

December 26, 2017

PG&E Letter DCL-17-109

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

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
Anchor Darling Double Disc Gate Valve Information and Status

References:

1. Letter from Greg Krueger (NEI) to John Lubinski (U.S. Nuclear Regulatory Commission), Anchor Darling Double Disc Gate Valve Industry Resolution Plan Update (Project 689), dated August 4, 2017
2. Letter from Joe Pollock (NEI) to Brian Holian (U.S. Nuclear Regulatory Commission), NSIAC Concurrence on Anchor Darling Double Disc Gate Valve Industry Response Actions (Project 689), dated October 26, 2017
3. BWROG Topical Report TP-16-1-112, Revision 4, Recommendations to Resolve Flowserve 10 CFR Part 21 Notification Affecting Anchor Darling Double Disc Gate Valve Wedge Pin Failure

Dear Commissioners and Staff:

In Reference 1, the Nuclear Energy Institute (NEI) provided the NRC with a resolution plan for the U.S. Nuclear Industry to address the known Anchor Darling Double Disk Gate Valve (ADDDGV) issues. Reference 2 indicated that each utility will provide a listing of their Anchor Darling valve population with active safety functions along with relevant valve information, including the results of susceptibility evaluations, repair status, and a repair schedule for each susceptible valve not yet repaired. The Enclosure with this letter serves to provide this information for Diablo Canyon Power Plant Units 1 and 2.

The Enclosure to this letter contains the following information for each ADDDGV:



- Plant Name, Unit, and Valve Identification (ID).
- System.
- Valve Functional Description.
- Valve Size.
- Active Safety Function (open, close, both).
- Are multiple design basis post-accident strokes required (yes/no)?
- Expert Panel Risk Ranking (high, medium, low).
- Result of susceptibility evaluation (susceptible or not susceptible).
- Is the susceptibility evaluation in general conformance with TP16-1-112R4 (Reference 3)?
- Does the susceptibility evaluation rely on thread friction? If yes, was the coefficient of friction (COF) greater than 0.10? For cases where thread-friction was relied upon, information is provided whether the COF was above or below 0.1.
- Was an initial stem-rotation check performed? If yes, include rotation criteria (i.e. ≤ 10 degrees or ≤ 5 degrees).
- Was the diagnostic test data reviewed for failure precursors described in TP16-1-112R4 (Reference 3)?
- The valve's repair status (i.e. repaired or not repaired).

PG&E makes no new or revised regulatory commitments (as defined by NEI 99-04) in this letter.

If you have questions regarding this letter, please contact Mr. Hossein Hamzehee, Manager of Regulatory Services, at 805-545-4720.

Sincerely,

Paula Gerfen
Station Director

kjse/4328/ 50949534

Enclosure

cc: Diablo Distribution

cc/enc: Kriss M. Kennedy, Region IV Administrator
Christopher W. Newport, NRC Senior Resident Inspector
Balwant K. Singal, NRC Senior Project Manager

Pacific Gas and Electric Company/Diablo Canyon Power Plant (DCPP) Units 1 and 2 Anchor Darling Double Disk Gate Valve Listing

Plant Name	Unit	Valve ID	System	Valve Functional Description	Valve Size (inches)	Active Safety Function (Open, Close, Both)	Are multiple design basis post-accident strokes required? (Yes/No)	Expert Panel Risk Ranking (High, Medium, Low)	Result of susceptibility evaluation (susceptible or not susceptible)	Is the susceptibility evaluation in general conformance with TP16-1-112R4? ^(A) (Yes/No)	Does the susceptibility evaluation rely on thread friction? If yes, was the COF greater than 0.10? (No), (Yes, >0.10), (Yes, ≤0.10)	Was an initial stem-rotation check performed? If yes, include rotation criteria (No), (Yes, ≤10 deg.), (Yes, ≤5 deg.)	Was the diagnostic test data reviewed for failure precursors described in TP16-1-112R4? (Yes/ No)	Valve repair status (repaired or not repaired)
DCPP	1	MS-1-FCV-95	Main Steam	Main Steam Supply To Turbine Driven Auxiliary Feedwater Pump	4	Open	No	High	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Repaired ⁽¹⁾
DCPP	1	SI-1-8801A	Safety Injection	Charging Discharge Isolation	4	Open	No	High	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	1	SI-1-8801B	Safety Injection	Charging Discharge Isolation	4	Open	No	High	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	1	SI-1-8802A	Safety Injection	Safety Injection to Hot Leg Injection	4	Both	Yes	Low	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	1	SI-1-8802B	Safety Injection	Safety Injection to Hot Leg Injection	4	Both	Yes	Low	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	1	SI-1-8803A	Safety Injection	Charging Discharge Isolation	4	Open	No	High	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired

