

(ACCELERATED RIDS PROCESSING)

### . REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR	29510110009 DOC.DATE: 95/10/04 NOTARIZED: NO	DOCKET #
FACIL:50-275	Diablo Canyon Nuclear Power Plant, Unit 1, Pacific Ga	05000275 P
AUTH.NAME	AUTHOR AFFILIATION	
BEHNKE, D.H.	Pacific Gas & Electric Co.	_
RUEGER, G.M.	Pacific Gas & Electric Co.	R
RECIP.NAME	RECIPIENT AFFILIATION	

I

0

R

Ι

Т

Y

1

D

0

С

U

м

Ε

N

т

SUBJECT: LER 95-009-00:on 950906, turbine trip & reactor trip occurred. due to failure of auto stop oil pilot seat matl.Caused by vendor substitution of pilot valve seat matl.Solenoid valve replaced.W/951004 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED:LTR / ENCL / SIZE: X TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME PD4-2 PD	COPII LTTR 1	ES ENCL 1	RECIPIENT ID CODE/NAME STONE,J	COPI LTTR 1	IES ENCL 1
INTERNAL:	ACRS AEOD/SPD/RRAB NRR/DE/ECGB NRR/DE/EMEB NRR/DRCH/HHFB NRR/DRCH/HOLB NRR/DSSA/SPLB NRR/DSSA/SRXB RGN4 FILE 01	1 1 1 1 1 1 1		AEOD/SED/RAB FILE_CENTER NRR/DE/EELB NRR/DISP/PIPB NRR/DRCH/HICB NRR/DRPM/PECB NRR/DSSA/SPSB/B RES/DSIR/EIB	2 1 1 1 1 1	2 1 1 1 1 1 1
EXTERNAL:	L ST LOBBY WARD NOAC MURPHY,G.A NRC PDR	1 1 1	1 1 1	LITCO BRYCE,J H NOAC POORE,W. NUDOCS FULL TXT	2 1 1	2 1 1

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM OWFN 5D8 (415-2083) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED TOTAL NUMBER OF COPIES REQUIRED: LTTR 27 ENCL 27 1

• 

Pacific Gas and Electric Company

PG&E Letter DCL-95-208

77 Beale Street, Room 1451 P.O. Box 770000 San Francisco, CA 94177 415/973-4684 Fax 415/973-2313 Gregory M. Rueger Senior Vice President and General Manager Nuclear Power Generation

October 4, 1995



U.S. Nuclear Regulatory Commission ATTN: Document Control Desk Washington, D.C. 20555

Docket No. 50-275, OL-DPR-80 Diablo Canyon Unit 1 <u>Licensee Event Report 1-95-009-00</u> <u>Turbine Trip and Reactor Trip Due to Failure of Auto Stop Oil Pilot Valve Seat</u> <u>Material</u>

Gentlemen:

Pursuant to 10 CFR 50.73(a)(2)(iv), PG&E is submitting the enclosed Licensee Event Report concerning an automatic reactor trip due to a main turbine trip. The main turbine tripped due to failure of the seat material in a solenoid valve pilot valve in the auto stop oil system.

This event has in no way affected the health and safety of the public.

Sincerely,

Gregory M. Rueger

cc: L.J. Callan Kendeth E. Perkins James C. Stone Michael D. Tschiltz Diablo Distribution INPO

Enclosure

N0001921

1359S/JER/2246



· · . · . . .

м **.** 

۰ ۲ ۲

p • " •

.

