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PG&E Letter DCL-15-086

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

10 CFR 50.55a

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Power Plant Units 1 and 2
ASME Section XI Inservice Inspection Program Request for Relief PRS-3

Dear Commissioners and Staff:

Pursuant to 10 CFR 50.55a(z)(2), Pacific Gas and Electric Company (PG&E) hereby requests NRC approval of Inservice Inspection (ISI) Request for Relief PRS-3, for the Diablo Canyon Power Plant (DCPP) Units 1 and 2 third ISI interval.

The request is based on the hardship of applying the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI requirements for visual examination, VT-2 for Class 1 piping between first and second vent, drain, and test isolation devices at DCPP. The details of the request are included in the enclosure.

PG&E requests approval of PRS-3 by May 30, 2016.

This communication does not contain regulatory commitments (as defined by NEI 99-04).

If you have any questions or require additional information, please contact Mr. Hossein Hamzehee at (805) 545-4720.

Sincerely,

Barry S. Allen

rntt/4231/50033145
Enclosure
cc: Diablo Distribution
cc/enc: Marc L. Dapas, NRC Region IV Administrator
John P. Reynoso, NRC Acting Senior Resident Inspector
Siva P. Lingam, NRR Project Manager
Gonzalo L. Perez, Branch Chief, California Department of Public Health
State of California, Pressure Vessel Unit

10 CFR 50.55a Relief Request PRS-3
Class 1 piping vent, drain, and test isolation devices

Proposed Alternative
in Accordance with 10 CFR 50.55a(z)(2)
--Hardship or Unusual Difficulty Without a Compensating Increase in the Level of Quality and Safety--

1. ASME Code Components Affected

ASME Section XI Class 1 piping system vent, drain, and test connection segments between first-off and second-off isolation valves are affected. See Tables 1 and 2 for lists and descriptions of segments for each unit.

Code Cat./ Item No.	Description	Part Examined
B-P / B15.10	All pressure retaining components	Pressure retaining components

2. Applicable Code Edition and Addenda

The Diablo Canyon Power Plant (DCPP) third Inservice Inspection Interval Program Plan (ISIPP) is based on the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, 2001 Edition with Addenda through 2003.

The DCPP Unit 1 third inspection interval commenced on January 1, 2006, and nominally ended on May 6, 2015. The DCPP Unit 2 third inspection interval commenced on July 1, 2006, and is nominally scheduled to end on March 12, 2016. Actual end dates of the intervals are dependent on the completion dates of the 19th refueling outages for each unit, in accordance with ASME Section XI, paragraph IWA 2430(d)(1).

3. Applicable Code Requirement

ASME Section XI requires that a system leakage test of the Class 1 pressure retaining components be completed prior to plant startup following a reactor refueling outage in accordance with the requirements of IWB-5220. Paragraph IWB 5222(a) requires the pressure retaining boundary during the system leakage test shall correspond to the reactor coolant boundary, with all valves in the position required for normal reactor operation startup. The visual examination shall extend to and include the second closed valve at the boundary extremity.

Paragraph IWB-5222(b) requires the pressure retaining boundary during the system leakage test conducted at or near the end of each inspection interval extend to all Class 1 pressure retaining components within the system boundary.

As an alternative to IWB-5222(b), ASME Code Case N-798 "Alternative Pressure Testing Requirements for Class 1 Piping Between the First and Second Vent, Drain, and Test Isolation Devices" states that: for portions of Class 1 vent, drain, and test piping between the first and second isolation devices that normally remain closed during plant operation, only the boundaries of IWB-5222(a) shall apply.

4. Reason for Request

The DCPP line segments between the manual isolation valves (or between the manual isolation valve and blind flange) serve as open- or closed-end vent, fill, drain, or test lines. All of the segments are short, the closed end drains less than 18 inches and the open end segments less than 12 inches on average; and small diameter, being ¾ inch NPS, 1 inch NPS, or 2 inch NPS as listed in Tables 1 and 2. The vent, drain and test connection valves in normal alignment are closed and none of the isolation valves are capable of automatic actuation. The line segments are not normally pressurized. Line pressure may exist due to first-off valve leak by and thermal effects.

