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Director, Nuclear Regulatory Affairs and
Emergency Planning

August 6, 2012 10 CFR 50.55a

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Subject: **Docket Nos. 50-361 and 50-362**
ASME Code Update for the Fourth Ten-Year Interval,
Inservice Testing Program
San Onofre Nuclear Generating Station Units 2 and 3

Dear Sir or Madam:

This letter is to inform the Nuclear Regulatory Commission (NRC) of the update of the Southern California Edison (SCE) Inservice Testing (IST) Program for the fourth ten-year interval for San Onofre Nuclear Generating Station (SONGS) Units 2 and 3. The ASME OM Code to be used for the fourth ten-year interval IST program is the 2004 Edition through the 2006 Addenda. SCE plans to implement the update when the fourth ten-year interval for the IST program begins on August 18, 2013.

Enclosed with this letter are requests for relief (Enclosures 1 through 5). Relief Requests (IST-4-P-1, IST-4-P-2, IST-4-P-3, and IST-4-V-1) contained in Enclosures 1 through 4 are similar to relief requests submitted and approved for use at SONGS during the third ten-year IST interval. Enclosure 5 contains a new relief request (IST-4-V-2). SCE requests NRC approval by August 18, 2013 to support the fourth ten-year interval.

The Units 2 and 3 Technical Specifications do not require changes to implement the 2004 Edition through 2006 Addenda of the ASME OM Code. The Updated Final Safety Analysis Report for San Onofre Units 2 and 3 will be revised to reflect the fourth ten-year interval program.

There are no new regulatory commitments made in this letter or enclosures.

P.O. Box 128
San Clemente, CA 92672

Should you have any questions, please contact the Manager of Plant Licensing, Ms. Linda T. Conklin, at 949-368-9443.

Sincerely,

Linda Conklin
for Rick St. Onge

Enclosures

cc: E. E. Collins, NRC Regional Administrator, Region IV
R. Hall, NRR Project Manager, San Onofre Units 2 and 3
G. G. Warnick, NRC Senior Resident Inspector, San Onofre Units 2 and 3

Enclosure 1

San Onofre Nuclear Generating Station Unit 2 and 3
Request IST-4-P-1

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternative Provides Acceptable Level of Quality and Safety

Enclosure 1
San Onofre Nuclear Generating Station Unit 2 and 3
10CFR50.55a Request IST-4-P-1
Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Saltwater Cooling Pumps (SWC): 2(3)P112, P113, P114 and P307

Table 1

Pump	Parameter	Instrument	Instrument Range (Range/ Ref Value)	Reference Value[1]	Maximum Inaccuracy Permitted by Code[2]	As Installed Accuracy at Full Scale (error at full scale)
Saltwater Cooling System Pumps						
P112	Disch. Press.	PI-6230	0 - 160 (6.3)	25.6 psig	1.54 psig	0.5% (0.8 psig)
P113	Disch. Press.	PI-6231	0 - 160 (5.9)	27 psig	1.62 psig	0.5% (0.8 psig)
P114	Disch. Press.	PI-6233	0 - 160 (5.8)	27.41 psig	1.64 psig	0.5% (0.8 psig)
P307	Disch. Press.	PI-6232	0 - 160 (6.3)	25.3 psig	1.52 psig	0.5% (0.8 psig)

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Code for Operation and Maintenance of Nuclear Power Plants Edition through 2006 Addenda

3. Applicable Code Requirement

ISTB-3510(b)(1) - the full-scale range of each analog instrument shall not be greater than three times the reference value, as it applies to ISTB-5221.

[1] Reference values are based on historical data for like Unit 2 pumps. Unit 3 pumps are similar. Future values may be slightly different, but overall Code accuracy requirements would be met or exceeded under all conditions under which an IST would be performed.

[2] The information in this column represents the gauge error permitted by the code (3 times the reference value X code required accuracy of 2% for Group A and B testing and for flow only during Comprehensive Pump Testing).

Enclosure 1
San Onofre Nuclear Generating Station Unit 2 and 3
10CFR50.55a Request IST-4-P-1
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In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternative Provides Acceptable Level of Quality and Safety

4. Reason for Request

The instruments listed in Table 1 do not meet the ISTB-3510(b)(1) requirement (i.e., the full-scale range of each instrument shall not be greater than three times the reference value). However, the manufacturer's stated accuracy for each pressure instrument listed in Table 1 exceeds the Group A accuracy requirements.

5. Proposed Alternative and Basis for Use

Use installed pressure instrumentation as listed in Table 1 for Group A pump test for SWC Pumps (Group A). Temporary pressure gauges that meet the range and accuracy requirements of the Code shall be used for Comprehensive Pump Testing.

Relief is requested from the full scale range requirements of ISTB-3510(b)(1) for SWC pump discharge pressure when implementing Group A Test Procedure for Vertical Line Shaft Centrifugal Pumps - ISTB-5221. Even though the existing installed station instruments do not meet the code range requirement, their accuracy is better than the code requirements. Thus the combination of range and accuracy of the installed instrument yields a reading that is better than the reading achieved from instruments that meet the minimum Code requirement.

6. Duration of Proposed Alternative

This request is for the duration of the 4th 10-year program interval that shall commence on August 18, 2013 and terminate on August 17, 2023.

7. Precedents

This relief request has been previously approved.

Letter, Harold B. Ray (SCE) to Stephen Dembek (NRC), ASME Code Update for the Third Ten-Year Interval, Inservice Testing Program, June 18, 2003 and supplemented October 10, 2003 (Unit 2 TAC No. MB9699 and Unit 3 TAC No. MB9700).
(ADAMS Accession Number ML031750254)
(ADAMS Accession Number ML032890435)

Letter, Stephen Dembek (NRC) to Harold B. Ray dated April 21, 2004, Third 10-Year Interval for Inservice Testing of Pumps and Valves. (Unit 2 - TAC No. MB9699 and Unit 3 - TAC No. MB9700)
(ADAMS Accession Number ML041140166)

Enclosure 2

San Onofre Nuclear Generating Station Unit 2 and 3
Request IST-4-P-2

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternative Provides Acceptable Level of Quality and Safety

Enclosure 2
San Onofre Nuclear Generating Station Unit 2 and 3
10CFR50.55a Request IST-4-P-2
Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Emergency Chilled Water Pumps (ECW):	P160 and P162
Component Cooling Water (CCW) Seismic Make-up Pumps:	2(3)P1018 and P1019
Diesel Generator Fuel Oil (DGFO) Transfer Pumps:	2(3)P093, 94, 95 and 96
Containment Spray System (CSS) Pumps:	2(3)P012 and P013
Low Pressure Safety injection (LPSI) Pumps:	2(3)P015 and P016

TABLE 1

Pump	Parameter	Instrument	Reference Value[1]	Instr. Range (Range/Ref Value)	Error Permitted by Code[2]	As Installed Accuracy at Full Scale (error at full scale)
Emergency Chilled Water Pumps						
P160 P162	Suction Pressure	PI-9883B PI-9883A	30 psig	0-160 (5.3)	1.8 psig	0.5% (0.8 psig)
Component Cooling Water Seismic Make-up Pumps						
P1018 P1019	Suction Pressure	PI-6566 PI-6565	8.2 psig	0-30 (3.7)	0.49 psig	0.5% (0.15 psig)
Diesel Generator Fuel Oil Transfer Pumps						
P093 P094 P095 P096	Discharge Pressure	PI-5973 PI-5975 PI-5976 PI-5974	15.9 psig	0-60 (3.8)	0.95 psig	0.5% (0.3 psig)

[1]Reference values are based on historical data for like pumps P160, 2P1019, 2P093. Other pumps in groups are similar. Future values may be slightly different, but overall Code accuracy requirements would be met or exceeded under all conditions under which an IST would be performed.

