset
15	Component	C2	CV0911	AC BUTF/HD OP	X	İ	1 -	0	C	AI	14	SIS	CV-0911 & 0940 has Accumulator
·	Cooling Water	1	CV0940	AC DUTF/IID OP	X		NO		C	AI AI		212	for Loss of Air
1	Out (10"Ø)	ł	508CC	MAN GL TEST VLV	X	ļ	I.C	C	6	-	ł	Ì	IOL TORR OL VII
1		<u> </u>	-	TEST CONN /w CAP	X	i	C	1	l	Į.			· ·
•		<u> </u>		TEST CONN /w CAP	<u> </u>	 	C	∤ —~	<u> </u>	ļ	 	} 	
			l			ļ	١٥	o/c	c	C	N	СІВ	
16	81G (E50A)	C1	CV0739	AO ANGLE VLV	Х	•	١٠	ן טייט	"	٠.٠	1 24	016	
	Surface Blow Down			·			İ	1	1		1	i	
<u> </u>	(2"ø)	ļ	 			ļ	 	ļ	}	<u> </u>	 	 	-
1 .			1802		x	1	LO	0	١٥		ΙΥ	· ·	PS-1802 (SIS & CIS Initiation)
17	Containment	N/A			l û		lio	ŏ	lŏ	l _	1 -		PS-1802A (SIS & CIS Initiation)
	Pressure	ł	1802A 1802B		Îŝ	}	LC	Č	ľč	l - '			
1	Instrumentation	j	1802B		x]	LC	ď	lč	1 -	Į.	1	* .
1	(4-3°0)		1804		Ŷ		ro	١ŏ	lo		1	1	PS-1804 (SIS & CIS Initiation)
1	,		1804 1804A		Ŷ]	LO	ŏ	١ŏ	l _	1	l	P-8-1804 (818 & CIS Initiation)
	İ	· ·	1804B		Y Y		LC	ď	١č	l -		1	1
) .	1804C]	Ŷ	J	LC	lč	Č	_	J		
	i i	1	1812		Î	1	io	ŏ	lŏ	-		1	PT-1812
		1	1812A	-	l û	•	rc	Č	C	1 _	1	· '	
i	Ĭ		1812B		x	ŀ	ro	۱ŏ.	١٥	l _	l	٠.	PT-1812A
1] .	j		l	l û	1	lic	c	ď	1 _		•	
3	1		1812C 1814-	•	Î	[io	ŏ	lŏ	l _	I	ĺ	PT-1814
1		ļ	1814A		Ιŵ	١.	LC	c	l c	١ _	1		
1	}	ł	1814B		Î		LC	C	ľč	1 _	1	l	•
		1			Îŝ	1	LC	c	١č	_	1	i	
 		<u> </u>	18146	<u></u>	 ^-		1 110	- <u>~</u>	 		1		
1	1				l] .	1	١ ـ	1_	1.	l	1	
17a	Containment Sump]	181hE		Х]	ro	0	0	-	N	1	· · · · · · · · · · · · · · · · · · ·
1	Level Instrumenta-		618B-DRW	1	X	1	C	C	C	-	1	l .	·
1	tion	1	181hF	· ·	Х	i	rc	С	C		ł	ł	
1	,	٠, ا	1814G		X	ł	rc	С	C	-			
	·		TEST /WCAP	Į.	X	!	CAP		<u> </u>	l	1	<u> </u>	

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CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NOP UNIT #1

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														·
PENE-				VALVE		LOCV.		L	POST				ACTUA-	REMARKS
TRATION	AHD SERVICE	CLASS		TYPE OR		OC	IC	NOR-	SHUT	POST	PWR		TION	} .
	LINE SIZE	NO.	NUMBER	DESCRIPTION	•	['	l	MAL	DN		FAIL.	TIAL	•	i i
18 &	Fuel Transfer Tube (36"0)	A2		MAN GA VLV 36" Flange		х	x	NC	C	c c	-	N		Blind Flg w/ 2 O-Ring Seals Inside Ctmt
202	130 77		1_	h" FLANGE		l I	X	Ì	C	C	ł _	l	ł	
19	Personnel Lock Outer Door	x	P5A	MAN GL TEST PRESS GAGE PRESS TUBE PRESS EQUAL	-		A	LC C CAP NC	o/c	LC	-			
	Inner Door			PRESS TUBE PRESS TUBE	<u> </u>	 		CAP		<u> </u>				
20	Spare			PRESS EQUAL	VLV			NC						
21	Hydrogen Monitoring Return Line (4"0)		8V-2415A 8V-2415B MV-WG8731 CAP			X X X		C C	C C	0/C 0/C C	C C			
21a	llydrogen Monitoring Supply Line (1/4)		8V-2413A 8V-2413B MV-WGS730 CAP			X X X	 	C C	C C	0/C 0/C C	c c			
22	Redundant High Pressure Safety Injection (6"Ø)	x	M03068 3250 M03066 3251 M0306h 3252 M03062 3253 RV326h M03072 CV3018 CV3036 3265	MO GI, VLV CII'K VLV MO GI, VLV CII'K VLV MO GL VLV CII'K VLV MO GI, VLV CII'K VLV RELIEF VLV MO GA VLV AO GA VLV AC GA VLV MAN GI, VLV MAN GL VLV		X X X X	X X X X X X X	NC C HC C NC C NC C NC NC NC	000000000000000000000000000000000000000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AI - AI - AI - AI C O	Y	\$18 816 819 618 818 918 818	ESF Related """ """ """ """ """ """ """