	LI	CENSEE EVENT	REPORT (LER)	
FACILITY NAME (1)	<u> </u>		DOCKE	
	ne Trip and Reactor Trir	o Due to Failure of	Auto Stop Oil Pilot Va	alve Seat Material
EVENT DATE (5)	1 I FR M BIRFR (A)	EREPORT DATE (7)	1 074	R FACH MES INVOLVED (8)
MON DAY YR	YR SEQUENTIAL NUMBER	REVISION MON DAY YR NUMBER	FACILITY NAMES	
9 6 95	95 - 0 0 9 -	0 0 10 4 95		
OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO TH	HE REQUIREMENTS OF 10 CFR: (11)		
	1			
LEVEL (10)		10 CFR50.73(a)(2)(iv OTHER -	)	
100	) 	(Specify in a	Abstract below and in text	, NRC Form 366A)
		LICENSEE CONTACT FO	R THIS LER (12)	TCI COLONI
Donald H B	ehnke Senior Regulator	ry Services Engine	er	
CAUSE SYSTEM	COMPLETE ONE COMPONENT MANUFACTURER	LINE FOR EACH COMPONENT F	AILURE DESCRIBED IN THIS REPORT	RT (13) T MANUFACTURER REPOR
		TO NPRDS		
B J J		9 N		
	SUPPLEMENTAL REPORT EXPECTED	(14)		
[] VES /If yes	complete EXPECTED SUBMISS			
ABSTRACT (16)			0/12(10)	
On at a occ pla pro acc	September 6, 1995, a approximately 100 per curred due to loss of a nt in Mode 3 (Hot Star cedures. A four-hour, cordance with 10 CFR	at 1555 PDT, with cent power, a turk uto stop oil press ndby) in accordan , non-emergency 50.72(b)(2)(ii) on	Unit 1 in Mode 1 (P vine trip and subsec ure. Plant operators ce with emergency report was made to September 6, 1995	ower Operation), Juent reactor trip s stabilized the operating the NRC in

•

•

1

•

ı

, a.

k r 

.

. . .

ą.

FACILITY NAME (1)		DOCKET NUMBER (	2)	YEAR	<u> </u>	LEA	R NUMBER	(6)	REVISION	<b></b>	PAGE (3	)			
, Diable Canvon Unit 1		01510	اماما	27	15	95	_	M	MBER	_		2	OF	7	
TEXT (17)		01310		2 1	15	90	-	0	0 3	-	0 0		[	<u> </u>	
I. <u>Plant Conditic</u> Unit 1 was ir	I. <u>Plant Conditions</u> Unit 1 was in Mode 1 (Power Operation) at 100 percent power.														
II. Description of	Description of Problem														
A. Summa	Summary:														
On Sep trip follo of the b (JJ). P accorda emerge 50.72(b	otember 6, a owed by a r backup sole lant operate ance with e ency report b)(2)(ii) on §	1995, at 1 reactor (Al noid trip v ors stabiliz mergency was made Septembe	555 PI B)(RC valve (, zed the operate to the r 6, 19	DT, L T) triµ JJ)(V e plar ting µ e NR( 95, a	Unit 1 o from ) for nt in proce C in a t 183	expo n 100 the to Mode edure accor 36 PE	erie D p urb e 3 es. da DT.	ence erce ine a (Hot A fo nce	d a ti nt pc auto t Stai bur-ho with	urb sto ndt our 10	ine (TA er due to p oil sy oy) in r, non- CFR	.)(TR ɔ failı stem	B) ure		
B. Backgro	ound:														
The tur turbine. the elec an inter overspe several solenoi protecti ASCO   main ar valves	The turbine auto stop oil system (fig. 1) provides protective trips for the main turbine. The trips depressurize the auto stop oil system, which depressurizes the electro-hydraulic fluid trip headers to turbine steam supply valves through an interface valve (PCV-23). The trips include low vacuum trip, mechanical overspeed trip, low bearing lube oil pressure trip, thrust bearing wear trip, and several electronic trip signals that activate a trip solenoid (SV-37). A backup solenoid trip valve (SV-171) provides redundancy to SV-37, as well as turbine protection, during on-line testing of the auto stop oil system. SV-171 is an ASCO pilot actuated solenoid valve which was originally supplied with Teflon main and pilot seat material. During the 1980s, ASCO started supplying these valves with cast urethane seats														
C. Event D	Description:											,			
On Jan OEs 70 failure o PG&E i determi with ure valves v	uary 27, 19 173 and 711 of the ureth investigated ine whether ethane seat with urethan	995, INPO I3) that re ane seat i d this ever r Diablo C is. The ve ne seats h	issued ported in a so nt and anyon andor r nad be	d ope a tur lenoi conta had epres en su	ratio bine d val acteo beer senta upplie	nal e trip a lve in the sup ative ed to	even at I th ver plie Dia	nt (C ndia e au ndor ed w corre ablo	DE) 7 n Po to sto repro ith ar ctly s Can	069 int op ese stat yor	9 (upda #2 due oil syste entative of the v ed none	ted b to em. to alves e of t	y he		

•

.