[2]The information in this column represents the gauge error permitted by the Code (3 times reference value X Code required accuracy of 2%, for Group A or B Testing).

Enclosure 2
San Onofre Nuclear Generating Station Unit 2 and 3
10CFR50.55a Request IST-4-P-2
Proposed Alternative
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TABLE 2

Pump	Parameter	Inst.	Nominal Quarterly Reference[3]	Worst Case Refueling Reference[4]	Instr. Range (Range/Ref. Value)	Error Permitted by Code[5]	As Installed Accuracy at Full Scale (error at full scale)
Containment Spray System Pumps							
P012 P013	Suction Pressure	PI-9087 PI-9085	27.6 psig	13.7 psig	0-75 (5.5)	0.206 psig	0.25% (0.19 psig)
Low Pressure Safety Injection Pumps							
P015 P016	Suction Pressure	PI-9081 PI-9083	31.5 psig	17.6 psig	0-60 (3.4)	0.264 psig	0.25% (0.15 psig)
P015 P016	Disch Pressure	PI-9082 PI-9084	173 psig	159 psig	0-500 (3.1)	2.4 psig	0.25% (1.25 psig)

[3]Reference values are based on historical data for like Unit 2 pumps P012 and P015. Future values may be slightly different, but overall Code accuracy requirements would be met or exceeded under all conditions under which an IST would be performed.
[4]For the worst case refueling reference, the gauges read below the Code required range (i.e., less than 1/3 of full scale)
[5]The information in this column represents the gauge error permitted by the Code (3 times reference worst case refueling value X Code required accuracy of 0.5%, during Comprehensive Testing).

Enclosure 2
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Alternative Provides Acceptable Level of Quality and Safety

2. Applicable Code Edition and Addenda

ASME OM Code 2004 Code for Operation and Maintenance of Nuclear Power Plants Edition through 2006 Addenda.

3. Applicable Code Requirement

Subsections ISTB-3510(b)(1) - the full-scale range of each analog instrument shall not be greater than three times the reference value, as it applies to Subsections ISTB-5121, ISTB-5122, ISTB-5123, and ISTB-5221.

4. Reason for Request

The installed plant instrumentation for the pumps listed in Tables 1 and 2, does not meet the range requirements of ISTB-3510(b)(1).

Even though the existing installed station instruments do not meet the Code range requirements of ISTB-3510(b)(1), their overall accuracy exceeds the Code requirements. Thus, the combination of range and accuracy of the installed instrumentation yields a reading that is better than the reading achieved from instruments that meet the minimum Code requirements.

The reference values listed in Tables 1 and 2 are based on historical data, and although future values may be slightly different than the values listed, the overall Code accuracy requirements would be met or exceeded under all conditions under which an IST would be performed.

5. Proposed Alternative and Basis for Use

A) Alternate Testing: Use installed instrumentation as listed on Table 1 for Group A and B pump testing for:

1. Emergency Chilled Water Pumps (Group B)
2. Component Cooling Water Seismic Make-up Pumps (Group B)
3. Diesel Generator Fuel Oil Transfer Pumps (Group A)

NOTE: Temporary pressure gauges that meet the range and accuracy requirements of the Code shall be used for Comprehensive Pump Testing.

Relief is requested from the full scale range requirements of ISTB-3510(b)(1) for the ECW Pumps' suction pressure gauges, the CCW Seismic Make-up Pumps' suction pressure gauges, and the Diesel Generator Fuel Oil (DGFO) Transfer Pumps' discharge pressure gauges. The instruments listed in Table 1 do not meet the ISTB-3510(b)(1) requirement (i.e., the full-scale range of each instrument shall not be greater than three times the reference value). As seen in Table 1, the ratios of Instrument Range to Reference Value (Range/Ref. Value) vary from 3.7 to 5.3. However, the manufacturer's

stated accuracy for each pressure instrument listed in Table 1 exceeds the Group A and Group B accuracy requirements as stated in Table ISTB-3510-1. Thus, the combination of range and accuracy of the installed instrumentation yields a reading that is better than the reading achieved from instruments that meet the minimum Code requirements.

B) Alternate Testing: Use installed instrumentation as listed in Table 2 for Group A, B and Comprehensive pump testing for:

1. Containment Spray System Pumps (CSS) (Group B and Comprehensive)
2. Low Pressure Safety Injection (LPSI) Pumps (Group A and Comprehensive)

Relief is requested from the full scale range requirements of ISTB-3510(b)(1) under certain scenarios for CSS pump suction pressures and LPSI pump suction and discharge pressures. For quarterly Group A and B tests, which are performed on miniflow, these gauges meet the Code required limits. However, during refueling outages, the water from the Refueling Water Storage Tanks (RWSTs), which provides suction head to the pumps, is transferred to the refueling canal. This lowers the water level in the RWSTs and thus the reference suction pressure for the Inservice Tests (ISTs). In these circumstances of reduced suction pressure, the gauges may not always meet the ISTB-3510(b)(1) requirements (i.e., they read less than one-third of full scale, See Table 2).

The reference discharge pressure readings for the LPSI pumps are greater than one-third of the instrument range during the Group A miniflow tests conducted quarterly. Comprehensive Pump Tests are conducted biennially in accordance with Table ISTB-3400-1. During these Comprehensive Pump Tests, due to the lower RWST level and the change in system line-up, the reference discharge pressure could drop below one-third of full scale of the installed instrumentation. As a consequence, the limits of ISTB-3510(b)(1) may not be met during the Comprehensive Pump Tests.
The manufacturer's stated accuracy for each pressure instrument listed in Table 2 exceeds the required accuracy in Table ISTB-3510-1 (+/-2% for Group A and B Tests and +/-0.5% for Comprehensive Tests).

Even though the existing installed station instruments do not meet the Code range requirements of ISTB-3510(b)(1), their overall accuracy exceeds the Code requirements. Thus, the combination of range and accuracy of the installed instrumentation yields a reading that is better than the reading achieved from instruments that meet the minimum Code requirements. The reference values listed in the Tables are based on historical data, and although future values may be slightly different than the values listed, the overall Code accuracy requirements would be met or exceeded under all conditions under which an IST would be performed.