	SYSTEM NAME	PENE	VALVE	IVALVE	LOCA			P051					REMARKS
TRATION	AND SERVICE	CLASS	IDENT.	TYPE OR	OC.	IC	NOR-	SHUT		PHR	EN-	TION	i
NO.	LINE SIZE	NO.	NUMBER	DESCRIPTION	ľ	1	MAL	DN	LOCA	FAIL.	TIAL	•	
		1					1				1		
23	High Pressure	x	M03007	MO GL VLV		х	NC	c	0	AI	Y	SIS	
	Safety Injection	1	3104	CILIK AFA	•	x	C	١č	١ŏ	[^1	1 *	818	ESF Related
	barety injection		M03009	MO OF AFA		x	NC	C	0	ĀI	١.	818	Actuation Signal Initiated
}		1	3119	CH'K VLV		Î	C	C	0	1 **		818	
[· ·		ĺ	M03011	MO GL ALA	ł	1 0	NC NC	C	0	ĀI	l	818	By Chp or Per/Ovp (21593Psia)
ŀ	i ·	ł .	3134	CH'K AI'A	l	1 0	C	C	l ö	l vr	ł		Actuation Signal Initiated
ł -	1	1 .			Į	1 4	NC NC	c	6	ĀĪ	Į.	618	By Chp or Per/Owp (21593Psia)
ļ		Į.	M03013	MO GL VLV	(.	X	l uc	0	۱ ۷) VI	ł	818	Actuation Signal Initiated
	1	I.			ł	ł	l _	1 _	l	}	l .	} .	By Chp or Per/Owp (21593Psia)
ļ ·	1	1 .	3149	CII'K VLV	}	X	C	C	0] -	1		1
į.	1	1	RV3165	RELIEF VLV		Х	C	C	C	<u>-</u>	ł	[(
1	Ī		CV3059	AC GA VLV	X		NO	0	0	0	1	ł ·	
	1		CV3037	VO GV AFA	. х	{ ·	NC	0	0/c	0	1		
i		İ	3337	MAN GL TEST VLV	Į X	l	0	ļ	1	<u> </u>		}	8X-3337.
		ľ	3337A	MAN GL TEST VLV	X	J	0	C	0	ļ		Į	8x-3337
1		ŀ	3180	MAN GL VLV	X	Į.	NO	0	(0 -	-	ſ	ĺ	PT-0318
	<u></u>		3180A	MAN CL VLV	<u>x</u>	<u> </u>	NO	0	0				PT-0318
j _,		l '	1	1	ľ	İ	1	ł	ı		Į.	}	
. 24	Spare	-	1 .	1	ì	1	1	j	l	}			· ·
ļ		 	<u> </u>	<u> </u>		<u> </u>	ļ	ļ	<u> </u>		ļ		
ł		1				l			[_	ĺ	ł	i	
25	Cléan Waste	C2	CV1064	VO GT ATA	X	[]	NO.	0	C	C	N	CIS	
1	Receiver Tank	i i	CV1065	VO GT ATA	X		NO	0	C	C	1	CI8	ļ
	Vent to Stack		512CRW	MAN GL TEST VLV	X	}	LC .	C	C	 -	1	ŀ	·
((2"Ø)		1 -	TEST CONN /W CAP			C	į		1 .		(·	
ł	· .		647CRW	MVN GP AFA	X	ļ .	NO	0	0	-	t		PT-1065
<u> </u>	<u> </u>		1358	DRAIN CONN/W CAP	<u> </u>	<u> </u>	C		<u> </u>	<u> </u>		 	<u></u>
								'	!]	
26	Nitrogen to	C2	CV1358	VO GV AFA	χ	·	NC	C	C	C	N	CIB	
1	Quench Tank	1	400N2	CHECK VLV	X]	C	C	C	! -	1		i ·
ł	1	1	581N2	man ga test vlv	X		rc	C	C	· -	I	ł	l .
<u> </u>	1		<u> </u>	TEST CONNECT		<u> </u>	C		<u> </u>	<u> </u>	1	İ	<u> </u>
[]		1		
27	Int Leak Rate Test	A2	MOV-P1	MO BUTF VLV	X		NC	C	C	C	N	MAN	Flanged w/Gasket
	Fill Line (6"\$)	1	601 VAS	WYN GT ATA	Х	Į.	rc	C	C	-	[•	Inside Containment
1	ł .	1	605 VAS	MAN CI ATA	X	1	LC	C	C	-	1		Flanged w/Casket
1	·			TEST CONN /W CAP	x	1	C.	i	1	Į.	ł.,	l	Inside Containment

CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NOP UNIT #1

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													, rade <u>0</u> or <u>15</u>
PENE-	ISYSTEM NAME	PENE	VALVE	IVALVE	LOCA	TION	<u> </u>	POST	TION		lees	ACTUA-	REMARKS
TRATION	AND SERVICE	CLASS	IDENT.	TYPE OR	OC	11011	NOR-	SILUT	POST	PWR	EN-	TION	VELNIKY2
			IVENT.		ן ייט	16		121101				LITON	
NO.	LINE SIZE	NO.	NUMBER	DESCRIPTION			MAL	DN	LOCA	FAIL.	TIAL		
1	· ·) ·	1	· '	l		1	•	1 .	ſ	ł	· ·
28	Containment		TJ10 AV2		x	İ	ro	U	0	! _	N	l	'
"	Air Sample Line	i .	141 VAS	1	X		LC	C	c	l -		1	1
í	(1.14)	1	142 VAS	}	x		LC	C.	ď	_	1	i ·	1
1	(3,0)	1		1			LC	ď	Č	-	ł	ł	Į.
1		(510 VAS		X	Ì		יין	יי	1 -]	ŀ	1
İ		<u> </u>		TEST CAP	<u> </u>		C	ļ	ļ	 	ļ		
	ł	1	1			İ	İ	•	[i	l	Ì	
29	Capped Spare	1 -	-	PIPE FLANGE		X	C	i	ľ	l	N	1	.
1	1	1	. –	PIPE END /W CAP	X		C	!	<u> </u>	1	İ		
l			1								1		
30	Containment Spray	x	. CV3001	VC GP APA	X	l	NC	C	0.	0	Y	CHP	ESF Related
1) John Carlotte Spray	1 "	3258	MAN GATE VLV	X	ł	10	lŏ	ō	} <u> </u>	1	l i	Auto Open On Chp
1	ſ	1	3226	CHECK APA	X] .	C	C	Ŏ	_	ľ	1	made open an amp
ł	ł	1	33h4ES	GLOBE VLV		ļ .	rc	l č	C	1	ſ	ſ	1
1	} .	L	334463		X	ĺ	ľ	"	١,٠	- .	ł	ł	
1	§.	1	i -	TEST CONN /W CAP	X	ł	C		_		l	ł	
l	_[-	3227ES	GLOBE ALA	X	 _	rc	C	C		 -		
1	1	1.	}	\	l	! .	1	1	1		İ		1
31	Containment Spray	X	CA3005	L VC GP AFA	X	(NC	C	0	0	Y	CHP	ESF Related
1 -	1	1	3259	MAN GA VLV	X	ļ	ro	0	0	-'	1	1	Auto Open on Chp
1		1	3216	CHECK ATA	х		C	c	0	-	[.		
1	}	•	3217ES	WAN GL ALA	х	1	rc	C	C	l –	Ι.		
	, ·	1	3316ES	M GL TEST VLV	Ϊ́χ	l	LC	Č	Ċ	l _	}		
1	1	1 .	f. –	TEST CONN /W CAP	x	1	C	"	~		ł		1
			ļ _	TEST COM /W CAP			<u> </u>	<u> </u>			 		-
32	1		WORDON.	MO GL VLV		۱.	NC	c j	0	AI	Y	818	ESF Related
32	Low Pressure	X	MO3008			X			_	} ^1	, .	818	FOL WEIFFER
į	Enfety Injection	1	3103E3	CHECK AIA	٠	Х	C .	C	0		1		
ł	(12"ø)	1 .	M03010	WO GP APA		X	NC	C	0	AI	1	818	1
ŀ	· ·	1	3118F3	CHECK APA		Х	C	C	0	-	į	SIS	
ľ	1	1	MO3012	WO GF AFA		Х	NC	C] 0	AI	j	BIB	1
i	l	1.	3133E3	CHECK APA	l	X	C	C	0	-		818	1
}	1		мозо14	MO GI, VI,V	1	x	NC	C	0	N	1	1818	1
1	- L		3148ES	CHECK ATA		x	c	c	0	_	1	818	1.
1	1	1	3163E8	MAN GA VLV	X	" '	rc	C	C	۱ -	i		
ł	1	1	3196	MAN GA VLV	λ	1	NO	ŏ	lŏ	١ _	1	[
1	1 .	1.				.	NO	0	ŏ	-	1	ł	1
1 .	. •	,	3197	MAN GA VLV	X	ļ		1 -	0	1	j .		1
1	1	{	CV3006	AC GL VLV	Х]	NO	0		0	i '	MAN	
1 .		.]	CV3025	VO GF AFA	Х	[NC	0	0/C	C	i i	MAM	ł
1 .	I.	1	3336	WVH GV ATA	Х	ĺ	C	C.	C	-	1 :	1	1
	1	1	3100ES	MAN GA VLV	l	Х	0 .	0	0	-]	l ·	FT-0307
1	i	1	3107E3	MAN GA VLV	l	x	lo	lo	0	-	1	I	FT-0307
ł	1	1]		l	i			ſ	1	Ī	! .	4

CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NOP UNIT #1

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			· · · · · · · · · · · · · · · · · · ·										, 110E _ 1 01
PENE-	ISYSTEM NAME	PENE	IVALVE	IVALVE	LOCA	TION	1	POST	TION		ESS-	ACTUA-	IREMARKS .
	AND SERVICE		IDENT.	TYPE OR	OC		NOR-	SINT	POST	PWR	EN-	TION	VEI MINICO
		•	NUMBER	DESCRIPTION	00	1.0	MAL	DN	LOCA	FAIL.	TIAL	11.50	}
110.	LINE SIZE	NO.	MUMBER	DESCRIPTION			FINL	ווען	LOCA	FAIL.	TITAL		·
j .	ł .	1	5	1			j	i	ł	ł	1	5	j
32	Lov Pressure	ł	1155PC	MAN GA VLV		X	lc ·	C	l C	l -	Y	ł	j.
cont.	Safety Injection	1	3123FS	MAN GA VLV	Ì	x	0	0	0	-	1	i	FT-0309
1	1	1	3122ES	MAN GA VLV	1 1	x	o o	lo	lo	1 -	Į .	ĵ	FT-0309
1		1	1156PC	MAN GA VLV	1	x	C	C	Č	_	1	1	1
ł	\$	ł			1	x	ő	o	lŏ	-	1	ł	FT-0311
} .	1	ì	3138ES	MAN. GA VLV	['			•	,	į -	ĺ	•	
].	t .	. 1	3137ES	MAN GA VLV		Х	0	0	0	-	1	•	FT-0311 .
1	i	1	1157PC	MAN GA VLV		X	C	C	c	-	1	}	
į.		ł	3153ES	MAN GA VLV	ł	х	0	0	0	l -	1	ł	FT-0314
I	1	j	3152ES	MVN GV AFA	[lх	0	lo	0	} _	1	5	FT-0314
1	l .	1 .	1158PC	MAN GA VLV		х	C	c	c	_	Į)	
}	1	1	RV-3162	RELIEF	} •	Ιχ̈́	ľč	C	C	-	1	ì	1
		- 	WA-3105	WEDTER			 	 ` 	1	 	 		· · · · · · · · · · · · · · · · · · ·
I	1		2021.50			j	1	1 .	1_	Į.	l _	I	1
33	Safety Injection	C3	3234ES	MAN GA VLV	X	1	rc	C	C	-	M	ł	J
ł	Tank Drain	1	3237ES	MAN GV AFA	Х	ł	rc	C	C.	 -	i	ł	1.
ł	(2"Ø)	i	3348ES	Man GL Test VLV	X	t	LC	C	C	· -	j	i	
Ī	ł .	1	j -	TEST CONN /W CAP	X	1	C	i .	i	ł	1]	
ļ.	5	ł	3227ES	MAN GL VLV	x	ł	LC	C	c	l -	ł	} .	
}	1 .	1	3236ES	MAN GA VLV	Х	ì .	LC	C	c		i	ł	
ì	1 .	j	3235ES	M SAMPL LINE GAV	x	ľ	I.C	C	C	l <u>-</u>	j	į.	İ
j	1	1 .	3217ES	MAN GL VLV	x	1	LC	C	C	-	ł	1 .	[
}	 		351100	PIAN OF ADA	 ^ -		110	<u> </u>	 	 	 	 	
1	1_	1		1	5	ŀ	İ	ì .	ł	1	1	j	
34	Spare	-	ĵ	į	ŀ	[1	j	l	ł	ł	}	
L	<u> </u>]			ļ		 	ļ		 		
		1	ł	}	(i	l			1	i	(
35	Shutdown	B2 '	MOV 3016	MO GA VLV		X.	ELC	0	o/c	C	N	MAN	Manual Control
1	Cooling Return	ł	MOV3015	MO GA VLV		x	ELC	0	o/c	C	ł	}	
′	(14"Ø)	ł	RV3164	RELIEF VLV	·	x	NC	C	c	1 -	1	l '	ł
ì	114 67		RV0101	RELIEF VLV	ĺ	x	NC	lc	Č	<u>.</u>	ſ	ŧ	
(1		•		^	LC	C	Č	} _	ł	}	
1	i	1	320 LES	MAN GL VLV	X	{·				-	1 .	ł	•
1	1		3205	MAN GA VLV	Х	{	IC	C	C	-	1	t	
i] .	(- ·	PIPE FLANCE	X	ſ	C	C	C	-	l l	[•
1.	i	1	MO-3190	MO GA VLV	х	Į.	ELC	0	0	AT	1.	1	5
1	1	1	MO-3199	MO GL VLV	x	1	ELC	0	0	IA	l	ł	
ł		1	3163	MAN GA VLV	X	İ	C	c	C	1 -	j	i	ł
[-	1-24-5	1		 	 	 	 	1	1		
36	Letdown To	D1	CV2009	VO OF AFA	x	ł	NO	0	C	C	l n	c18	
} 50	■ ***	B1		•		ł				l -	1 "	1010	
•	Purification		2320CVC	MAN GL TEST VLV	X	[rc	C	C	-	1	[
1	Ion Exchanger	1	1 -	TEST CONN /W CAP	Х].	C	İ	l	ł	1	}	
}	(1 ¹ / ₂ "Ø)		2010CVC	WAN GV AFA	Х	ł	NO	0	0	! -	l	ł	}
ł	1	Ī	l .	Į.	(ſ		ł			1	(
			.7		<u></u>					·		`	

CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NDP UNIT #1

PENE-	SYSTEM NAME	PENE	JVALVE	VALVE	ILOCA	TION	1	POS1	TION		less_	ACTUA-	PAGE _B_ OF _13_
	AND SERVICE LINE SIZE	CLASS NO.	lDENT. NUMBER	TYPE OR	ŌĈ	1C	NOR-	SHUT	POST.	PWR	EN-	TION	WELMUK?
1101	LINE JIZE	<u> </u>	MODBER	DESCRIPTION	 	<u> </u>	MAL	DN	LOCA	FAIL.	TIAL		
36	Letdown To	B1	2140A	MAN GA VLV	x	ļ	NO	0	0	_	N	•	
cont.	Purification		CV2012	AO GL VLV	х		NO	0	o/c	c		[.	
Ì.	Ion Exchanger		21494	MAN GA VLV	X	4	NO	0	0	=	1	1	
	(1 ¹ ξ"Ø)		CA5155	VO GF AFA	X		NC	C	C	C		 	
37	Primary System	C2	CV1001	VO GF AFA	X		NC'	C	c	c ··	N	C18	
•	Drain Pump		403CRW	CHECK VLV	Х	1	C	C	C	C	1	ł	
	Recirc (1½"Ø)	٠.	503CRW	MAN GL TEST VLV	X	1	rc	C	C	-	1		· 1
				TEST CONN /W CAP	X _	 	C	}	 			ļ	
38	Condensate Return	C2	CV1501	AO GA VLV	х	•	NC	o/c	C	Č.	N	CIS	the second secon
·	From Steam Heating		CV1502	VO GV AFA	X	1	NC	0/C	C	C	1	ł	
	Units (2"Ø)		502VA	MAN GL TEST VLV	X	ł	re	C	C	-	1	1	
	•		<u>-</u> .	VENT CONN /W CAP	X		C	1	l		1		
	<u></u>					·		 	 		1		
39	Containment	Х	CV1503	AO GA VLV	X	1	NC	C	C	C	N	CIS	Check Valve Replaced w/Blank
	Heating System (4"∅)		503VA	CHECK VLV MAN GL TEST VLV	X		LC	c	c	_, .	1.	· ·	Flange When At Power
	. (4 4)		-	TEST CONN /4 CAP	χ̈́	ĺ	l c	l " .	ľ	l	1	•	*··
				VENT CONN /W CAP	Х		C						
l _t O	Dut Coaldes Custom	B1	CV1910	AO GL VLV	x	l	0/C	0/c	c	C	l N	CIS	
40	Pri-Cooling System Sample Line	DI	CV1910	VO OF AFA	X	ŀ	0/C	0/C	C	ľč] " ·	CIO	
	(½"Ø)		11704	MAN GL TEST VLV	X		LC	c c	c	_]		
	,		117 0B	MAN OL TEST VIV	х		rc	C	C	-	1		
	· .			TEST CONN /W CAP	<u> </u>		C				 -	·	
. 40a	Hydrogen Monitoring	, '	8V-241hA	SOLENOID	X		c	C	o/c	c	N	MAN	
	Return Line	j	8V-2h1hB	SOLENOID	X		C	C	0/c	C		MAN	1
	(Degasifier Room)		729WGS	WVH GF AFA	X		C	C	C	- '	{		
	(⅓"Ø)			TEST CONN /W CAP	<u>X</u>		C						
40ъ	Hydrogen Monitor	[SV-2112A	SOLENOID	х		C	C	0/0	C] -]		
• ′	Supply Line	ł	SV-2412B	SOLENOID	x		C	C	O/C	C	}	*.	
j	(Degasifier Room)	l	728WG8	MAN GL VLV	Х		C	C	C	,	, 1		
	3"Ø	l	-	TEST CONN /W CAP	X_		C	لــنـــا	L				

CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NOP UNIT #1

PAGE _ 9 OF _13

PENE-	ISYSTEM NAME	IPENE	[VALVE	IVALVE	li oca	T100			71011	·	1	1	PAGE _ 9 OF _13_
	AND SERVICE LINE SIZE	CLASS NO.	IDENT. NUMBER	TYPE OR DESCRIPTION	OC	T10N IC	NOR- MAL	POST SIJUT DN	POST	PWR FAIL.	ESS- EN- TIAL	ACTUA- TION	REMARKS
h1	Degassifier Pump Discharge (3"\$)	C5	CV100h h07CRW 506CRW	AO GI, VLV CHECK VLV MAN GL TEST VLV TEST CONN /W CAP	X X X		NO LC C	C O	C C C	c - -	N	CIB	
42	Demineralized Water To Quench Tank (2"Ø)	C2	CV0155 V0155B 1126PC	AO GI. VLV CHECK VI.V MAN GI. TEST VLV TEST CONN /W CAP	X X X		NC C LC C	c c	C C	c -	N	CIS	
43	Spare												
եկ	Controlled Bleed Off From RCP'S (3/4"Ø)	C2	CV2083 2084 2083 2083A	AO GL VLV MAN GL VLV MAN GA TEST VLV MAN GA TEST VLV TEST CONN /W CAP	X X X X	,	NO NO LC LC	0 C C	C C C	C	N	CIS	
45	Charging Pump Discharge (2"0)	B1	2110 CV2111	CHECK VLV AC GL VLV (W/ HD OPERATOR)	X X		O NO	0	0 0	0	Y	MAN -	
46	Containment Vent Header (4"Ø)	C5	CV1101 CV1102 511WGS	AO GL VLV AO GL VLV MAN GL TEST VLV TEST CONN /W CAP	X X X		NO NO LC C	0 0 c	C C	C C	N	CIS	
47	Primary System Drain Tank Pump Suction	C2	CV1002 CV1007 502CRW	AO GL VLV AO GL VLV MAN GL TEST VLV TEST CONN /W CAP	X X X		C NO NO	0 0	c c	c c	N	CIS	
48	Containment Pressure Instrumentation (4-12"Ø Lines)	x	V-1801 V-1801A V-1801B V-1801C V-1803 V-1803A	MAN GA VLV MAN GA VLV MAN GA VLV MAN GA VLV MAN GA VLV	X X X X X		ro rc rc ro	00000	0 0 0 0 0 .				PS-1801 (SIS & CIS Initiation) PS-1801A (SIS & CIS Initiation) PS-1803 (SIS & CIS Initiation) PS-1803A (SIS & CIS Initiation)

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CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NOP UNIT 11

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	ACUCTEN MANG	I DENE	luga ue	luarur	LOCA	T1011		DOC I	- 1 ON		less	lecrus	1peus pue
			VALVE	TYPE OR	CCV	TION	NOR-	1209	POST	PWR		ACTUA-	REMARKS
			IDENT. NUMBER	DESCRIPTION	1 00	116	MVF.	SHUT		FAIL.	EN-	TION	Í
NO.	LINE SIZE	NO	MUNDER .	DESCRIPTION	 -	 	ILIVIT -	DIA	LUCA	LWIT.	TIME		}
1,8	Containment	х	V~1803B	MAN GA VIV	x	į	LC	C	c	l · _	}	ļ.	1
cont.	1	^	V-1803C	MAN GA VLV	x	1	LC	Č	ď]	1	i	1
	Instrumentation	ł	V-1805	MAN GA VLV	ĺχ		LO	lŏ	ŏ	_	l	ł	PT~1805
	(4-3"Ø Lines)	i	V-1805A	MAN GA VLV	X	}	LC	C	C		ì	ł	}
}	}	i	V~1805B	MAN GA VLV	X	į	ro	o	0	[-	1	Ì	PT-0105A .
		Į.	V-1805C	MAN GA VLV	X		rc	C	C	-	()	1	
			V-1815	MAN GA VLV	X	1	ro	0	0	_	1		PT-1815
		}	V-1815A	MAN GA VLV	Х	ł	ľC	C	·C	! -	}	J	1
·	1		V-1815B	MAN GA VLV	X	ł	LC	C	C	-	1	}	
		 	V-1815C	MAN GA VLV	<u> </u>	<u> </u>	LC	C	C.		<u> </u>	<u> </u>	<u> </u>
١.,			ava o a ll	10.01		ļ.	1	1	l _	1 _	l		1
49	Clean Waste	C2	CV1038	AO GL VLV	X	1	NO	0	C	C	N	AUTO BY	·
<u>}</u>	Receiver Tank		CV1036	VO OF AFA	X	J	NO	0	C	U	i	CIS	
1	Circulation Pump Suction (3"\$)	i	513CRW	MAN GL TEST VLV TEST CONN /W CAP		1	C	ן ני	C	[-	1	1	
ļ	buccion (3 b)	1 .	514CRW	MAN DRAIN VLV	Î	ł .	rc	c	c	_	1	1	į.
	 	 	7140111	I'M DIWIN YDY	 ^	 	- <u>\</u>	 	 	 	 		<u> </u>
50	Emergency Access) x	· ·	PRES EQUAL VLV	l	X	NC	ł	}	1	И	}	
1	Inside Ctmt	1) _	PRESS TUDE	1	X	CAP	1	1	ł	} "	ļ.	}
l	· ·	1	1	PRESS TUBE	1	X	CAP	ì	1	ł	ł		1
ĺ	Outside Ctmt	ł	} _	PRESS EQUAL VLV	X	1	NC	İ	l	l	1.	1	
ĺ	1	l	-	PRESS CAGE	X	1	C	İ	()	Ì	1.		
	ſ	l	-	PRESS TUBE	X	1		1	1	{	1	ł	<u>}</u> ·
] .	i	P6VA	MAN G TEST VLV	X	l	LC]	1	1	1	i .	
į		İ	-	TEST CONN /W CAP		ł	C	1	ļ	j	[İ	1
		 	<u> </u>	O-RING TEST CONN	X	l	C	ļ	ļ		<u> </u>	<u> </u>	
١,	Baulamank Base	_	1	O DING MOCH	1			l	ł	}	ļ	1	All make Detunes may design
51	Equipment Door	X] -	O-RING TEST CONNECT /W CAP	í	X	C	1	ł	·	1	1	k" Tube Between The Seals
	 	 	 	CONNECT /W CAP	 	 	{	 	 	 		 	Capped
52	Containment Sump	A1	CV1103	AO GI, VI,V	X	1	NC NC	C	C	c	H	818	.}
, ,,,	Drain to Sump Tank	"*	CV1104	VO CP APA	Î	}	NC NC	č	lč	Č	1 "	CHR	
1	Jackin oo bump kutik	1	500DRW	MAN GL TEST VLV	x		LC	C	l č	_	1		{
}	1	1	1	TEST CONN VLV	x	1	C]	}]	{	{	1

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CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NDP UNIT #1

