



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

September 10, 2021

Mr. James M. Welsch
Senior Vice President, Generation
and Chief Nuclear Officer
Pacific Gas and Electric Company
P.O. Box 56 Mail Code 104/6
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON POWER PLANT UNITS 1 AND 2 – DESIGN BASIS
ASSURANCE INSPECTION (PROGRAMS) INSPECTION REPORT
05000275/2021011 AND 05000323/2021011

Dear Mr. Welsch:

On August 13, 2021, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Diablo Canyon Power Plant Units 1 and 2. On August 12, 2021, the NRC inspectors discussed the results of this inspection with Mr. Dennis Petersen, Operations Director and Station Director Delegate, and other members of your staff. The results of this inspection are documented in the enclosed report.

No findings or violations of more than minor significance were identified during this inspection.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

Vincent Gaddy Signed by Gaddy, Vincent
on 09/10/21

Vincent G. Gaddy, Chief
Engineering Branch 1
Division of Reactor Safety

Docket Nos. 05000275 and 05000323
License Nos. DPR-80 and DPR-82

Enclosure:
As stated

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DIABLO CANYON POWER PLANT UNITS 1 AND 2 – DESIGN BASIS ASSURANCE
 INSPECTION (PROGRAMS) INSPECTION REPORT 05000275/2021011 AND
 05000323/2021011 - DATE September 10, 2021

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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Numbers: 05000275 and 05000323

License Numbers: DPR-80 and DPR-82

Report Numbers: 05000275/2021011 and 05000323/2021011

Enterprise Identifier: I-2021-011-0004

Licensee: Pacific Gas and Electric Company

Facility: Diablo Canyon Power Plant Units 1 and 2

Location: Avila Beach, California

Inspection Dates: July 26, 2021 to August 13, 2021

Inspectors: R. Kopriva, Senior Reactor Inspector
D. Reinert, Ph.D., Reactor Inspector
F. Thomas, Reactor Inspector

Approved By: Vincent G. Gaddy, Chief
Engineering Branch 1
Division of Reactor Safety

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a design basis assurance inspection (programs) inspection at Diablo Canyon Power Plant Units 1 and 2, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

List of Findings and Violations

No findings or violations of more than minor significance were identified.

Additional Tracking Items

None.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards. Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the coronavirus (COVID-19), inspectors were directed to begin telework. In addition, regional baseline inspections were evaluated to determine if all or a portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on site. The inspections documented below met the objectives and requirements for completion of the IP.

REACTOR SAFETY

71111.21N.02 - Design-Basis Capability of Power-Operated Valves Under 10 CFR 50.55a Requirements

POV Review (IP Section 03) (11 Samples)

The inspectors:

- a. Determined whether the sampled POVs are being tested and maintained in accordance with NRC regulations along with the licensee's commitments and/or licensing bases.
- b. Determined whether the sampled POVs are capable of performing their design-basis functions.
- c. Determined whether testing of the sampled POVs is adequate to demonstrate the capability of the POVs to perform their safety functions under design-basis conditions.
- d. Evaluated maintenance activities including a walkdown of the sampled POVs (if accessible).

- (1) Unit 1 Reactor Coolant System Pressurizer Power Operated Relief Valve Block Valve - 1-8000B Motor Operated Valve
- (2) Unit 1 Reactor Coolant System Reactor Vessel Head Vent Valve - 1-8078B Solenoid Operated Valve
- (3) Unit 2 Turbine Steam System Turbine Driven Auxiliary Feedwater Pump Steam Supply Valve - 2-FCV-95 Motor Operated Valve
- (4) Unit 2 Chemical Volume and Control System VCT 2-1 Outlet to Charging Pumps - 2-LCV-112B Motor Operated Valve
- (5) Unit 1 Residual Heat Removal to Safety Injection and Charging Pumps Suction - 1-8804B Motor Operated Valve
- (6) Unit 2 Residual Heat Removal Suction Isolation Valve - 1-8702 Motor Operated Valve
- (7) Unit 2 Component Cooling Water Heat Exchanger Saltwater Inlet Valve - 2-FCV-602 Motor Operated Valve
- (8) Unit 1 Charging Injection Outlet Valve to Reactor Coolant System - 1-8801B Motor

- Operated Valve
- (9) Unit 1 Residual Heat Removal Heat Exchanger to Containment Spray Isolation - 1-9003A Motor Operated Valve
 - (10) Unit 1 Main Feed Isolation Valve - 1-FCV-439 Motor Operated Valve
 - (11) Unit 2 Component Cooling Water Heat Exchanger Outlet Isolation Valve - 2-FCV-431 Motor Operated Valve

INSPECTION RESULTS

No findings were identified.

