

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9505	5310225 DOC.DATE: 95/05/25 NOTARIZED: NO DOCKET #	
FACIL:STN-50-528	Palo Verde Nuclear Station, Unit 1, Arizona Publi 05000528	
AUTH . NAME	AUTHOR AFFILIATION	
GRABO, B.A.	Arizona Public Service Co. (formerly Arizona Nuclear Power	D
LEVINE, J.M.	Arizona Public Service Co. (formerly Arizona Nuclear Power	Г
RECIP.NAME	RECIPIENT AFFILIATION	

SUBJECT: LER 95-006-00:on 930418, identified that motor pinion key for containment spray header isolation valve occurred. Caused by improper key matl.All identified valves had motor pinion keys replaced.W/950525 ltr.

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

NOTES:STANDARDIZED PLANT

	RECIPIENT ID CODE/NAME PD4-2 PD TRAN,L	COPIE LTTR 1 1	S ENCL 1 1	RECIPIENT ID CODE/NAME HOLIAN, B	COPI LTTR 1	ES ENCL 1
INTERNAL:	ACRS AEOD/SPD/RRAB NRR/DE/ECGB NRR/DE/EMEB NRR/DOPS/OECB NRR/DRCH/HICB NRR/DSSA/SPLB NRR/DSSA/SRXB RGN4 FILE 01	1 1 1 1 1 1 1 1		AEQD/SPD/RAB FILE CENTER NRR/DE/EELB NRR/DISP/PIPB NRR/DRCH/HHFB NRR/DRCH/HOLB 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 PI-37 (EXT. 504-2083) TO ELIMINATE YOU'R NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

PO

R

1

Ο

R

1

Т

Y

1

D

Ο

С

U

M

Ε

Ν

Т



Arizona Public Service Company PALO VERDE NUCLEAR GENERATING STATION P O. BOX 52034 PHOENIX. ARIZONA 85072-2034

JAMES M. LEVINE VICE PRESIDENT NUCLEAR PRODUCTION 192-00933-JML/BAG/BE May 25, 1995

U. S. Nuclear Regulatory Commission ATTN: Document Control Desk Mail Station P1-37 Washington, DC 20555

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS) Units 1, 2, and 3 Docket Nos. STN 50-528, 50-529, 50-530 License Nos. NPF-41, NPF-51, NPF-74 Licensee Event Report 95-006-00

Attached please find Licensee Event Report (LER) 95-006 prepared and submitted pursuant to 10CFR50.73. This LER reports the failure of AISI 1018 motor pinion key material. The material properties did not provide sufficient margin to withstand the shock loads associated with normal operation and diagnostic testing of the motor operated valves. In accordance with 10CFR50.73(d), a copy of this LER is being forwarded to the Regional Administrator, NRC Region IV.

If you have any questions, please contact Burton A. Grabo, Section Leader, Nuclear, Regulatory Affairs, at (602) 393-6492.

Sincerely, James H. Jevano

JML/BAG/BE/pv

Attachment

cc: L. J. Callan (all with attachment) K. E. Perkins K. E. Johnston INPO Records Center

> 9505310225 950525 PDR ADOCK 05000528 S PDR

• • • · · · · G a • į.