Paragraph IWB-5222(b) requires the pressure retaining boundary during the system leakage test conducted at or near the end of each inspection interval shall extend to all Class 1 pressure retaining components within the system boundary. Relief is requested for the following reasons:

a) Using system pressure to test these line segments would require opening the first-off manual valve in Mode 3 (Hot Standby) to pressurize between the two valves or valve and blind flange. However, pressure testing in this manner would result in violation of the Class 1 system requirement for double isolation valve protection.

b) For the closed end line segments, costly system modifications would be required to cut into the system and weld in test connections with open ended isolation valves at each location, and concurrent unnecessary radiation exposure to personnel, in order to permit pressurization with a hydro pump during Mode 6 (Refueling). Testing these closed end drain segments without modification would require defueling the reactor, reclosing and repressurizing the primary system with the first-off valves open, thus extending the outage critical path by approximately ten days. Both of these options constitute extreme hardships with no compensating increase in safety.

c) For the open ended line segments, testing in Mode 6 without modification is possible because the lines are provided with test connections and

inboard isolation. However, pressurizing each line segment to the nominal reactor coolant system operating pressure would require use of a hydro pump at each of the locations. This would result in radiation exposure to plant personnel and increase the risk of contaminated liquid spill. All of these locations are in radiation areas. Staging the hydro pump, providing access, removing the pipe cap, opening the second off valve, filling and pressurizing the line segment, inspecting, depressurizing and restoring the system, securing the equipment, and disposing of effluent would result in radiation exposure at each location dependent upon dose rates. The dose rates at these locations may change depending on changing conditions and on-going evolutions in nearby areas. This radiation exposure would also constitute a hardship with no compensating increase in safety.

5. Proposed Alternative and Basis for Use

Code required VT-2 examinations of the Class 1 system are performed each refueling outage during the system leakage test. Each line segment listed in Table 1 and Table 2 will be visually inspected during the system leakage test; however, the line segments will not be pressurized to full system pressure. Pressure may exist due to upstream valve leak by and thermal effects.

Code Case N-798, "Alternative Pressure Testing Requirements for Class 1 Piping Between the First and Second Vent, Drain, and Test Isolation Devices" was approved by the ASME Committee on December 20, 2010. This Code Case allows the use of IWB-5222(a) for defining the pressure test boundary as an acceptable alternative to the extended pressure test boundaries of IWB-5222(b).

6. Duration of Proposed Alternative

Relief is requested for the remainder of the DCPP Unit 1 and Unit 2 third inservice inspection (ISI) intervals. The DCPP Unit 1 third inspection interval nominally ended on May 6, 2015. The DCPP Unit 2 third inspection interval is nominally scheduled to end on March 12, 2016. Actual end dates of the interval are dependent on the completion dates of the 19th refueling outages for each unit, in accord with ASME Section XI, paragraph IWA-2430(d)(1).

7. Precedents

This request is essentially identical to pressure test relief PRS-3, R1 approved in an NRC letter dated October 26, 2005 for the second ISI interval. The relief request PRS-3, R1 approval also referenced PRS-3 approved in an NRC letter dated October 15, 1998. Certain vent or drain lines have subsequently been removed and capped, therefore those piping segments are not included in this request. This request adds line 6178 Reactor Pressure Vessel (RPV) Head Vent/ Reactor Vessel Refueling Level Indication System (RVRLIS), due to replacement of the reactor heads; Line 1140 to vacuum degas system; Line 2573 and Line 7178 Charging Injection and Safety Injection (SI) Pump Test; and Lines

1999, 2000, 2001, and 2002 Safety Injection System (SIS) Accumulator Test due to piping modifications. The pressurizer loop seal vent has a difference in boundary, with the previously approved inboard isolation valves now in the open position, the two boundary valves are now 8093 and 8052. The Class 2 portion of the previous interval request is no longer applicable.

This request is also similar to the following two relief requests that were approved by NRC recently:

- NRC Letter to St. Lucie Plant, Dated November 25, 2013: Relief From the Requirements of the American Society of Mechanical Engineers Code Regarding Extension of Pressure Retaining Boundary During System Leakage Test (TAC No. MF0711).

- NRC Letter to Sequoyah Nuclear Plant, Dated May 20, 2014: Sequoyah Nuclear Plant, Unit 1 and 2 – Relief Request 11-SPT-1 for Alternative System Leakage Test (TAC Nos. MF2327 and MF2328).