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	SYSTEM NAME		IVALVE	VALVE	LOCA		i	POST	TION		ESS-	ACTUA-	REMARKS
TRATION	AND SERVICE	CLASS	IDENT.	TYPE OR	OC	1C	HOR-	SIIUT	POST	PWR	EN-	TION	
HO	t. INE - 5171.	NO.	NUMBER	DESCRIPTION	Ĺ	L	MAL	DN	LOCA	FAIL.	TIAL		
			l								1		
52a	Containment	[610DRW	WVN CV AFA	Х	i	I.O.	0	0	-	ł	Ì	
•	Sump Level		618FDRW	WWW GW AFA	Х	1	I.C	C	C		l .		1
	Instrumentation	(618HDRW	MVH GV AFA	Х	1	rc	C	C	-	1	ł	}
•	(3/8"ø)	1 .	618EDRW	MAN GA VIV	Х	1	rc	C	C	-		ł	<u> </u>
	[i	618gbrw	MAN GA VLV	Х	ł	LC .	C	C	-	1	ļ	
. •		ļ .	618ADRW	MAN GA VLV	X		ro	0	0	-	i i		LT-0382
	{		618bbnw	MVM GV AFA	X		rc	C	c	1 -	1	1	l
		1	618CDRW	MAN GA VLV	Х	1	ľC	C	C	-	1		
	1	ł	618DDRW	MVM CV AFA	Х	l	LC	C	C	j -	J	}	· ·
I	1		l -	3 TEST CONN/WCAP	Х		C	l		<u> </u>	<u> </u>	<u> </u>	
					}		1	1	1	1	1	J	
52b	Containment		619DRW	MAN GA VLV	Х	1	ľO	0	0	-	I	l .	1
-	Sump Level	ł	619FDRW	WVN GV AFA	Х	l .	LC	C	C	-	1	1	
	Instrumentation	ļ	619IIDRW	MAN GA VŁV	X	ļ	rc	C	C	ļ -	1	•	
	ł	1	619EDRW	MAN GA VLV	X	1	LC	C	C	-		1	· '
_		ł .	619GDRW	MAN GA VLV	X	1	rc	C	C	-	1	ĺ	
	ŀ	ļ	619ADRW	MAN GA VLV	Х		10	0	0	1 -	1		LT-0383
		ł	619BDRW	MAN GA VLV	х		LC	C	C	!	1	1	,
	1	ļ	619CDRW	MAN GA VLV	х	1	LC	C	C	-	1	·	·
	1		619DDRW	MAN GA VLV	X	{	rc	C	C	f -	1	i	•
]	l	-	3 TEST CONN/WCAP	<u> </u>		C	ļ	<u> </u>	.l	 	ļ	
		T .			1 .					ļ ·	i	(·	
:	1		CV 3029	AIR OP VLV	x	[NC	c	lo	AI	l x	BIRWT	Post Loca Open On Sirv LL
53	Containment Spray	χ			ı	ĺ	LC	c	c		1	LL	
'	Pump Suction	1	3182ES	MAN GL TEST VLV	X	1	C	Įٽ	١٣	_			
L		<u> </u>	ļ 	TEST CONN /W CAP	X	 	 	 	 	 	┨───	· · · ·	
	1	1	j '		۱		NC	c.	0	AI	ĺΥ	BIRWT	Post Loca Open On Sirw LL
54	Containment Spray	X	CA 3030	AIR OP VLV	X	l	LC NC	ď	ľč	1 2	1 *	LL	
	Pump Suction	1	3167ES	MAN TEST VLV	X		C	'	١ ٠	-	1	1 ~~	· · · ·
		<u> </u>	<u> </u>	TEST CONN /W CAP	X	 -	٠		 	 			
		'	1			1	0	0/c	C	l c	N	CIS	
55	SIG (E50B) Surface	C1	cv0738	AO VLV	Х	l	10	10/6	١٠	"	} "	Cio	
	Blowdown (2"Ø)	<u> </u>		W/ HAND OPERATOR				 		ļ	├ -	 	
		1				l	1.O	0	0	1 _	1	l	1.T-0383
56	Containment Sump	! .	606A-VAS	,	X	1		C	ď	-	1	1.	
	Level	1	619B-DRW		X	1	C	C	c] _	1.	1 '	}
•	Instrumentation	1.	606B-VAS		X	1	LC LC	C	C	-	l	l .	1
		1	606C-AV2	merum down /ii dan	X	l	C	١,٠	ן "	J -	j	J	1
		ļ	<u> </u>	TEST CONN /W CAP	 ^ -	 -	 	 	 	 	 		
	1	1	I	1]	I	١.	j	1	ļ	i	1	
57	Spare	<u> </u>	<u> </u>	<u> </u>	l	I	I	!	ــــــــــــــــــــــــــــــــــــــ				

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CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NDP UNIT #1

	THE TOTAL THE T												, P	AGE <u>12</u>	_ OF _13
PENE-	SYSTEM NAME	PENE	VALVE	VALVE	LOCA	TION	i	POST	TION	·——,—	IFSS-	ACTUA-	REMARKS		
NO.	AND SERVICE LINE SIZE	CLASS NO.	IDENT. NUMBER	TYPE OR DESCRIPTION	OC.	IC	NOR-	SHUT	POST	PWR FAIL.	EN-	TION	NETHINKS		
58	Spare														
59	Spare														
60	Spare							ļ	<u> </u>		ļ	 			
61	Spare	<u> </u>			<u> </u>		<u> </u>	<u> </u>	<u> </u>	ļ	<u> </u>				
- 62	Spare	<u> </u>					ļ	ļ							
63	Spare	<u> </u>				ļ	ļ		<u> </u>	} }					:
64	Reactor Cavity Fill & Recirc (6"Ø)	A2	121SFP 120SFP 514SFP	MAN GA VLV MAN GA VLV MAN GL TEST VLV TEST CONN /W CAP	X X X	х	C LC LC	c c c	C C C	-					
65	Instrument Air (2"Ø)	A2	CV1211 400CAS 612CAS - 611CAS	AC GL VLV CHECK VLV MAN GL TEST VLV TEST CONN /W CAP MAN GA VLV	X X X X		NO O LC C NO	0 0 0	0 0 0		Й	MAN	PS1220		
66	ILRT Instrument Line (1½"Ø)	x	601VAS 16VAS 603VAS - 602VA	MAN GA VLV MAN GA VLV MAN GL TEST VLV TEST CONN /W CAP MAN GL TEST VLV TEST CONN /W CAP	X X X X	х	C C C LC LC	c c c	C C C	-	Ħ				
67	Clean Waste Receiver Tank Pump Recirc (3"Ø)	C2	CV1037 1:10-CRW 515CRW	AO GL VLV CHECK VLV MAN GL TEST VLV TEST CONN /W CAP	X X X		C C O NO	0 0	C C C	C - -	N	CIB			