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On August 12, 2021, the inspectors presented the design basis assurance inspection (programs) inspection results to Mr. Dennis Petersen, Operations Director and Station Director Delegate. and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21N.02	Calculations	6023227-294-3	Design and Seismic Report for Target Rock Model 08H-001 ASME Class 1 Solenoid Operated Valve	B
		663219-763-1	Anchor/Darling Valve Company Maximum and Required Thrust Analysis Pacific Gas and Electric Company Diablo Canyon Power Plant 4 inch - Class 150 FW Gate Valve with Limitorque SMB Motor Operator.	07/26/1991
		9*9205-6-1, Legacy No. 195F-DC	Verification of 460 VAC Class 1E Motor Operated Valve (MOV) Motor Terminal Voltages During Starting and Running	6A
		9000002831	Estimate Inertial Load Impact on MOV Operations per GL 89-10	12/12/2016
		9000006092	Motor Operated Valve Limiting Process Condition Evaluation. Define the Limiting Process Conditions for Motor Operated Valves in Primary System in Accordance with NRC Generic Letter 89-10	A
		9000009210-5-1	Determine the Available Motor Torque Under Degraded Battery Voltage Conditions and also Under HELB Conditions with Minimum DC Battery Voltage	5-1
		9000035423 (V-07) - Part 11, Version 0	Rising Stem MOV Actuator Sizing and Setpoints - Various Motor Operated Valves.	10/08/2013
		9000035423 (V-07) Part 11, Version 03	Motor Operated Valve Sizing and Switch Setting Calculations - Various Motor-Operated Valves	01/09/2019
		9000040929	Target Rock Solenoid Valve Seismic Qualification	0
		9000041190	Define the Limiting Process Conditions for Motor Operated Valves in the Secondary Systems in Accordance with NRC Generic Letter 89-10	0
		9000042340, Legacy No. MPS-059	Determine the Design Basis Torsional Capacity for Anchor/Darling Double Disc Stem to Upper Wedge Connection	06/19/21
		DC-030, Velan	Velan Required Thrust and Weak Link Calculations	05/03/1991

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		663219-744-1		
		J-095	Determine Required Operating Thrust Using the EPRI Performance Prediction Methodology	0
		MPS-052	Seismic Qualification Design Class I Fisher Butterfly Valves with Bettis Actuators FCV-602, 603	03/31/1994
		MPS-059	Anchor Darling Double Disk Gate Valve Weak Link Supplement	0
		N-013	Define the limiting process conditions for motor operated valves in primary systems in accordance with NRC Generic Letter 89-10.	20A
		V-01	Air Operated Rotary Valve and Damper Torque Requirements and Operator Capability	0
	Corrective Action Documents	Notifications	50916113, 50920873, 50921626, 50931728, 50946914, 50946930, 50979175, 50979285, 50993118, 51016729, 51022972, 51051936, 51092125, 51092126, 51092986, 51093761, 51109213, 51109350, 51109437, 51111004, 51112373, 51112374	
	Corrective Action Documents Resulting from Inspection	Notifications	51126698, 51126788, 51126795, 51126999, 51127072, 51127858, 51127963, 51127963, 51127964, 51128006, 51128023, 51128024, 51128044, 51128146, 51128179	
	Drawings	08H-001, Sheet 1	Solenoid Operation Valve High Temp & High Press Energize to Open (FC) Sizes 1 Inch	D
		08H-001, Sheet 2	Mechanical Solenoid Operation Valve 1 Inch Target Rock	D
		1020007, Sheet 7	Diablo Canyon Power Plant - PR&E Co. Reactor Coolant System	59
		102003, Sheet 4	Feedwater System	86
		102007, Sheet 4	Diablo Canyon Power Plant - PG&E Co. Reactor Coolant System	71
		102007, Sheet 7	Diablo Canyon Power Plant - PG&E Co. Reactor Coolant System	59
		102009, Sheet 4	Safety Injection System	83
102012, Sheet 3		Containment Spray System	38	
102032, Sheet	Instrument Drawing - PORV Block Valve 8000B	95		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		No. 18		
		108004, Sheet 5	Unit 2 Diablo Canyon Power Plant - PG&E Co. Turbine Steam Supply System	102
		108008, Sheet 4B	Unit 2 Diablo Canyon Power Plant - PF&E Co. Chemical and Volume Control System	112
		108014, Sheet 5	Component Cooling Water System	49
		108032, Sheet 6	Diablo Canyon Power Plant - RG&E Co. Flow Instrument Systems	82
		108033, Sheet 14	Unit 2 Diablo Canyon Power Plant - PG&E Co. Level Instrument Systems	76
		109807, Sheet 108	Diablo Canon Power Plant - PG&E Co. Functional Loop Diagram	5
		437585, Sheet 1	Electrical Schematic Diagram Feedwater Motor Operated Isolation Valves	23
		437587	Electrical Schematic Diagram, Reactor Coolant Motor Operated Valves	21
		437604, Sheet 1	Electrical Schematic Diagram Containment Spray System Motor Operated Valves	23
		437606, Sheet 1	Electrical Schematic Diagram Safety Injection System Motor Operated Valves	30
		437606, Sheet 2	Electrical Schematic Diagram Safety Injection System Motor Operated Valves	1
		441324, Sheet 1	Unit 2 Electrical Schematic Diagram CVCS Motor Operated Valves	19
		441324, Sheet 2	Unit 2 Electrical Schematic Diagram CVCS Motor Operated Valves	1
		441325, Sheet 1	Electrical Schematic Diagram Component Cooling System Motor Operated Valves	19
		455097, Sheet 1	Electrical Schematic Diagram Auxiliary Feedwater Pump Turbine Control	16
		663173, Sheet 120	Instruction Manual for Type 7600 Butterfly Control Valve Body	12
		663173, Sheet 130	Mechanical Cross Section 30 Inch Heavy Pattern Rubber Lined Valve Class 3 W/ Limatorque SMB-00/H3BC Operator	10