. · LICENSEE EVENT REPORT (LER)	
	3)
	ΪŌ
AISI 1018 Carbon Steel Key Material Did Not Provide Sufficient Margin for Operation of MO	_⊢_ Vs
EVENT DATE (5) LER NUMBER (6) REPORT DATE (7) OTHER FACILITIES INVOLVED (8)	Ĭ
MONTH DAY YEAR YEAR SEQUENTIAL REVISION MONTH DAY YEAR FACILITY NAMES DOCKET NUMBERS	. 1
Palo Verde Unit 2 0 5 0 0 0 5 2	<u>: 9</u>
0 4 1 8 9 3 9 5 - 0 0 6 - 0 0 0 5 2 5 9 5 Palo Verde Unit 3 0 5 0 0 0 5 3 0 0 0 0	10
MODE (9) N 20.402(b) 20.405(c) 50.73(a)(2)(M) 73.71(b)	
POWER 20.405(a)(1)() 50.36(c)(1) 50.73(a)(2)(v) 73.71(c)	
LEVEL(10) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	nact 🛛
20.405(a)(1)(ii) 50.73(a)(2)(/iii)(A) below and in Text, NRC	Form
20.405(a)(1)(M) 50.73(a)(2)(A) 50.73(a)(2)(Viii)(B) 368A)	
20.405(a)(1)(v) 50.73(a)(2)(w) 50.73(a)(2)(x)	
LICENSEE CONTACT FOR THIS LER (12)	
NAME TELEPHONE NUMBER	
Burton A. Grabo, Section Leader, Nuclear Regulatory Affairs	
6 0 2 3 9 3 - 6 4 9	12
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)	
CAUSE SYSTEM COMPONENT MANUFAC- REPORTABLE CAUSE SYSTEM COMPONENT MANUFAC- REPORTABLE TURER TO NPROS	
B B E 20 L 200 Y B B Q 20 L 200 N	- 100 132
SUPPLEMENTAL REPORT EXPECTED (14) EXPECTED MONTH DAY	EAR
TES (8 yes, complete EXPECTED SUBMISSION DATE) X NO UNTE (15)	
 On April 18, 1993, Palo Verde Unit 2 was defueled when it was identified by APS Valve Services Maintenance personnel that the motor pinion key for Unit 2 Train A Containment Spray header isolation valve was sheared. Subsequent motor pinion key failures occurred on October 18, 1993 (Unit 1), March 23, 1994 (Unit 3), April 2, 1994 (Unit 3) and April 13, 1994 (Unit 3). The evaluations for these events determined that the failures were due to improper key material. The above events were determined to have a common-mode failure and on April 25, 1995, the above events were determined to be reportable per 10CFR 50.73. As of May 16, 1995, all of the identified valves have had their motor pinion keys replaced except for two (2) valves in Unit 3. These two valves were determined not to be a high priority for key replacement; therefore, their key replacements will be performed during the fifth refueling outage (3R5) for Unit 3 in the fall of 1995. The evaluation identified 227 valves that were susceptible to this type of failure. Out of these valves only five (5) actual failures were identified. There have been no previously similar events reported pursuant to 10 CFR 50.73 in the last three years specific to sheared motor pinion keys. 	

Ŧ

Ł

. v 1 • r • , ,

• , æ

. • • • •

							-				-												
CILITY	NAME			۵)OC1	E	NU	MB	ER		┝	YE	AR	. ()	LER		IMBI	R	REVISI	-		PAG	iE I
	PALC	O VERDE UNIT 1												; ;;	<u>'</u>	4UM	BER	198	NUMB	ER			
			0	5	0	0	10	5	12	18	в s	9	5	_	0	10) 6	-	010	٦ľ	0 2	OF	1
XT		······································	-	<u> </u>	-		1					-		L	-	1		<u> </u>				<u> </u>	
	1.	REPORTING REQUIREMENT:																					
		This LER 528/529/530/9 where a single cause o independent train or c systems or two indepen inoperable in a single residual heat, (C) Con or (D) Mitigate the co in 10 CFR 50.73 (a) (2) (Specifically, on April was identified by APS nonlicensed) that foll diagnostic testing, th header isolation valve sheared and the motor valve stem.	5- hdestrations Moe 2a	00 crist yolei in Un Solei Sol	6 doneltete tette ita fr	ist ramence 99ac 200e	bio conder der 3, con yancomp 706 e-w	einessel eiera eiera he	ing car igra igra of at pei at at at at at at at at	au mesa a ar lo li	wr ech den pso n A tog	idiatoa rnoCr	ttaonno: fcc one fon pwi	ert pel raci in lasta tit	n t leera (Fadi der (u s-fair nic	Sabt)ot etomnt	re st le o l Re act as ly il: unc ke mo	in in in in in in in in in in in in in i	rt e mu ome pec 00 tara was	ev lt at if MS ic Y th	vent zip: zer: Eiec ST, (B) ne	:s Le ial it	
	·	Concurrently with the investigation, Valve S (utility, nonlicensed) Maintenance Update 92- and 3. Because of the Spray isolation valves the motor pinion key m isolation valves (all VSE's evaluation concl valves that were susce scheduled their replac their susceptibility f pinion keys were found key replacements on 22	at w2s, at hot means 5	ovi eff aff ence inter inter inter inter	e ce retka ae litaat	ec sr y ur tof luc he	ui Enversion inti inti interversion inti interversion int	pngstergreas) sdetheini 27	ner ine inif inif ent ent inif inif inif inif inif inif inif in	i i i i i i i i i i i i i i i i i i i	rii awfnityorev	onnine epr re	oggmeehe (fs,	(Liao vetaoir)	cau ISE Int Contro Entro Entro Int Int Int Int Int Int Int Int Int Int	s)tottobtandgf	e c pe or u he ta: er al ilu ke it: ol:	of grue Jni Cont 10 of grue son of cont cont of cont cont cont cont cont cont cont cont	fai strand fan tsan tsan tsan tsan tsan ba s:	lu 1, ir 97 d smc ir	2 1 1 2 1 1 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2	, ce ay on r	
		On October 18, 1993, a identified by Valve Se (utility, nonlicensed) of the motor pinion ke header isolation valve key was sheared.	t rv t y 1	ar ic ha fc	opr es at SIB	OS M du Ur UV	cim Iai Iri Iri V06	at nt 71	:e] :er y t L]	ly na ch fr	1 nc ai he	.6 s .n	00 (ch in		4ST SM) dul Cor cal	r, Le ht	it per d ain ed	s w csc cep nme mc	as onne olac otor	l en Sr	nen oraș oin	r Y ior	1
		On March 23, 1994, at identified by VSM pers replacement of the mot Containment Spray head installed motor pinion	ar or or er	pr ine : r : r : r : r	ox l in .so v w	ın th ic la	nat nat on ati	el ke or he	Ly dui Sy n N Sai	0 ri f va ce	ng or lv	JO J T Te	M th Un 3	is it J	sc sc si si	1 ch 3 3U	c v edu Tra V00	vas ile ain 571	d B., t	he	9		