CONTAINMENT ISOLATION SYSTEM SEP REVIEW ITEMS PLANT: PALISADES NDP UNIT #1

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	THE ISABES HOL GITE												LVOE OF
PENE- TRATION NO.	SYSTEM NAME AND SERVICE LINE SIZE	PENE CLASS NO.	VALVE 1DENT. NUMBER	VALVE TYPE OR DESCRIPTION	LOCA OC	TION	HOR- MAL	POS 11 SHUT DN	POST	PWR FAIL.		ACTUA- TION	REMARKS
68	Air Supply To Air Room (12"Ø)	A1	CV1813 CV1814 505VAS	AO BUTF VLV AO BUTF VLV MAN GL TEST VLV TEST CONN /W CAP	X X X		LC LC LC .	0/c 0/c c	C C	C C -	И	CIS	Air Supply To CV-1813 & CV-1814 Is Also Tested Under LLRT
69	Clean Waste Receiver Tank Pump Suction (h"Ø)	C5	CV1045 CV1044 518CRW	AO GL VLV AO GL VLV MAN GL TEST VLV TEST CONN /W CAP	X X X	 	NO NO LC C	0 0	C C	c c -	N	CIB	
70	Spare					ļ	ļ			ļ			
71	Spare	<u> </u>	<u></u>			<u> </u>	<u> </u>	<u> </u>			ļ		
72	Reactor Refueling Cavity Drain (8"Ø)	A2	117SFP 118SFP 515SFP	MAN GA VALVE MAN GA VALVE MAN GL TEST VLV TEST CONN /W CAP	XXX	x	C LC LC	C C	C C	<u>-</u>	N		
73	Capped Spare	-	- 509YAS	PIPE FLANCE PIPE END /W CAP MAN GL TEST VLV TEST CONN /W CAP	X	x	BC C I.C	C C C	C C C	- - -	H		
												, ,	
	·		ł										

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TABLE 1 NOTES

- 1. Valve Type or Description AO means air-to-open and AC means air-to-close.
- 2. Normal Position NO Normally open

NC - Normally closed

BC - Bolted Closed (e.g. flange)

LO - Locked Open

LC - Locked Closed

ELO - Electrically Locked Open (key lock switch)

ELC - Electrically Locked Closed (key lock switch)

- 3. Shutdown Position Assumes normal shutdown with the plant on shutdown cooling.
- 4. Power Failure Position Position shown is for either loss of power or loss of air unless otherwise noted.
- Actuation Signal which automatically causes valve to reposition unless otherwise specified. Symbols are:

CIS - Containment Isolation Signal

SIS - Safety Injection Signal

CHP - Containment High Pressure Signal

CHR - Containment High Radiation Signal
MAN - Remotely actuated by Manual Operator action

<u></u>				TA	BLE	7			
CO	NTAINMENT ISC	DLATI	ON.	SYS	TEM	1			PLANT: PALISADES PLANT UNIT 1
	P REVIEW FINE	_			EXC	CEF	77/	2//3	
S.WETBATA.	SERVICE	400/CA8/2	10/0/18/19/19/19/19/19/19/19/19/19/19/19/19/19/	20/2	N. S. C. C.	(u / i	30/15	2018	REVIEWER'S COMMENTS
1	Pulge Air Supply (48"\$)	56	×						
2	MAINSTEAM LING (SGESOA) (36"\$)	57							
3	MAIN STEAM LINE (SGESOB) (36"4)	57							
4	PURGE AIR GYHAUST (48"4)	56	X						
40	PURGE AIR EXHAUST SAMPLE LINE (3"\$)	56	×					•	
5	S/G(ESOA) BOTTOM Blow DOWN (2"4)	56					-		; '
6	S/G(ESOB)BOTTOM BLOW DOWN (Z"&)	56			·				
7	FEEDWATER TO S/G (ESOA) (1814)	57		·	X				MFW ISOLATION VALVES SHOULD BE POWER OPE- PATED, AUTOMATIC ISOLATION VALVES TO SATISFY SDC-57 & AIDIMMSLE ACCIDENT MITIGATION.
8	FEEDWATER TO S/G(ESOB)	57		·	X	·		·	71
9	SPARE-			·		·			
10	SERVICE AIR (2"4)	56	×		X				DECISION ON ACCEPTABILITY OF SIMPLE CHECK VALVE OUTSIDE CONTAINMENT IS NEEDED.
	CONDENSATE TO SHIELD COCLING SURGE TANK	56	×		×				"
12	SERVICE WATER	56							

				TA	BLE	7	,		
CC	NTAINMENT ISC	CLATI	ON.	SYS	TEM	1		,	PLANT: PALISADES PLANT UNIT. 1
	P REVIEW FINE	DING			EXC		77/	2//	
PENETRAL AMERICAN	LINE	100 /00 V	3000	70 X	T TO THE PERMIT	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	(a)	10 J	REVIEWER'S COMMENTS
\$ \$	SERVICE	100	18	<u> </u>	15	10	1		/
13	SERVICE WATER RETURN (16"4)	56							PIPE CAPS ARE NOT ACCEPTABLE ISOCATION BARRIERS.
14	COMPONENT COOLING WATER IN (10"\$)	56	·		X				DECISION ON ACCEPTABILITY OF SIMPLE LHECK VALVE OUTSIDE CONTAINMENT IS NEEDED
15	COMPONENT COOLING WATER OUT (10"\$)	56							
16	SIG(ESOA) SURFACE Blow DOWN (21/4)	57						·	
17	Courte WILLIAM IT WESSIIDE		,	X					PIPE CAPS ARE NOT ACCEPTABLE ISOCATION BARRIER; GDC 56 MET ON SOME OTHER DEFINED BASIS.
179	CONTAWNENT SUMP LEVEL INSTRUMENTATION	56	·			·			NO INFORMATION ON ISOLATION VALVES ARRANGENIENT (SKETCH REQUIRED)
18 & 18 a	FUEL TRANSFER TUBE (36"4)	56			×				GDC 56 MET ON SOME OTHER DEFINED BASIS () EE SRPG.Z.4, ITEMIL, 3).
19	PERSONNEL LOCK OUTER DOOR INNER DOOR								PIPE CAPS ARE NOT ACCEPTABLE 150 LATION BARRIERS
20	SPARE								
L	100 ANG 412 4)	56	×					·	NO INFORMATION ON ISOCATION VALVES ARRANGENENT. (SKETCH KGRUIRED).
219	HYDROGEN MONITORING SUPPLY LINE (1/2"4)		×						<i>)</i>
22	REDUNDANT HIGH PRESS. SAFETY INJECTION (GB)	55					•		
23	HIGH PRESSURE SAFETY INJECTION	55							