8. References

1. ASME Code Case N-798 "Alternative Pressure Testing Requirements for Class 1 Piping Between the First and Second Vent, Drain, and Test Isolation Devices" Section XI, Division 1

Table 1: Unit 1 - Applicable Piping Segments

Size	Description	Location	Type
¾ in.	Line 2527 RCP Loop 1 Seal Inj Drain RCDT	Between valves 8364A & 283	Drain
¾ in.	Line 2534 RCP Loop 2 Seal Inj Drain RCDT	Between valves 8364B & 294	Drain
¾ in.	Line 2536 RCP Loop 3 Seal Inj Drain RCDT	Between valves 8364C & 303	Drain
¾ in.	Line 2541 RCP Loop 4 Seal Inj Drain RCDT	Between valves 8364D & 308	Drain
2 in.	Line 958 RCP Loop 1 Crossover Drain RCDT	Between valves 8057A & 8058A	Drain
2 in.	Line 959 RCP Loop 2 Crossover Drain RCDT	Between valves 8057B & 8058B	Drain
2 in.	Line-960 RCP Loop 3 Crossover Drain RCDT	Between valves 8057C & 8058C	Drain
2 in.	Line 961 RCP Loop 4 Crossover Drain (to ¾")	Between 8057D, 8066, & 8058D	Drain
¾ in.	Pzr Spray (Line 13) Vent to RCDT	Between valves 513 & 514	Drain
¾ in.	Line 14 Loop 2 spray vent	Between valves 517 & 518	Vent
¾ in.	Line 14 Loop 2 spray drain to RCDT	Between valves 515 & 516	Drain
¾ in.	Line 14 Loop 2 spray drain to RCDT	Between valves 519 & 520	Drain
¾ in.	Line 13 Loop 1 spray vent	Between valves 521 & 522	Vent
¾ in.	Line 13 Loop 1 spray drain to RCDT	Between valves 523 & 524	Drain
¾ in.	Line 1195 Pressurizer PORV vent	Between valve 8056 & blind flange	Vent
¾ in.	Line 1469 Pressurizer loop seal vent	Between valves 8093 & 8052	Vent
¾ in.	Line 3748 RCP 1 seal bypass vent	Between valve 8362A & blind flange	Vent
¾ in.	Line 3749 RCP 2 seal bypass vent	Between valve 8362B & blind flange	Vent
¾ in.	Line 3750 RCP 3 seal bypass vent	Between valve 8362C & blind flange	Vent
¾ in.	Line 3751 RCP 4 seal bypass vent	Between valve 8362D & blind flange	Vent
¾ in.	Line 235 Safety Inj loop 1 hot leg vent	Between valves 50 & 51	Vent
¾ in.	Line 237 Safety Inj loop 3 hot leg vent	Between valves 58 & 59	Vent
¾ in.	Line 109 Hot Leg recirc vent	Between valves 6 & 935	Vent
¾ in.	Line 109 Loop 4 valve 8702 thermal expansion drain	Between valves 3, 4 & 7	Drain
2 in.	Line 1140 to vacuum degas system	Between valves 665 & 666	Test
1 in.	Line 6178 RPV Head Vent/ RVRLIS	Between valves 8070 & 744	Vent
1 in.	RPV Head Vent	Between valves 8078C & 8078D	Vent
1 in.	RPV Head Vent	Between valves 8078A & 8078B	Vent
1 in.	Line 7011 Vacuum Refill system connection	Between valves 731 & 732	Test
1 in.	* Line 2573 Inj & SI Pump 1-1 Test	Between valves 309 & 310	Test
¾ in.	* Line 7178 Inj & SI Pump 1-1 Test	Between valves 311 & 312	Test
¾ in.	* Line 1999 SIS Accumulator 1 Test	Between valves 301A & 303A	Test
¾ in.	* Line 2000 SIS Accumulator 2 Test	Between valves 301B & 303B	Test
¾ in.	* Line 2001 SIS Accumulator 3 Test	Between valves 301C & 303C	Test
¾ in.	* Line 2002 SIS Accumulator 4 Test	Between valves 301D & 303D	Test

*Note: These six piping segments are located between second-off and third-off isolation valves. These segments are also designated as Class 1 by DCPP design, and will be considered the same as first and second off segments as described in the code case.