6. Duration of Proposed Alternative

This request is for the duration of the 4th 10-year program interval that shall commence on August 18, 2013 and terminate on August 17, 2023

7. Precedents

This relief request has been previously approved.

Letter, Harold B. Ray (SCE) to Stephen Dembek (NRC), ASME Code Update for the Third Ten-Year Interval, Inservice Testing Program, June 18, 2003 and supplemented October 10, 2003 (Unit 2 TAC No. MB9699 and Unit 3 TAC No. MB9700).
(ADAMS Accession Number ML031750254)
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Letter, Stephen Dembek (NRC) to Harold B. Ray dated April 21, 2004, Third 10-Year Interval for Inservice Testing of Pumps and Valves. (Unit 2 - TAC No. MB9699 and Unit 3 - TAC No. MB9700)
(ADAMS Accession Number ML041140166)

Enclosure 3

San Onofre Nuclear Generating Station Unit 2 and 3
Request IST-4-P-3

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternative Provides Acceptable Level of Quality and Safety

Enclosure 3
San Onofre Nuclear Generating Station Unit 2 and 3
10CFR50.55a Request IST-4-P-3
Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Unit 2 Auxiliary Feedwater Pumps: S21305MP140, S21305MP141, and S21305MP504

Unit 3 Auxiliary Feedwater Pumps: S31305MP140, S31305MP141, and S31305MP504

2. Applicable Code Edition and Addenda

ASME Code for Operation and Maintenance of Nuclear Power Plants, 2004 Edition through 2006 Addenda.

3. Applicable Code Requirements

Subsection ISTB-5121 (b) - The resistance of the system shall be varied until the flow rate equals the reference point. The differential pressure shall then be determined and compared to its reference value. Alternatively, the flow rate shall be varied until the differential pressure equals the reference point and the flow rate determined and compared to the reference flow rate value.

Subsection ISTB-5121 (c) - Where it is not practical to vary system resistance, flow rate and pressure shall be determined and compared to their respective reference values.

4. Reason for Request

Relief is requested from the requirement to measure pump flow during the performance of Group A testing of Auxiliary Feedwater (AFW) pumps. Group A testing of these pumps is performed using the minimum flow recirculation lines not equipped with instrumentation to provide the measurement of pump flow as required by the Code.

The pump minimum flow recirculation line must be used when these pumps are tested on a quarterly interval during power operation because this is the only flow path available that does not challenge the normal operation of the Unit. Minimum flow lines are not designed for pump testing purposes.

5. Proposed Alternative and Basis for Use

Group A quarterly testing of the AFW pumps will be performed using the minimum flow recirculation pipeline without measuring pump flow.

> NOTE: Pump flow rate will be measured during performance of biennial Comprehensive pump test when an instrumented flow path is available.

The AFW pumps each have an non-instrumented minimum-flow path with a calibrated eleven stage orifice that can be utilized for the respective Group A tests. These orifices were specifically designed and installed to fix flow at 100 gpm.

The minimum flow lines used for these pumps provide a fixed resistance flow path from the pump discharge to the Condensate Storage Tank (T-121) and then back to the suction

of each pump. During the performance of the quarterly Group A pump testing, pump differential pressure and vibration parameters are measured and trended at the fixed flow provided by the calibrated orifice. This provides a reference value for differential pressure that can be duplicated during subsequent tests in accordance with ISTB-3300(d).

6. Duration of Proposed Alternative

This request is for the duration of the 4th 10-year program interval that shall commence on August 18, 2013 and terminate on August 17, 2023.

7. Precedents

This relief request has been previously approved.

Letter, Harold B. Ray (SCE) to Stephen Dembek (NRC), ASME Code Update for the Third Ten-Year Interval, Inservice Testing Program, June 18, 2003 and supplemented October 10, 2003 (Unit 2 TAC No. MB9699 and Unit 3 TAC No. MB9700).
(ADAMS Accession Number ML031750254)
(ADAMS Accession Number ML032890435)

Letter, Stephen Dembek (NRC) to Harold B. Ray dated April 21, 2004, Third 10-Year Interval for Inservice Testing of Pumps and Valves. (Unit 2 - TAC No. MB9699 and Unit 3 - TAC No. MB9700)
(ADAMS Accession Number ML041140166)

Enclosure 4

Request IST-4-V-1

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(ii)
Hardship or Unusual Difficulty
without Compensating Increase in Level of Quality or Safety

Enclosure 4
San Onofre Nuclear Generating Station Unit 2 and 3
10CFR50.55a Request IST-4-V-1
Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(ii)
Hardship or Unusual Difficulty
without Compensating Increase in Level of Quality or Safety

1. ASME Code Component(s) Affected

Internal spring-loaded poppet valves (check valves) in the upstream (high pressure) segment of the Shutdown Cooling System (SDC) gate valves listed in Table 1 below[1,2].

Table 1 WKM Gate Valves

Valve ID	Size (inches)	Description	Poppet Valve Removed
2HV9337	16	SDC suction containment isolation valve	No
3HV9337	16	SDC suction containment isolation valve	No
2HV9339	16	SDC suction containment isolation valve	No
3HV9339	16	SDC suction containment isolation valve	No
2HV9377	8	SDC suction containment isolation valve	No
3HV9377	8	SDC suction containment isolation valve	Yes
2HV9378	8	SDC suction containment isolation valve	No
3HV9378	8	SDC suction containment isolation valve	Yes

2. Applicable Code Edition and Addenda

ASME Code for Operation and Maintenance of Nuclear Power Plants, 2004 Edition through 2006 Addenda.

3. Applicable Code Requirement

ISTC-3510 -- Exercising Test Frequency, and ISTC-3522 -- Category C Check Valves.

[1]This request is written in reference to the major equipment identification number because the spring-loaded poppet valves are internal sub-components of the main valve and do not have a specific identification number assigned.

[2]Plant configuration at time of Relief Request Submittal.

Enclosure 4
San Onofre Nuclear Generating Station Unit 2 and 3
10CFR50.55a Request IST-4-V-1
Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(ii)
Hardship or Unusual Difficulty
without Compensating Increase in Level of Quality or Safety

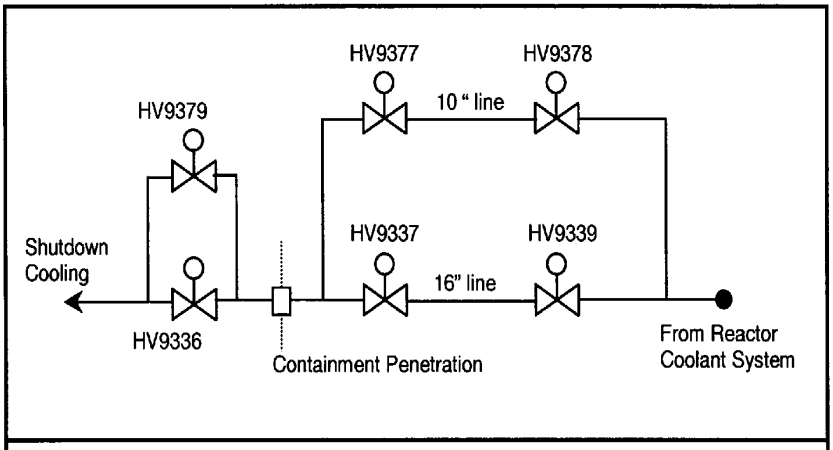


Figure 1 Simplified Valve Diagram

4. Reason for Request

To meet the bi-directional check valve test requirements, the internal spring-loaded poppet valves (check valves) in the upstream (high pressure) segment of the Shutdown Cooling System (SDC) gate valves listed in Table 1 incur a significant equipment unavailability and radiological exposure consequence. The only positive means of verifying the close functional capability described by the ASME OM Code is by disassembling them.