ø

٠

÷

-

-

.

CILITY NAM	E	DOCKET NUMBER	VEAD	LER	NUMBER	REASIA	<u> </u>	AGE
P	ALO VERDE UNIT 1		TEAR	, sc ,	UMBER	NUMBER		
1/11		05000528	95	- 0	06	- 0 0	03	OF
A1	On April 2, 1994, at by VSM personnel tha motor pinion key for Injection (LPSI) (BI installed motor pina	t approximately 020 at during the sched r Unit 3 Train B Lo P) header isolation ion key was sheared	0 MST luled ow Pre valv l.	', i rep ssu e 3	lt was blacem ire Sa BJSIBU	iden ent o fety W0615	tifi f th , th	ed e e
	On April 13, 1994, a identified by VSM per replacement of the m Containment Isolatic motor pinion key was	at approximately 17 ersonnel that durin notor pinion key fo on (BD) valve 3JSIC s sheared.	00 MS Ig the or Uni CHV032	T, sc t 3 1,	it wa chedul 3 Trai the i	s ed n A nstal	led	
	On January 20, 1995, Assurance Corrective be reevaluated as a	, it was identified Action Audit that whole for any repo	l in t the ortabi	he abc lit	Nucle ve ev y con	ar ents cerns	shou •	ld
	Upon further investi a common-mode failu caused two independe events were determin	igation and evaluat re was determined t ent trains to becom ned to be reportabl	ion o o hav e ino e on	f t e e per Apr	the ab existe able, cil 25	ove e d tha and , 199	vent t thes 5.	s, e
2	. EVENT DESCRIPTION:							
	On April 18, 1993, U off-loaded to the Sp VSM personnel, follo diagnostic testing o isolation valve 2JSI found to have been s	Jnit 2 was defueled pent Fuel Pool when owing completion of of Unit 2 Train A C LAUV0672, that the sheared.	l with it w as-f ontai motor	th as our nme pi	ne cor ident nd sta ent Sp nion	e (AC ified tic ray h key w) by eade as	r
	The functional requi Containment Spray he (NH) in Modes 1 thro SHUTDOWN). During p closed and opens upo (CSAS) (BE) to provi	irement of 2JSIAUVO eader isolation and ough 4 (POWER OPERA power operation, th on a Containment Sp ide containment spr	672 i cont TION e val oray A cay.	s t air thr ve ctu	o pro ment cough is no lation	vide isola HOT rmall Sign	tion Y al	
	APS Valve Services H nonlicensed), upon o initiated an investi Investigation Progra order history for 20 determined that the December 1991.	Engineering (VSE) p discovery of the sh igation in accordan am. As part of the JSIAUV0672 was revi actuator had been	erson leared lce wi lce inve lewed repla	nel mo th sti and ced	(uti otor p the A gatic l it w l in	lity, vinion PS In on, th vas	key cide e wo	, nt rk

.