TABLE___

CO	NTAINMENT ISC	DLATI	ON.	SYS	TEM	1		•	PLANT: PALISADES PLANT, UNIT 1
	P REVIEW FINI	DING			<u> </u>	CEF	77/5	2//	5 7 PAGE 3 OF 7
PENETRATE.	SERVICE	1887 O		30,3	7 27	(y / 1)	70,15	10 m	REVIEWER'S COMMENTS
24	SPARE				٠,				
25	CLGAN WASTERECEIVER TANK VENT TO STACK	56	X						TEST CONNECTION NEEDS TWO L.C. VALVES.
26	NITROGEN TO QUENCH TANK	56	×		X				DECISION ON ACCEPTABILITY OF SIMPLE CHECK VALVE OUTSIDE CONTAINMENT IS NEEDE
27	INT. LEAK RATE TEST FILL LINE (6"4)	56		·					VALVE MOV-PI IS A SEAL CLOSED ISOLATION BARRIER (SEE SRPG.Z.4, ITEM II, 3)
28	CONTAINMENT AIR SAMPLE LINE (/2"\$)	56	X						PIPE CAP IS NOT ACCEPTABLE ISOLATION BARRIER
29	CAPPED SPARE-	· -							BLIND FLANGE MUST BE LEAK TESTABLE; PIPE CAP ISNOT ACCEPTABLE ISOLATION VALVE.
30	CONTAINMENT SPRAY	56	×	·	X	·	X		ACTUATION PROVISIONS OF CV-3001 AND CV-300 Z MEET GDC 56 ON SOME OTHER
31	CONTAINMENT SPRAY	56	X		X		×		DEFINED BASIS (SEE SRPG.2.4, FTEM II, 3) DECISION ON ACCEPTABILITY OF SIMPLE CHECK VALVES OUTSIDE CTMT IS NEEDED.
32	LOW PRESSURE SAFETY INJECTION	55				·			
33	SAFETY INJECTION TANK DRAIN	56	X						
34	SPARE								
	SHUTDOWN COOLING RETURN (14"4)	55		·			•		
36	LETDOWN TO PURPLEATION ICN EXCHANGER (1/21/4)	55	X				X		CV-2012 & CVZ/ZZ SHOULD BE AUTOMATIC ISOLATION VALYES.

				TA	BLE.	2			
CO	NTAINMENT ISC	DLATI	ON	SYS	TEM	1		,	PLANT: PALISADES PLANT UNIT!
	P REVIEW FINE				$\mathcal{E}X$	EF	PTIG	2//	5 7 PAGE 4 OF 7
PENETRATE.	SERVICE	40PL/CAB/	10/19	30,3	77	4/20		10 No. 10	REVIEWER'S COMMENTS
120	PRIMARY SYSTEM DRAIN PUMP RECIRC. (1/2 p)	56	1 .		X	L			DECISION ON ACCEPTABILITY OF SIMPLE . CHECK VALVE OUTSIDE CONTAINMENT IS NEEDED.
$1 \prec x$	CONDENSATE RETURN FROM STM HEATING UNITS	56	×			,			
39	CONTAINMENT HEATING SYSTEM (4"4)	56	X		X				
40	PRI-COOLING SYSTEM SAMPLE LINE (1/2"4)	55	×			·			ISOLATION SIGNALS DO NOT PROVIDE APPROPRIATE DIVERSITY
40a	HYDROGEN MONITORING RETURN LINE (1/2"4)	56	X.					X	NON-ESSENTIAL LINE SHOULD BE AUTOMATICALLY ISOLATED.
406	HYDROGEN MONITOR SUPPLY LINE (1/2")	56	×					X	"
111	DEGASSIFIER PUMP DiscHARGE (3"4)	56	×		X				DECISION ON ACCEPTABILITY OF SIMPLE CHECK VALVE OUTSIDE CONTAINMENT 13 NEEDED
42	DEMINERALIZED WATER TO QUENCH TANK (214)	56	×		X		·), "
43	SPARE-								
44	CONTROLLED BLEED OFF FROM RCP'S (3/4"4)	56	×				×		CV-2084 SHOULD BE AN AUTOMATIC
45	CHARGING PUMP DiscHARGE (2"4)	55	×		X		X.	,	CV-ZIII ACTUATION PROVISIONS MEET GDC55 CN DOME OTHER DEFINED BASIS (SRPG, 2.4. ITENII.3). SIMPLE CHECK VALVE OUTSIDE CTAIT IS NOT APPLOPULATE.
46	CONTAINMENT VENT HEADER (4"4)	56	X						
47	PRIMARY SYSTEM DRAIN TANK PUNIP SULTION	56	X						

VI. Reference

- License DPR-20-Palisades Plant response to SEP Topic VI-4 -Containment Isolation System, 7/14/80.
- Independent review of containment penetrations, MPR-639, Vol. I
 & II, MPR Association, Inc, 11/15/79.
- License DPR-20-Palisades Plant IE Bulletin 79-06B response update, 8/16/79.
- 4. DPR-20-Palisades Plant requirements resulting from review of TMI-2 accident actions taken in response to NRC, 12/27/79.
- Consumers Power Co. Licensee event report 80-021, Rev. 1,
 Misaligned containment sump valve, 8/20/80.
- CE Post-TMI evaluation task 5 containment isolation, 12/13/79.
- 7. Palisades plant design drawing: M-201 (rev. 22), M-202(21), M-203(19), M-204(16), M-205(23), M-206(11), M-207(33), M-208(19), M-214(15), M-215(14), M-218(20), M-219(10), M-220(17), M-221(10), M-222(10), M-223(7), M-224(7), M-225(8), M-226(8), E-15(1), E-16(1), E-17(6).
- 8. Palisades plant #1, Final Safety Analysis Report, Vols. 1, 2 & 3.
- 9. Letter from R. A. Vincent (Consumers Power Company) to D. M. Crutchfield, dated August 10, 1981, Providing Comments on CSB Evaluation Report on SEP Topic VI-4 for the Palisades Nuclear Plant, Unit 1.
- 10. Letter from R. A. Vincent (Consumers Power Company) to
 D. M. Crutchfield, dated January 4, 1982, Providing Information
 on SEP Topic VI-4 for the Palisades Nuclear Plant, Unit 1.