5. Proposed Alternative and Basis for Use

The proposed alternative will use a combination of diagnostic testing of the motor operated gate valves coupled with observation of the normal operation during the course of the plant shutdown evolutions associated with placing the shutdown cooling (SDC) system in service provide adequate indication of the Marotta poppet valve performance. Satisfactory operation of the MOV and continued diagnostic testing satisfy periodic verification that pressure-locking scenarios are not affecting the valves' material condition. In addition, any maintenance activity requiring disassembly of the valve will include permanent removal of the poppet assembly to mitigate reliance on the poppet to minimize pressure-locking concerns (Reference 3).

The basis for use of the proposed alternative includes a discussion of valve design and function. These motor operated gate valves are manufactured by WKM. They are gate

and segment style valves with Limitorque motor operators. These motor operated valves (MOVs) form the isolation boundary (Figure 1) for the Reactor Coolant System (RCS) to SDC piping. They are closed with a key switch lock during normal operation and are opened for shutdown cooling operation. The valves have both an RCS pressure isolation and containment isolation function. They are exempt from Appendix J requirements since a portion of the line inside containment remains pressurized when the RCS is pressurized.

Updated Final Safety Analysis Report Table 6.2-35 for penetration 9 exempts 2(3) HV9337 and 2(3) HV9377 from Type C testing. Seat leakage testing is required per Technical Specification 3.4.14 for all four valves. Position indication is Quality Class II, Class 1E qualified, and required to indicate valve position. Certain outside containment line break scenarios require closing these valves. Small break loss of coolant events may require opening them should the shutdown cooling system need to be used. The upstream (high pressure side) segment of each valve contains a vendor supplied spring-loaded poppet (check valve) designed to open at a differential pressure of 250±50 psid to relieve the internal pressure between the gate and segment to minimize the potential for pressure locking. The poppet valves have no rated capacity and do not have an adjustable set point. As such, they are classified as spring-loaded check valves. The motor operated valves are the first and second valves off of the reactor coolant system. There are no upstream isolation valves to facilitate pressure boundary work on the subject valves without de-fueling the reactor.

The subject gate valves were identified in SCE's submittal of February 13, 1996 (Reference 4) as valves with potential functional impact due to pressure locking. This relief request pertains to the WKM valves currently considered as susceptible to pressure locking identified in Table 1.

The potential for pressure locking in these valves occurs because of leakage between the segment and the seat in the upstream valves, HV9339 and HV9378, which pressurizes the bonnet to the reactor coolant system (RCS) pressure of about 2,235 psia. The RCS pressure is reduced to below 370 psia prior to starting the SDC system. If internal bonnet pressure is not relieved, the high-pressure water trapped in the bonnet cavity causes the segment and the gate to press tightly against the seats. HV9377 and HV9337 may be, over time, subjected to the RCS pressure on the segment side similar to the upstream valves. For the SDC valves outside containment, 2(3) HV9336 and 2(3) HV9379, evaluation indicates that they are not susceptible to pressure locking. Therefore, they are no longer considered within the scope of Generic Letter (GL) 95-07 and are not considered in this relief request.

In view of the pressure-locking scenario described above, a valve may fail to open if a relief path from the bonnet cavity does not exist. The function of the internal poppet valves is to provide the relief path to reduce the potential for high bonnet pressure. This function is explained in detail below.

The subject valves are equipped with a spring-loaded poppet installed in the segment, which together with the gate make up the valve disc (see Drawing No. SO23-507-5-1-139 Rev. 7). Marotta Scientific Controls, Inc. of Boonton, N.J, manufactures these poppet relief devices. The function of the poppet valve is to limit the pressure buildup in the bonnet and between the gate and the segment to a specified value. This is achieved by providing a path between the bonnet and the upstream side of the valve. Limiting the pressure differential between the bonnet and the upstream side minimizes the potential for pressure locking. The poppet valves do not protect the code class boundary. They are neither capacity rated, nor set point adjustable; therefore, they are considered check valves.

Drawing No. SO23-507-5-1-139 Rev. 7 shows a cross sectional view of the 8 inch WKM valve, ID No. 2(3) HV9378. This valve drawing is representative of the other Model D-2 OPG POW-R-SEAL WKM valves listed in Table 1. The drawing shows the valve internal components, including the valve's split disc. This disc consists of the segment and the gate. The drawing also shows the location of the spring-loaded poppet in the segment (Item 31).

The poppet valve is set to begin to open at a pressure of 250±50 psid (differential pressure) between the bonnet and the upstream side (the upstream side pressure plus 300 psi represents an upper bound on the bonnet differential pressure). The following is a brief description of the poppet valve and its main components:

- The valve is 3/4" long and about 0.362" in diameter. It is threaded to the segment at the location shown in Drawing No. SO23-507-5-1-139 Rev. 7. To eliminate assembly errors, the valve cannot be installed backwards.
- The valve internals include a stainless steel poppet, a retaining ring attached to the poppet, an inconel spring, and a stellite seat assembled as shown in Drawing No. SO23-507-5-1-366. The compression spring is 0.3" in diameter and is less than 0.5" long. It is securely enclosed between a recess in the seat and the retaining ring.

- The materials of the valve internals are highly corrosion resistant. Furthermore, the materials of the poppet and the seat (stainless steel on stellite) were selected such that binding will not occur under operating conditions. Binding could lead to the poppet being stuck in a closed position.

- The compression spring has a small height to diameter ratio. This feature ensures stability of the spring under a compressive load without the possibility of buckling.

- The valve has no guides and no stability components. It has only one moving part, the poppet assembly and the attached retaining ring.

The foregoing discussion emphasizes the valve's simplicity in design and construction. It also shows that the materials of construction were selected to provide resistance against corrosion and to eliminate the potential for binding between the poppet and the seat. The function of the valve is described briefly as follows:

- The spring is compressed during assembly between the seat and the retaining ring. The compression of the spring force is transmitted to the poppet via the retaining ring to seat it against the stellite seat to provide the desired sealing. The arrow indicating the flow direction in Drawing No. SO23-507-5-1-366 is on the bonnet side and the seat is on the upstream side.

- If the bonnet pressure is sufficient to overcome the force in the spring, lift-off will take place. Spring stiffness and the amount of pre-compression applied to the spring during assembly are calculated such that lift off occurs at the valve set point. The path created between the bonnet and the upstream side by this lift off allows some of the water trapped in the bonnet to escape to the upstream side, thus relieving the bonnet overpressure.