Inspection Procedure	Type	Designation	Description or Title	Revision or Date	
		663173, Sheet 164	Bettis Service Instructions for Spring Return Pneumatic Actuators	B	
		663173, Sheet 2	Mechanical 30# 7620 Heavy Pattern Valve Limitorque SMB-00/H3BC Operator	12	
		663219, Sheet 254	Piping & Mechanical 4 Inch No. S350 W DD-ASA Series 1500, Welding Ends Outside Screws & Yoke Gate Valve with LIP Seal & SMB-0 Limitorque Valve Control	21	
		663219, Sheet 388	Mechanical Velan Forged Bolted Bonnet Gate Valve Motor Operated	35	
		663219, Sheet 430	14"Motor Operated Gate Valve Assembly	17	
		663219, Sheet 454	Unit 1 & 2 Mechanical 4 Inch - 150 LB. Gate Valve R.S. Cast Stainless Steel B.W. Ends Stellite Trim Seal W.B. Motor Operated	17	
		663219, Sheet 505	Vendor Manual Anchor Darling Double Disk Gate Valves	10	
		663219, Sheet 512	Mechanical Motor Operated Valve ID 8-GM54FE	27	
		663219, Sheet 629	Limitorque Vendor Manual	09/10/1991	
		663219, Sheet 747	14" Motor Operated Gate Valve Thrust, Torque, and Weak Link Calculations	1	
		663219, Sheet 761	Maximum & Required Thrust Analysis	2	
		663313, Sheet 2	Mechanical 16 Inch - 900 LB Gate Valve Motor Operated	24	
		663317, Sheet 3	Unit 1 & 2 Mechanical 4 Inch Bolted Bonnet Gate Valve	37	
		663317, Sheet 51	Unit 1 & 2 Mechanical 4 Inch B.B. Gate Valve Nuclear Class N2 & N3	8	
		696215, Sheet 28	Piping and Mechanical Solenoid Operated Globe Valve 1 Inch SW High Temp & High Press Energize to Open	6	
		Engineering Changes	DC2-EE-44862	Replace Spring Pack, Modify Wiring, Red Light Circuit is Being Moved to Rotor 4 to Provide a more Accurate Indication of the Valve Position	1991
			DCN DC2-EE-	Remove Motor Brake for LCV112B	1987

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		38526		
		DCN: DC2-EJ-48513	This Activity will Disassemble Valve, Replace Valve Stem, Wedge will be Replaced if Needed per Mechanical Maintenance Engineers.	1994
		DCP No. J-48254	Drill a 1/8 Inch Nominal Diameter "Weep Hole" in the Upstream Face of the Valve Disc in MS-2-FCV-95	0
	Engineering Evaluations	DC O-G-M-876	Design Criteria for Adding Seismic Supports to strengthen Valve Yokes for FCV 37, 38, and 95.	06/11/1984
	Miscellaneous	6023227-142	Vendor Manual: Technical Manual for Target Rock Model 08H-001	5
		663219-557-7	Vendor Manual: Instruction Manual for Installation, Operation and Maintenance of Anchor Motor Operated Gate Valves for DC No. 1 & 2.	7
		663219-602-27	Vendor Manual: Velan Forged Steel Valves Bolted Bonnet Installation and Operation Manual	27
		663219-629-1	Vendor Manual: Limitorque Corporation Limitorque Type SMB/SB/SBD/HBC Valve Actuators, Instruction and Maintenance Manual	36
		663219-629-5	Vendor Manual: Limitorque Type SMB Instruction and Maintenance Manual	2
		DCM No. S-7	Diablo Canyon Nuclear Power Plant, Units 1 and 2, Design Criteria Memorandum S-7, Reactor Coolant System	34
		DCM S-3B	Diablo Canyon Power Plant Units 1 and 2 Design Criteria Memorandum S-3B Auxiliary Feedwater System	28
		DCM S-4	Diablo Canyon Power Plant Units 1 & 2 Design Criteria Memorandum S-4 Turbine Steam Supply System	36
		DCM S-8	Diablo Canyon Nuclear Power Plant Units 1 & 2 Design Criteria Memorandum S-8 Chemical and Volume Control System	43
		PG&E Letter DCL-95-205	Response to NRC Generic Letter 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power Operated Gate Valves"	10/11/1995
		Powerhouse - SQAP 2.1	Software Quality Assurance Plan Crane Nuclear, Inc. Powerhouse Software Version 2.1	2014