,

• •

۰ ۲ **\*** 1 

. . . 

. د' ۲

FACILITY NAME (1)	DOCKET NUMBER (2)		YEAR			PAGE (3)								
Piablo Canvon Unit 1		275	95					2	OF	7				
TEXT (17)	0 0 0 0 0 0	2115			0 0 3		00	5						
On March 17,199 Department to res closed out the inv	On March 17,1995, PG&E issued instructions to the Diablo Canyon Purchasi Department to restrict acquisition of ASCO valves with urethane seats, and closed out the investigation of OE 7069 on March 21, 1995. On September 6, 1995, at 1555 PDT. Unit 1 experienced a turbine trip follow													
by a reactor trip fr valve for the turbin in Mode 3 (Hot Sta A four-hour, non-e 10 CFR 50.72(b)(2	by a reactor trip from 100 percent power due to failure of the backup solenoid valve for the turbine auto stop oil system. Plant operators stabilized the plant in Mode 3 (Hot Standby) in accordance with emergency operating procedures. A four-hour, non-emergency report was made to the NRC in accordance with 10 CFR 50.72(b)(2)(ii) on September 6, 1995, at 1836 PDT.													
On September 8, restarted and para	On September 8, 1995, following replacement of the solenoid valve, Unit 1 w restarted and paralleled to the grid.													
On September 13, 7459) on the Unit vendor representa	On September 13, 1995, PG&E issued a report on the INPO Network (OE 7459) on the Unit 1 trip and its cause. PG&E also transmitted the report to its vendor representative for ASCO valves.													
D. Inoperable Structu	ires, Component	s, or Syst	ems	tha	at Contrib	ute	d to the	e Eve	ent:					
None.		r												
E. Dates and Approx	imate Times for i	Major Oco	currei	nce	es:									
1. September 6	6,1995, at 1555 F	PDT:	E U tri pi	ver nit ip c res	nt/discove 1 turbine on loss of sure.	date. p and ro ito stop	eacto oil	or						
2. September 6	,1995, at 1836 F	ידסי:	A re ac 50	fou epo cco 0.7	ur-hour, r rt was ma ordance w 2(b)(2)(ii)	non ade /ith ).	-emerg to the 10 CFI	ency NRC R	in					
F. Other Systems or	Secondary Func	tions Affe	cted:											
None.														
, ,														
	· · ·													

10 C

Ś

.

.

.

, **4** ν. .

. . , A 1 и и • ı.

1

. 1 .

FACILITY NAME (1)	,		DOCKET NUMBER	1(2)		Ţ	EAR T	-r	LEF	NUMBER	(6)	REVISION	[	PAGE (1	)
Diable Canyon	Libit 1		01510		277		25	_	M	MBER	┝╼┤		4	OF	7
TEXT (17)			01510		211		<u>55</u>	- ]	0	0 3	11	0 0		.I	
G.	Metho	od of Discove	ery:												
	The e indica	event was im ations receive	mediately ed in the	/ appare control	ent to pl room.	ant	ope	rat	tors	due	to a	alarms	and		
Н.	Opera	ator Actions:											I		
	Plant operators stabilized the plant in Mode 3 in accordance with Emergency Operating Procedures (EOPs) E-0, "Reactor Trip or Safety Injection," and E-0.1, "Reactor Trip Recovery."														
I.	Safety System Responses:														
	1. The reactor trip breakers (AA)(BKR) opened.														
	2.	2. The main turbine (TA)(TRB) tripped.													
	3.	The control drop into th	rod drive e core.	e mecha	anism (A	<b>A)</b> (	DRIV	V)	allo	wed	the	contro	l rod	ls to	
,	4.	The motor-o started.	driven an	d turbin	e-drive	n au	uxilia	ary	fee	dwat	er j	oumps	(BA)	(P)	
	5.	Diesel gene started on n onto its 4 k	erator 1-1 nomentar / bus sine	(EK)(D y bus u ce start	G), due Inder vo up pow	e to l Itag er w	light je; b /as a	i bu ut ava	us lo by o ailab	badin desig ble.	ig c in c	onditio lid not d	ns, close	)	
	6.	By design, a CFCU 1-3 to under inves	all five co ripped.  T tigation f	ntainme The redu or nuisa	ent fan undant l ance trip	cool brea os.	ler u aker	nit foi	s (C r thi	SFCL S CF	Js) CU	started was al	but reac	ly	
III. <u>Caus</u>	e of the	e Problem													
A.	Immed	diate Cause:	,												
	The tu to the permis	urbine tripped turbine trip v ssive setpoir	d on loss vith react it of 15 pe	of auto or powe ercent p	stop oi er great oower.	l pre er tł	essu han f	re. the	. Th ∋ P-9	ne re: 9 pov	acto wer	or trippe range	ed d	ue	
			A												