The poppet valve is manufactured to a very simple design, with only one moving part, the poppet, which is attached to the retaining ring (see Drawing No. SO23-507-5-1-366). The poppet can only move in the axial direction guided by the retaining ring at one end and the hole in the seat at the other end. The short length of the compression spring eliminates the potential for buckling. Also, the seat end of the spring is enclosed in a recess in the seat to prevent lateral motion. All these features ensure that the poppet is allowed to move only in the axial direction should high pressure exist in the bonnet, with practically no possibility of deviation from this simple motion. Accordingly, there is no possibility of the poppet being stuck in a cocked position. Even if the poppet became misaligned, tight seating would not be possible, which provides a relief path. The simplicity in the poppet valve design ensures a high level of reliability.

The internal spring-loaded poppet valves are component sub-assemblies of the segment of the valve. Periodic diagnostic testing of the motor operated valves coupled with the normal valve operation during the course of plant shutdown evolutions associated with placing the SDC system in service provide adequate indication of poppet valve performance. While diagnostic testing and operation of the motor operated valve does not provide direct trending information for the poppet valve performance, it does provide objective evidence that pressure locking is not occurring. Successive periodic MOV diagnostic tests clearly indicate no evidence of damage to the gate, segment, or seating surfaces as a result of pressure locking, even though the valve bonnets are exposed to RCS pressure.

The poppet valve is a mechanically simple and extremely reliable component. Review of the poppet valve performance history reveals no failures or degradation noted in the sixteen safety related and non-safety related valves that have been inspected. The most probable failure mode for the poppet valve is open, which satisfies the function of the valve. The poppet valve, which is installed in the upstream segment, has no close function, as the down-stream gate is the rated seating member of the valve.

There are two viable methods of quantitative testing for the Marotta poppet valves. The first method entails a major valve disassembly and removal of the poppet from the valve segment. Once removed, the poppet can then be tested and inspected. Disassembly of the valves in Table 1 can only be accomplished with the reactor defueled and the reactor coolant system (RCS) loops drained. Based on the earlier overhaul of 3HV9377 in January 2003 per MO's 01011021001, 01030323000, 02091841000 and 02040318000, which included the complete disassembly of the valve, the replacement of the poppet valve with a fixed orifice plug, reassembly of the valve, followed by MOV diagnostic testing took over 750 man-hours to complete.

Given that there are four (4) valves per unit, SCE would have to defuel the reactor each refueling outage, drain the RCS loops and expend over 3,000 man-hours per refueling

outage to disassemble the MOVs in order to test the poppet valves. The outage impact and the man-hours associated with testing the poppet valves at a refueling interval frequency represent a significant hardship without a compensating increase in level of quality or safety.

The second method does not confirm close capability. It involves removal of one body plug followed by the application of a pressure source to the valve body cavity. The attendant pressure profile generally characterizes poppet valve performance, although the results may be confused by seat leakage.

Both poppet test scenarios disable the shutdown cooling system and require breaching the reactor coolant system pressure boundary. Both scenarios require a de-fueled condition with the reactor coolant loops drained. The outage impact and the man-hours cost associated with testing the poppet valves at a refueling interval frequency represent a significant hardship without a compensating increase in level of quality or safety.

6. Duration of Proposed Alternative

This request is for the duration of the 4rd 10-year program interval that shall commence on August 18, 2013 and terminate on August 17, 2023

7. Precedents

This relief request has been previously approved via reference 2.

8. References

1. Letter, Harold B. Ray (SCE) to Stephen Dembek (NRC), ASME Code Update for the Third Ten-Year Interval, Inservice Testing Program, June 18, 2003 and supplemented October 10, 2003 (Unit 2 TAC No. MB9699 and Unit 3 TAC No. MB9700)
   (ADAMS Accession Number ML031750254)
   (ADAMS Accession Number ML032890435)

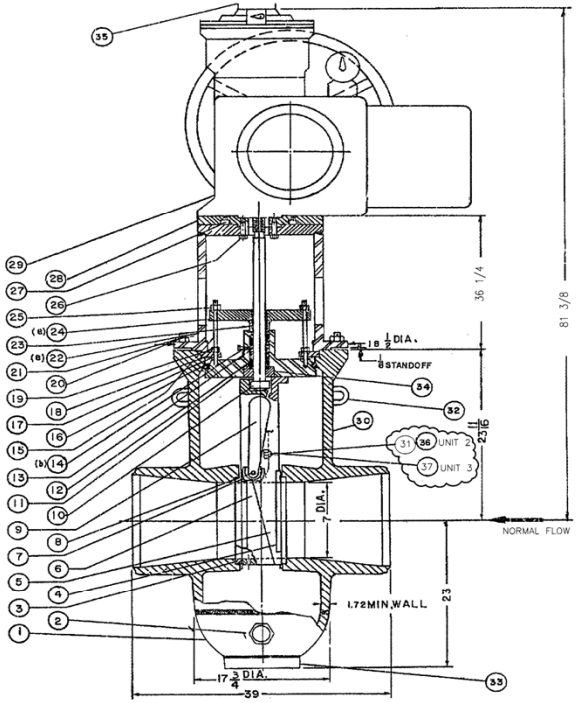
2. Letter, Stephen Dembek (NRC) to Harold B. Ray dated April 21, 2004, Third 10-Year Interval for Inservice Testing of Pumps and Valves. (Unit 2 - TAC No. MB9699 and Unit 3 - TAC No. MB9700)
   (ADAMS Accession Number ML041140166)

3. Letter from A. E. Scherer of SCE to U. S. Nuclear Regulatory Commission dated January 28, 2000; Docket Nos. 50-361 and 50-362 Request for Proposed Alternative Testing for Check Valves which are Internally Mounted in Motor Operated Valves, in Accordance with 10 CFR 50.55a(a)(3) San Onofre Nuclear Generating Station, Units 2 and 3 (TAC Nos. M93515 and M93516).
   (ADAMS Accession Number ML003679388)

4. Letter from Walter C. Marsh of SCE to U. S. Nuclear Regulatory Commission dated February 13, 1996; Subject: Docket Nos. 50-361 and 50-262. Response to Generic Letter 95-07, “Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves.”