Table 2: Unit 2 - Applicable Piping Segments

Size	Location	Description	Type
¾ in.	Line 2527 RCP Loop 1 Seal Inj Drain RCDT	Between valves 8364A & 283	Drain
¾ in.	Line 2534 RCP Loop 2 Seal Inj Drain RCDT	Between valves 8364B & 294	Drain
¾ in.	Line 2536 RCP Loop 3 Seal Inj Drain RCDT	Between valves 8364C & 303	Drain
¾ in.	Line 2541 RCP Loop 4 Seal Inj Drain RCDT	Between valves 8364D & 308	Drain
2 in.	Line 958 RCP Loop 1 Crossover Drain RCDT	Between valves 8057A & 8058A	Drain
2 in.	Line 959 RCP Loop 2 Crossover Drain RCDT	Between valves 8057B & 8058B	Drain
2 in.	Line-960 RCP Loop 3 Crossover Drain RCDT	Between valves 8057C & 8058C	Drain
2 in.	Line 961 RCP Loop 4 Crossover Drain (to ¾")	Between 8057D, 8066, & 8058D	Drain
¾ in.	Pzr Spray (Line 13) Vent to RCDT	Between valves 513 & 514	Drain
¾ in.	Line 14 Loop 2 spray vent	Between valves 517 & 518	Vent
¾ in.	Line 14 Loop 2 spray drain to RCDT	Between valves 515 & 516	Drain
¾ in.	Line 14 Loop 2 spray drain to RCDT	Between valves 519 & 520	Drain
¾ in.	Line 13 Loop 1 spray vent	Between valves 521 & 522	Vent
¾ in.	Line 13 Loop 1 spray drain	Between valves 523 & 524	Drain
¾ in.	Line 1195 Pressurizer PORV vent	Between valve 8056 & blind flange	Vent
¾ in.	Line 1469 Pressurizer loop seal vent	Between valves 8093 & 8052	Vent
¾ in.	Line 3748 RCP 1 seal bypass vent	Between valve 8362A & blnd flang	Vent
¾ in.	Line 3749 RCP 2 seal bypass vent	Between valve 8362B & blnd flang	Vent
¾ in.	Line 3750 RCP 3 seal bypass vent	Between valve 8362C & blnd flang	Vent
¾ in.	Line 3751 RCP 4 seal bypass vent	Between valve 8362D & blnd flang	Vent
¾ in.	Line 235 Safety Inj loop 1 hot leg vent	Between valves 50 & 51	Vent
¾ in.	Line 236 Safety Inj loop 2 hot leg vent	Between valves 54 & 55	Vent
¾ in.	Line 238 Safety Inj loop 4 hot leg vent	Between valves 62 & 63	Vent
¾ in.	Line 109 Hot Leg Recirc Drain	between valves 579 & 570	Drain
¾ in.	Line 109 Hot Leg recirc vent	Between valves 936 & 935	Vent
¾ in.	Line 109 Loop 4 valve 8702 thermal expansion drain	Between valves 4, 5 & 6	Drain
2 in.	Line 1140 to vacuum degas system	Between valves 684 & 685	Test
1 in.	Line 6178 RPV Head Vent/ RVRLIS	Between valves 8070 & 744	Vent
1 in.	RPV Head Vent	Between valves 8078C & 8078D	Vent
1 in.	RPV Head Vent	Between valves 8078A & 8078B	Vent
1 in.	Line 7011 Vacuum Refill system conn	Between valves 687 & 688	Test
1 in.	* Line 2573 Inj & SI Pump 1-1 Test	Between valves 309 & 310	Test
¾ in.	* Line 7178 Inj & SI Pump 1-1 Test	Between valves 311 & 312	Test
¾ in.	* Line 1999 SIS Accumulator 1 Test	Between valves 301A & 303A	Test
¾ in.	* Line 2000 SIS Accumulator 2 Test	Between valves 301B & 303B	Test
¾ in.	* Line 2001 SIS Accumulator 3 Test	Between valves 301C & 303C	Test
¾ in.	* Line 2002 SIS Accumulator 4 Test	Between valves 301D & 303D	Test

*Note: These six piping segments are located between second-off and third-off isolation valves. These piping segments are also designated as Class 1 by DCPP design, and will be considered the same as first and second off segments as described in the code case.

The following acronyms are used in Table 1 and Table 2:

Inj	injection
PORV	power-operated relief valve
Pzr	pressurizer
RCDT	reactor coolant drain tank
RCP	reactor coolant pump
Recirc	recirculation
RPV	reactor pressure vessel
RVRLIS	reactor vessel refueling level indication system
SI Pump	safety injection pump
SIS	safety injection system