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		RPE J-8089	Replacement Part Evaluation Swagelok Thermoplastic Hose & Fittings	1
		V-EC-1869	Applicability of BWROG Magnesium Rotor Inspection Reports to PWRs [Pressurized Water Reactors]	1
	Procedures	AD13.ID4	Post Maintenance Testing	36
		AD13.ID5	Inservice Testing Program	14
		AWP E-027	Motor Operated Valve Sizing, Switch Setpoint Determination and Test Evaluation	6
		AWP E-028	PRA Model Maintenance and Upgrades	5
		CF3.DC1	Maintenance and Surveillance of Electrical Environmentally Qualified (EQ) Equip	4
		EQ File IH-07, 9000007805-014-00	DCPP Environmental Qualification Program, Limitorque Valve Actuators	14
		EQ File IH15, 9000007958-012-00	DCPP Environmental Qualification Program, Target Rock Solenoid Valves	12
		MA1.DC54	Conduct of Maintenance	21
		MA1.ID1	Motor-Operated Valve (MOV) Program Plan	12
		MA1.ID16	Verification, Monitoring, and Trending of Air and Hydraulically Operated Valves	11
		MA1.ID18	Valve Packing Program	10
		MA1.ID27	Preventative Maintenance Program	8
		MA1.ID4	Control and Trending of Motor Operated Valve Diagnostic Information	3
		MP E 5.-10A1	Low Impact External Inspections of Limitorque Motor Operators	8
		MP E 53.10A	Preventive maintenance of Limitorque Motor Operators	45
		MP E 53.10R	Augmented Stem Lubrication for Limitorque Operated Valves	15
		MP E 53.10V1	MOV Diagnostic Testing	23A
		OM7.ID1	Problem Identification and Resolution	50
		OM7.ID1	Problem Identification and Resolution	57
PEP V-7B	Test of ECCS Valve Interlocks	12		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		STP M-109	Testing of Backup Air Accumulator System to FCV-602, CCW Heat Exchanger No. 1 Saltwater Inlet Valve	27
		STP V-211, Unit 2, March 4, 2018	Charging and Letdown Valves	0A
		STP V-2T1, 2017	Pressurizer Power Operated Relief Valves	3
		STP V-2T1, 2019	Pressurizer Power Operated Relief Valves	13
		STP V-2T1, 2020	Pressurizer Power Operated Relief Valves.	13
		STP V-2T2, March 11, 2019	Exercising Reactor Vessel Head Vent Valves RCS-1-8078A, B, C, and D	29
		STP V-2U5B, March 15, 20218	Exercising SAFW Steam Supply Valves FCV-95 and FCV-152	03/15/2018
		STP V-2V1	Exercising and Position Verification of Valves 8804A and 8804B	12
		STP V-3F4	Exercising Valve FCV-602 CCW HX No. 1 Saltwater Inlet	27
		STP V-3J1B, January 2021	Exercising Block Valve RCS-8000B to Pressurizer PORV PCV455C	8
		STP V-3J1B, July 2020	Exercising Block Valve RCS-8000B to Pressurizer PORV PCV-455C	8
		STP V-3J1B, October 2020	Exercising Block Valve RCS-8000B to Pressurizer PORC PCV-455C	8
		STP V-3K12, March 4, 2018	Exercising VCT Outlet Isolation Valves LCV-112B and LCV-112C	03/04/2018
		STP V-3R5, January 15, 2021	Exercising Steam Supply to Auxiliary Feedwater Pump Turbine Stop Valve, FCV-95	01/15/2021
		TS5.DC1	Engineering Programs	11A
		Self-Assessments	51099263	Power-Operated Valve Program SA
Work Orders		50865885, 50923983, 50925506, 51020678, 60020390, 60100739, 60101409, 60122997, 60123128, 64006415, 64048800, 64048800, 64050926, 64051044, 64051045, 64077121, 64090211, 64103097, 64103112, 64121360, 64134845, 64143506, 64152057, 64154046, 64163302, 64168007, 64170328, 64215961, 64237077, 64240441		