5. Drawing No. SO23-507-5-1-366, "Pressure Relief Valve 250 ±50 psid."

6. Drawing No. SO23-507-5-1-139, "10 x 8 x 10 Class 1500, Model D-2 OPG POW-R-SEAL."



NOTES:
(a) RECOMMEND ONE SPARE SET.
(b) PACKING LEAK-OFF IS TO BE ON DOWN STREAM SIDE OF VALVE AS SHOWN.
(c) REFER TO DRAWING M-40658 FOR PACKING SET DETAILS.
(d) HARD SURFACE MATERIAL TO BE IN ACCORDANCE WITH AWS A5.13-70, CLASSIFICATION R-CoCr-A.
(e) VALVE OPERATOR WILL BE REMOVED & REINSTALLED ON VALVE IN THE FIELD IN ORDER TO PUT VALVE THROUGH AVAILABLE SLEEVE.
(f) YOKE & FOLLOW PLATE SHOWN 90° OUT OF PLANE.
(g) NON-PRESSURE RETAINING PART ESSENTIAL TO FUNCTION.
(h) ASME SEC. III PRESSURE RETAINING PART.
(i) FOR ACTUATOR ORIENTATION SEE NOTE (1), PG. 2 OF 3.
(j) NON-PRESSURE RETAINIG PART NON-ESSENTIAL TO FUNCTION.
(k) PAINT YOKE WITH VALSPAR 76-W-900.
(l) FIELD TO APPLY LOCTITE TO THREADS WHEN INSTALLING.

	NO.	DESCRIPTION	MATERIAL	QTY
(h)	1	BODY LOWER SECTION	ASME SA-182 GR. F316	1
(h)	2	BODY PLUG	ASME SA-479-GR 316	1
(g)(a)(d)	3	SEATS	ASTM 1-182-GR F 316L W/OL	2
(a)(g)	4	SEAT SKIRTS	ASTM A-693 GR. 630 W/CHROME PLATE	2
(h)(a)(d)	5	SEGMENT	ASME SA-487-GR CA6NM W/OL	1
(h)(a)(d)	6	GATE	ASME SA-487-GR CA6NM W/OL	1
(g)(d)(a)	7	LEVER LOCK ARM SHOE	ASTM A-693-GR 630 W/OL	2
(g)(a)	8	SHOE PIN	ASTM A-564-GR 630	2
(g)(a)	9	LEVER LOCK ARM ASSEMBLY	FABRICATED 17-4 PH	1
(g)	10	STEM	ASTM A-564-GR 630	1
(h)	11	BONNET FABRICATED	ASME SA-182 GR. F316 ASME SA-240 GR. 316	1
(j)(a)(c)	12	PACKING SET	CHESTERTON	1
(c)(j)	13	LANTERN RING	ASTM A-564 GR. 630	1
(c)(j)	14	1/2" NPT PACKING LEAK OFF PLUG	ASTM A-182 GR. F316	1
(c)(j)	15	FOLLOW PLATE STUD	ASME/ASTM (S) A-453 GR. 660, 7/8"-9NC	2
(j)(a)	16	SEAL RING	ASTM A-182 GR. F316	1
(j)	17	BONNET STUD	ASME/ASTM (S) A-453 GR. 660, 7/8"-9NC	6
(j)	18	LIFTING RING	ASME/ASTM (S) A-564 GR. 630	1
(j)	19	BONNET NUT	ASME/ASTM (S) A-453 GR. 660, 7/8"-9NC	8
(g)	20	YOKE NUT	ASTM A-194 GR. 2H 1-8N	12
(g)	21	YOKE STUD	ASTM A-193-GR B7 1-8N	12
(k)(g)(f)	22	YOKE	FABRICATED CARBON STEEL	1
(j)	23	PACKING GLAND	ASTM A-564 GR. 630	1
(j)(f)	24	FOLLOW PLATE	ASME/ASTM (S) A-564 GR. 630	1
(j)	25	FOLLOW PLATE NUT	ASME/ASTM (S) A-453 GR. 660, 7/8"-9NC	2
(g)	26	MOUNTING PLATE BOLT	ASTM A-193-GR B7 5/8-11NC	8
(g)	27	MOTOR MOUNTING BOLT	ASTM A-193-GR B7 5/8-11NC	8
(g)	28	MOTOR MOUNTING PLATE	ASTM A-283-GR D	1
(g)	29	MOTOR ACTUATOR	SB-1-15-900 MOTOR SHAFT TO PINION GEAR KEY SHALL BE TYPE 4140 STEEL	1
(h)	30	BODY	ASME SA351 GR CF8M	1
(j)	31	THERMO RELIEF VALVE	ASME AS-479 TYPE 316	1
(j)	32	LIFT EYES	ASME SA-240 TYPE 316	2
(j)	33	SUPPORT RING	ASME SA-240 TYPE 316	1
(j)	34	PACKING BUSHING	ASTM B-150 ALLOY NO. 630	1
(j)	35	STEM PROTECTOR	ASTM A-105 OR CAST IRON	1
(j)	36	ADAPTER	ASME SA-479 GR. 316	1
(l)	37	ORIFICE PLUG (REF. DWG. 41120)	ASME SA-479 GR. 316	1