Plant Name	Unit	Valve ID	System	Valve Functional Description	Valve Size (inches)	Active Safety Function (Open, Close, Both)	Are multiple design basis post-accident strokes required? (Yes/No)	Expert Panel Risk Ranking (High, Medium, Low)	Result of susceptibility evaluation (susceptible or not susceptible)	Is the susceptibility evaluation in general conformance with TP16-1-112R4? ^(A) (Yes/No)	Does the susceptibility evaluation rely on thread friction? If yes, was the COF greater than 0.10? (No), (Yes, >0.10), (Yes, ≤0.10)	Was an initial stem-rotation check performed? If yes, include rotation criteria (No), (Yes, ≤10 deg.), (Yes, ≤5 deg.)	Was the diagnostic test data reviewed for failure precursors described in TP16-1-112R4? (Yes/ No)	Valve repair status (repaired or not repaired)
DCPP	1	SI-1-8803B	Safety Injection	Charging Discharge Isolation	4	Open	No	High	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	1	SI-1-8835	Safety Injection	Safety Injection Pump Discharge to Cold Legs Isolation	4	Open	No	Low	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	1	CS-1-9003A	Containment Spray	Residual Heat Removal Pump Discharge to Containment Spray Header	8	Both	Yes	Medium	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	1	CS-1-9003B	Containment Spray	Residual Heat Removal Pump Discharge to Containment Spray Header	8	Both	Yes	Medium	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	1	SI-1-8804A	Safety Injection	Residual Heat Removal Pump Discharge to Charging Pump Suction	8	Both	Yes	Medium	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Repaired ⁽²⁾
DCPP	1	SI-1-8804B	Safety Injection	Residual Heat Removal Pump Discharge to Safety Injection Pump Suction	8	Both	Yes	Medium	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	1	RHR-1-8700A	Residual Heat Removal	Residual Heat Removal Pump Suction Isolation	14	Both	Yes	Medium	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired

Plant Name	Unit	Valve ID	System	Valve Functional Description	Valve Size (inches)	Active Safety Function (Open, Close, Both)	Are multiple design basis post-accident strokes required? (Yes/No)	Expert Panel Risk Ranking (High, Medium, Low)	Result of susceptibility evaluation (susceptible or not susceptible)	Is the susceptibility evaluation in general conformance with TP16-1-112R4? ^(A) (Yes/No)	Does the susceptibility evaluation rely on thread friction? If yes, was the COF greater than 0.10? (No), (Yes, >0.10), (Yes, ≤0.10)	Was an initial stem-rotation check performed? If yes, include rotation criteria (No), (Yes, ≤10 deg.), (Yes, ≤5 deg.)	Was the diagnostic test data reviewed for failure precursors described in TP16-1-112R4? (Yes/ No)	Valve repair status (repaired or not repaired)
DCPP	1	RHR-1-8700B	Residual Heat Removal	Residual Heat Removal Pump Suction Isolation	14	Both	Yes	Medium	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	1	SI-1-8982A	Safety Injection	Containment Recirculation Sump to Residual Heat Removal Pump Suction	14	Both	Yes	High	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	1	SI-1-8982B	Safety Injection	Containment Recirculation Sump to Residual Heat Removal Pump Suction	14	Both	Yes	High	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Repaired ⁽³⁾
DCPP	2	SI-2-8802A	Safety Injection	Safety Injection to Hot Leg Injection	4	Both	Yes	Low	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	2	SI-2-8802B	Safety Injection	Safety Injection to Hot Leg Injection	4	Both	Yes	Low	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	2	SI-2-8835	Safety Injection	Safety Injection Pump Discharge to Cold Legs Isolation	4	Open	No	Low	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	2	VAC-2-FCV-658	Containment Ventilation	Hydrogen Purge / Recombiner Isolation	4	Both	Yes	Low	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired

Plant Name	Unit	Valve ID	System	Valve Functional Description	Valve Size (inches)	Active Safety Function (Open, Close, Both)	Are multiple design basis post-accident strokes required? (Yes/No)	Expert Panel Risk Ranking (High, Medium, Low)	Result of susceptibility evaluation (susceptible or not susceptible)	Is the susceptibility evaluation in general conformance with TP16-1-112R4? ^(A) (Yes/No)	Does the susceptibility evaluation rely on thread friction? If yes, was the COF greater than 0.10? (No), (Yes, >0.10), (Yes, ≤0.10)	Was an initial stem-rotation check performed? If yes, include rotation criteria (No), (Yes, ≤10 deg.), (Yes, ≤5 deg.)	Was the diagnostic test data reviewed for failure precursors described in TP16-1-112R4? (Yes/ No)	Valve repair status (repaired or not repaired)
DCPP	2	VAC-2-FCV-659	Containment Ventilation	Hydrogen Purge / Recombiner Isolation	4	Both	Yes	Low	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	2	VAC-2-FCV-668	Containment Ventilation	Hydrogen Purge / Recombiner Isolation	4	Both	Yes	Low	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	2	VAC-2-FCV-669	Containment Ventilation	Hydrogen Purge / Recombiner Isolation	4	Both	Yes	Low	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	2	CS-2-9003A	Containment Spray	Residual Heat Removal Pump Discharge to Containment Spray Header	8	Both	Yes	Medium	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	2	CS-2-9003B	Containment Spray	Residual Heat Removal Pump Discharge to Containment Spray Header	8	Both	Yes	Medium	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	2	SI-2-8804A	Safety Injection	Residual Heat Removal Pump Discharge to Charging Pump Suction	8	Both	Yes	Medium	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	2	SI-2-8804B	Safety Injection	Residual Heat Removal Pump Discharge to Safety Injection Pump Suction	8	Both	Yes	Medium	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired

Plant Name	Unit	Valve ID	System	Valve Functional Description	Valve Size (inches)	Active Safety Function (Open, Close, Both)	Are multiple design basis post-accident strokes required? (Yes/No)	Expert Panel Risk Ranking (High, Medium, Low)	Result of susceptibility evaluation (susceptible or not susceptible)	Is the susceptibility evaluation in general conformance with TP16-1-112R4? ^(A) (Yes/No)	Does the susceptibility evaluation rely on thread friction? If yes, was the COF greater than 0.10? (No), (Yes, >0.10), (Yes, ≤0.10)	Was an initial stem-rotation check performed? If yes, include rotation criteria (No), (Yes, ≤10 deg.), (Yes, ≤5 deg.)	Was the diagnostic test data reviewed for failure precursors described in TP16-1-112R4? (Yes/ No)	Valve repair status (repaired or not repaired)
DCPP	2	RHR-2-8700A	Residual Heat Removal	Residual Heat Removal Pump Suction Isolation	14	Both	Yes	Medium	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	2	RHR-2-8700B	Residual Heat Removal	Residual Heat Removal Pump Suction Isolation	14	Both	Yes	Medium	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	2	SI-2-8982A	Safety Injection	Containment Recirculation Sump to Residual Heat Removal Pump Suction	14	Both	Yes	High	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
DCPP	2	SI-2-8982B	Safety Injection	Containment Recirculation Sump to Residual Heat Removal Pump Suction	14	Both	Yes	High	Not Susceptible	Yes	Yes, >0.10 ⁽⁴⁾	No	Yes	Not Repaired
^(A) Applied Wedge Pin Torque must bound anticipated design basis operating torque requirements and current maximum total torque. ⁽¹⁾ MS-1-FCV-95 was replaced in Unit 1 refueling outage 20 (Spring 2017) as a planned activity to address long-standing issues with valve seat leakage. New stem wedge connection torqued by vendor utilizing Flowserve maintenance guidance. ⁽²⁾ SI-1-8804A was repaired in Unit 1 refueling outage 20 (Spring 2017) due to indications of anomalous behavior on diagnostic test data. New stem wedge connection was torqued to the maximum allowable value for this size and class of valve. ⁽³⁾ SI-1-8982B was repaired in Unit 1 refueling outage 20 (Spring 2017) due to indications of anomalous behavior on diagnostic test data. New stem wedge connection was torqued to a value greater than the anticipated operating torque. ⁽⁴⁾ Susceptibility Evaluation utilized a coefficient of friction (COF) value of 0.15.														