•

.

.

.

\* . . •

. .

**,** 

. . . 

		LICENSE	EEVENI	REPU		ER) 11									
FACILITY NAME	(1)		DOCKET	NJM8ER (2)			YEAR	1 T	EVISION	PAGE (3)					
Diablo (	Canyor	Unit 1	0 5	5 0 0	02	75	95	-	0 0	9	- 0	0	5	OF	7
IEXT (17)				1								ŝ			
	В.	Root Cause:													
		An incorrect s valve SV-171 users. The un incompatibility	eat mater . The ver rethane s y.	rial (ure ndor sul eat app	ethane bstitut ears t	e) was ed ure o have	used Ihane faileo	in ti witi d du	he pil hout le to	ot va notify chem	alve f /ing o nical	or so distri	butc	oid ors o	r
IV.	<u>Ana</u>	lysis of the Eve	ent								,				
	A re des of E follo pres pres of th	eactor trip due to cribed in the Fin xternal Electric owing a turbine ommodates the ssure do not sig ssure control sy ssurizer pressure ne public were r	o a turbin nal Safety al Load a trip/reacto excess s pificantly stem (JD) re control not advers	e trip is Analys nd/or Trip, t or trip, t team ge increas are fur system sely affe	a pre sis Re urbine he au he au enerat se if th nction s func ected l	viously oort (F Trip." omatic ion. R e stea ng pro tioned by this	y analy SAR) The stear eacto m dun perly. as de event	yze Up FS/ m d r co np s sig t.	d Cor date, AR U ump oolani system ince t ned,	nditic Sect pdate syste t tem m an he st the h	on II e tion 1 e sho em (S pera d pre team nealth	event 15.2. ows ti SB) tures essur dum n and	t hat izer ip ar d sat	.oss d nd fety	

### V. **Corrective Actions**

Immediate Corrective Actions: Α.

The plant was stabilized in Mode 3 using EOPa E-0 and E-0.1.

- **Corrective Actions to Prevent Recurrence:** B:
  - 1. A search was conducted to identify other valves of this type installed in either unit. None were found in high risk systems.
  - 2. Solenoid valve SV-171 was replaced with a valve having a Teflon seat in the pilot valve.
  - 3. Instructions were previously issued to the Purchasing Department in March 1995 to restrict acquisition of this type of valve.
  - 4. Restrictions were placed on issuing valves of this type from the warehouse until the pilot valve seat material has been verified to be the correct material.

 $^{\prime}$ 

.

· · ·

•

FACILITY NAME (1)	DOCKET NUMBER (2)							····		PAGE (3)									
<b>"</b>							YEAR		SEQUENTIAL NUMBER				RE	VISION MBER					
Diablo Canyon Unit 1	0	5	0	0	0	2	7	5	95	-	0	0	9	•	0	0	6	OF	7
TEXT (17)																			

### VI. Additional Information

A. Failed Components:

ASCO solenoid valves with model numbers 8223 and 8262.

B. Previous LERs on Similar Problems:

None.

· .



v

• • • • `.

۵ ۲ ۲

•

.