REF: 2HV 9378
3HV 9378

ACF INDUSTRIES
W-K-M VALVE DIVISION

QC 1 UNIT 2 & 3
SAN ONOFRE NUCLEAR GENERATING STATION
10 x 8 x 10 CLASS 1500
MODEL D-2 OPG POW-R-SEAL

SOUTHERN CALIFORNIA EDISON
Scale: NONE DRAWN BY: JAH

SOUTHERN CALIFORNIA EDISON

DRAWING NUMBER	DESCRIPTION
RS249693	ACF INDUSTRIES

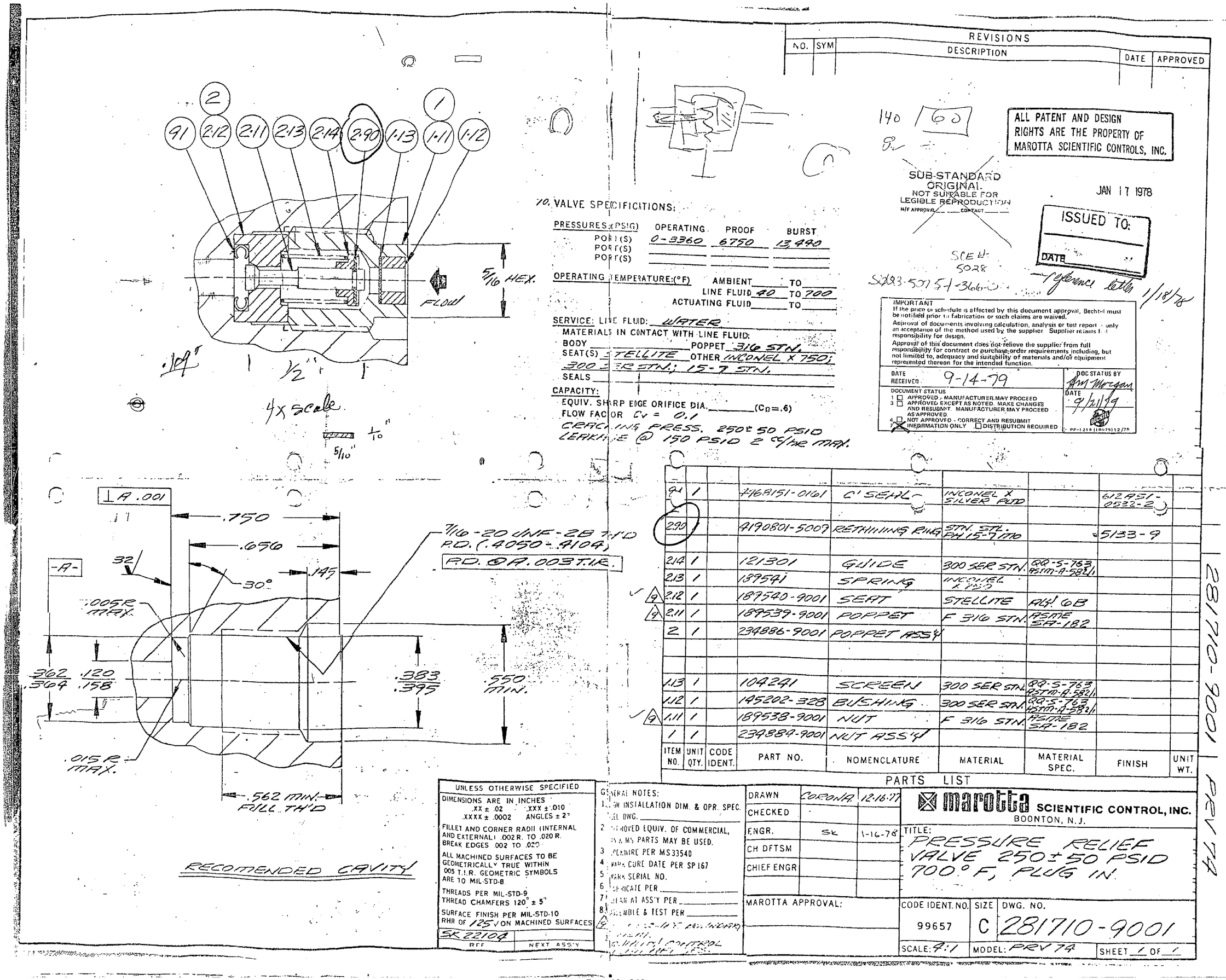
REFERENCES

NO.	DESCRIPTION	DATE	MADE	CHK'D	RE	IRE	FLS	OTHER
7	INCORP ECN # A14640	04/19/04	RBB	DJS				
6	REDRAWN IN AUTOCAD INCORPORATE DCN'S 3, 4, & 5	08/27/02	JAH	RMB				

REVISIONS

S023-507-5-1-139 REV 7

Site File Copy



10. VALVE SPECIFICATIONS:

PRESSURES: (PSIG)	OPERATING	PROOF	BURST
PORT(S)	0-3360	6750	13,490
PORT(S)			
PORT(S)			

OPERATING TEMPERATURE: (°F) AMBIENT ____ TO ____
LINE FLUID 40 TO 700
ACTUATING FLUID ____ TO ____

SERVICE: LINE FLUID: WATER
MATERIALS IN CONTACT WITH LINE FLUID:
BODY ____ POPPET 316 STN.
SEAT(S) STELLITE OTHER INCONEL X 750; 300 SER STN; 15-7 STN.
SEALS ____

CAPACITY:
EQUIV. SHARP EDGE ORIFICE DIA. ____ (C_D=.6)
FLOW FACTOR Cv = 0.1
CRACKING PRESS. 250 ± 50 PSID
LEAKAGE @ 150 PSID 2 cc/hr MAX.

REVISIONS				
NO.	SYM	DESCRIPTION	DATE	APPROVED

140 / 60

JAN 17 1978

ISSUED TO:
DATE

SCE W.O. 5028
SO23-501-54-366-0
Reference letter 1/18/78

IMPORTANT
If the price or schedule is affected by this document approval, Bechtel must be notified prior to fabrication or such claims are waived.
Approval of documents involving calculation, analysis or test reports only an acceptance of the method used by the supplier. Supplier retains full responsibility for design.
Approval of this document does not relieve the supplier from full responsibility for contract or purchase order requirements including, but not limited to, adequacy and suitability of materials and/or equipment represented thereon for the intended function.

DATE RECEIVED 9-14-79
DOC STATUS BY AM Morgan
DATE 9/21/79
DOCUMENT STATUS
1 ☐ APPROVED - MANUFACTURER MAY PROCEED
3 ☐ APPROVED EXCEPT AS NOTED. MAKE CHANGES AND RESUBMIT. MANUFACTURER MAY PROCEED AS APPROVED
4 ☐ NOT APPROVED - CORRECT AND RESUBMIT
7 ☒ INFORMATION ONLY ☐ DISTRIBUTION REQUIRED
PF-1218 (10/79) 12/75

ITEM NO.	UNIT QTY.	CODE IDENT.	PART NO.	NOMENCLATURE	MATERIAL	MATERIAL SPEC.	FINISH	UNIT WT.
91	1		2468151-0161	C' SEAL	INCONEL X SILVER PLTD		612951-0532-2	
290	1		4190801-5007	RETAINING RING	STN. STL. PH 15-7 MO		5133-9	
2.14	1		121301	GUIDE	300 SER STN.	QQ-S-763 ASTM-A-582/1		
2.13	1		189541	SPRING	INCONEL X 750			
9 2.12	1		189540-9001	SEAT	STELLITE	AL# 6B		
9 2.11	1		189539-9001	POPPET	F 316 STN.	ASME SA-182		
2	1		234886-9001	POPPET ASS'Y				
1.13	1		104241	SCREEN	300 SER STN.	QQ-S-763 ASTM-A-582/1		
1.12	1		145202-328	BUSHING	300 SER STN.	QQ-S-763 ASTM-A-582/1		
9 1.11	1		189538-9001	NUT	F 316 STN.	ASME SA-182		
1	1		234884-9001	NUT ASS'Y				

PARTS LIST

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
.XX ± .02 .XXX ± .010
.XXXX ± .0002 ANGLES ± 2°
FILLET AND CORNER RADII (INTERNAL AND EXTERNAL) .002 R. TO .020 R.
BREAK EDGES .002 TO .020
ALL MACHINED SURFACES TO BE GEOMETRICALLY TRUE WITHIN .005 T.I.R. GEOMETRIC SYMBOLS ARE TO MIL-STD-8
THREADS PER MIL-STD-9
THREAD CHAMFERS 120° ± 5°
SURFACE FINISH PER MIL-STD-10
RMR OF 125 √ON MACHINED SURFACES
SK 22104
RFF NEXT ASS'Y

GENERAL NOTES:
1. FOR INSTALLATION DIM. & OPR. SPEC. SEE DWG. ____
2. APPROVED EQUIV. OF COMMERCIAL, MS PARTS MAY BE USED.
3. LOCKWIRE PER MS33540
4. MARK CURE DATE PER SP 167
5. MARK SERIAL NO.
6. LUBRICATE PER ____
7. CLEAR AT ASS'Y PER ____
8. ASSEMBLE & TEST PER ____
9. [illegible] AS INDICATED
10. [illegible] MAROTTA CONTROLS [illegible]

DRAWN	CORONA	12-16-77
CHECKED		
ENGR.	SK	1-16-78
CH DFTSM		
CHIEF ENGR		
MAROTTA APPROVAL:		

marotta SCIENTIFIC CONTROL, INC.
BOONTON, N.J.

TITLE: PRESSURE RELIEF VALVE 250±50 PSID 700°F, PLUG IN.

CODE IDENT. NO.	SIZE	DWG. NO.
99657	C	281710-9001
SCALE: 4:1	MODEL: PRV 74	SHEET 1 OF 1

281710-9001 REV 74

Enclosure 5

Request IST-4-V-2

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternative Provides Acceptable Level of Quality and Safety

Enclosure 5
San Onofre Nuclear Generating Station Unit 2 and 3
10CFR50.55a Request IST-4-V-2
Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Motor-operated valve assemblies included in the SONGS Motor-Operated Valve Program.

2. Applicable Code Edition and Addenda

ASME Code for Operation and Maintenance of Nuclear Power Plants, 2004 Edition through 2006 Addenda.

3. Applicable Code Requirement

ISTA-3130, "Application of Code Cases", ISTA-3130(b) states, Code cases shall be applicable to the edition and addenda specified in the test plan.

ISTC-3100, "Preservice Testing", ISTC-3100(a) states, Any valve that has undergone maintenance that could affect its performance after the preservice test shall be tested in accordance with ISTC-3310.

ISTC-3310, "Effects of Valve Repair, Replacement or Maintenance on Reference Values", ISTC-3310 requires that a new reference value be determined or the previous reference value be reconfirmed by an inservice test after a MOV has been repaired, replaced or has undergone maintenance that could affect the valve's performance.

ISTC-3510, "Exercising Test Frequency", ISTC-3510 states, Active Category A, Category B … valves shall be exercised nominally every three months.

ISTC-3700, "Position Verification Testing" ISTC-3700 states in part, Valves with remote position indicators shall be observed locally at least once every two years to verify that valve operation is accurately indicated.

ISTC-5120, "Motor-Operated Valves", ISTC-5121(a) states, Active valves shall have their stroke times measured when exercised in accordance with ISTC-3500.

Enclosure 5
San Onofre Nuclear Generating Station Unit 2 and 3
10CFR50.55a Request IST-4-V-2
Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)
Alternative Provides Acceptable Level of Quality and Safety

4. Reason for Request

NUREG-1482, Revision 1, Section 4.2.5 states in part; "As an alternative to MOV stroke-time testing, ASME developed Code Case OMN-1, 'Alternative Rules for Preservice and Inservice Testing of Certain Electric Motor-Operated Valve Assemblies in LWR Power Plants,' which provides periodic exercising and diagnostic testing for use in assessing the operational readiness of MOVs." Section 4.2.5 further states that NRC staff recommends that the licensees implement ASME Code Case OMN-1 as accepted by the NRC (with certain conditions) in the regulations or RG 1.192, as alternatives to the stroke-time testing provisions in the ASME Code for MOVs. RG 1.192 allows licensees with an applicable Code of record to implement ASME Code Case OMN-1 (in accordance with the provisions in the regulatory guide) as an alternative to the Code provisions for MOV stroke-time testing, without submitting request for relief from their Code of record. Licensees with a Code of record that is not applicable to the acceptance of this Code Case may submit a request for relief to apply the Code Case consistent with the indicated conditions to provide an acceptable level of quality and safety. The Code of record for SONGS Fourth 10-Year IST Interval is OM Code 2004 Edition with Addenda through 2006 and the applicable Code for OMN-1, as stated in RG 1.192, was only reaffirmed through the OMa-1999 Addenda.

5. Proposed Alternative and Basis for Use

San Onofre Nuclear Generating Station (SONGS) proposes to test certain motor-operated valves that are included in the Motor-Operated Valve Program in accordance with the ASME Code for Operation and Maintenance of Nuclear Power Plants Code Case OMN-1, "Alternative Rules for Preservice and Inservice Testing of Active Electric Motor-Operated Valve Assemblies in Light-Water Reactor Power Plants".

OM Code Case OMN-1 is conditionally approved by NRC as delineated in Regulatory Guide 1.192, Revision 0, Table 2, "Conditionally Acceptable OM Code Cases". In order to apply Code Case OMN-1, all the provisions of RG1.192 Table 2 must also be applied. Thus, SONGS intends to apply the three provisions of RG1.192 as part of the OMN-1 MOV Program.

1) The adequacy of the diagnostic test interval for each motor-operated valve (MOV) must be evaluated and adjusted as necessary, but not later than 5 years or three refueling outages (whichever is longer) from initial implementation of OMN-1.
2) When extending exercise test intervals for high risk MOVs beyond a quarterly frequency, licensees must ensure that the potential increase in Core Damage Frequency (CDF) and risk associated with the extension is small and consistent with the intent of the Commission's Safety Goal Policy Statement.

3) When applying risk insights as part of the implementation of OMN-1, licensees must categorize MOVs according to their safety significance using the methodology described in Code Case OMN-3, "Requirements for Safety Significance Categorization of Components Using Risk Insights for Inservice Testing of LWR Power Plants," with the conditions discussed in this regulatory guide or use other MOV risk ranking methodologies accepted by the NRC on a plant specific or industry-wide basis with the conditions in the applicable safety evaluations

Code Case OMN-1 has been determined by the NRC to provide an acceptable level of quality and safety when implemented in conjunction with the conditions imposed in RG 1.192. SONGS also intends to implement the provisions specified in ISTC-3700 in conjunction with the MOV diagnostic test frequency (specified in the IST Program Valve Tables) in lieu of the ISTC-3700 frequency of once every 2 years.

Using the provisions of this relief request as an alternative to the MOV stroke-time testing requirements of ISTC-5120, the position verification frequency of ISTC-3700, and applying Code Case OMN-1 per ISTA-3130(b), provides an acceptable level of quality for the determination of valve operational readiness. Code Case OMN-1 should be considered acceptable for use with ASME OM Code-2004 through Addenda 2006 as the Code of record.

6. Duration of Proposed Alternative

This request is for the duration of the 4th 10-year program interval that shall commence on August 18, 2013 and terminate on August 17, 2023

7. Precedents

Letter, Harold K. Chernoff (NRC) to Thomas Joyce (PSEG Nuclear), Safety Evaluation of Relief Requests for the Fourth 10-Year Interval of the Inservice Testing Program for Salem Nuclear Generating Station, Unit 1 & 2 (TAC ME0322, ME0323, ME0324, ME0325, ME0326, ME0327, ME0328, ME0329, ME0330, ME0331, ME0332, ME0333) **(ADAMS Accession Number ML092030464)**

8. References

1. ASME OM Code Case OMN-1, Alternative Rules for Preservice and Inservice Testing of Certain Electric Motor-Operated Valve Assemblies in Light-Water Reactor Power Plants

2. Regulatory Guide 1.192, Revision 0, Operation and Maintenance Code Case Acceptability, ASME OM Code.

3. NUREG 1482, Revision 1, Guidelines for Inservice Testing at Nuclear Power Plants

4. ASME Code for Operation and Maintenance of Nuclear Power Plants, 2004 Edition with 2006 Addenda.