S

, 5 ۶ • 4 • 2 •

•	LICENSEE EVENT R	EPORT (LER) TEXT	CONTINUATION	
ACILITY N	PALO VERDE UNIT 1	DOCKET NUMBER	YEAR	PAGE
		0 5 0 0 0 5 2 8	9 5 - 0 0 6 - 0 0	0 4 OF 1
EXT	It appears that the fa only one plant operati estimate for the numbe as-left diagnostic tes rate testing (LLRT), a actuator is assumed to times prior to failure	iled motor pinio ng cycle, and ba er of valve strok sting, as-left an and periodic ASME have been cycle	n key was in servi sed on a reasonabl es required to per d as-found local l Section XI testin d less than fifty	ce for e form eak g, the (50)
	The investigation cond motor pinion keyway wa and that the 10 CFR Pa on this subject on Mar of the applied 8 thous stress with the materi that the failure was r been the result of an motor pinion key.	luded that impro s not a probable art 21 Notificati ch 20, 1990, did and pounds per s al shear strengt ot simply a shea additional shock	per fabrication of cause of the fail on issued by Limit not apply. Compa quare inch (ksi) s h'of 21 ksi sugges r failure and may load acting on th	the ure orque rison hear ted have e
	The failed key materia and was determined to (AISI) 1018 carbon ste Rockwell B scale (HRB) Limitorque from AISI 4 returned to service. initiated to replace t in Train B JSIBUV0671 (Units 1 and 3) as soc	al was sent for m be American Iron eel with a hardne . A replacement 140 alloy steel, Additionally, wo the existing moto (all three units on as possible.	etallurgical exami and Steel Institu ss of 93 hardness key was fabricate and the valve was ork orders (WOs) we or pinion keys inst) and Train A JSIA	nation te d by re alled UV0672
	Prior to this failure 92-02 to inform utilit December 23, 1992, APS investigation of these replacement of AISI 10 4140 material. This p on September 10, 1993 replace the motor pini personnel identified t eleven (11) individual in Unit 3) were suscep scheduled their replace	Limitorque issue ies of ten (10) VSE personnel i topics' one of 018 motor pinion part of the invest and work request on keys on the s that seventy-two valves (6 in Un otible to this ty cement of motor p for failure.	d Maintenance Upda maintenance topics nitiated an which was the key material with tigation was compl s were written to susceptible valves. (72) valves per un hit 1; 4 in Unit 2; pe of failure and binion keys based o	te . On AISI eted VSE it and and 1 n
	On October 18, 1993, U percent power, when it personnel, during the pinion key replacement header isolation valve pinion key was found t	Jnit 1 was in Mod was identified performance of t for Unit 1 Trai JJSIBUV0671, th have been shea	le 1, at approximat by APS Maintenance he aforementioned in B Containment Sp at the installed m ared.	ely 95 motor ray otor

S

YNAME		DOCKET NUMBER		LER NUMBER		PAC
PAL	O VERDE UNIT 1		YEAR	NUMBER	NUMBER	
		05000528	95-	006	- 0 0	0 5 0
	The motor pinion rep of the root cause an identified previousl	placement WO had be alysis performed f y on April 18, 199	een ini Eor the 93.	itiated e condit	as a ion	result
	The functional requi Containment Spray he in Modes 1 through 4 normally closed and spray.	rement of 1JSIBUV(ader isolation and . During power of opens upon a CSAS	0671 is d conta peratic to pro	s to pro ainment on, the ovide co	ovide isola valve ontair	tion is ment
	VSE personnel, upon initiated an investi Investigation Progra examined and hardnes measured to be 89 HR failed key were cons steel.	discovery of the s gation in accordan m. The failed key s tested on Novemb B. On this basis, idered similar to	sheared nce wit y mater oer 24, , the <u>p</u> AISI 1	d motor th the A rial was , 1993, properti 1018 pla	pinic APS'In and w les of ain ca	on key ncideni nally vas the nrbon
	The work history for concluded that the f that was initially p cause of the motor p shock loads imposed	1JSIBUV0671 was n ailed part was the provided by Limiton pinion key failure on the actuator du	reviewe origi rque. is rel uring c	ed and i inal AIS The app lated to operatio	t was SI 101 parent piner on.	8 key 7 root tial
	The originally provi provide the key with loads associated wit installed on JSIAUVO	ded AISI 1018 mate sufficient margir h the high stem sp 672 and JSIBUV0671	erial p n to wi peed of L.	properti thstand the ac	les ma l the ctuato	y not shock ors
	On March 23, 1994, U it was identified by the scheduled motor Containment Spray he installed motor pini The motor pinion rep of the root cause an identified previousl	Unit 3 was in Mode VSE personnel, du pinion key replace ader isolation val on key was found to placement WO had be alysis performed f y on April 18, 199	5 (COI aring t ement f Lve 3JS to have een inf for the 93.	LD SHUTI the perf for Unit SIBUV067 been s tiated condit	DOWN) Forman 3 Tr 71, th sheare as a ion	when nce of ain B nat the ed. result
	VSE personnel, upon initiated an investi Investigation Progra	discovery of the s gation in accordan m.	sheared nce wit	d motor ch the A	pinic APS Ir	on key ncident
	The motor pinion gea 90 degrees on the mo prevented, presumabl wedging of the shear	ar was found to have otor shaft until fur- y by the motor pin- red key fragments.	ve rota urther nion ge	ated app slippag ear sets	proxin ge was screw	nately or by

• , • .

-	LICENSEE EVENT R	EPORT (LER) TEXT	CONTINUATIO	N		
FACILITY		DOCKET NUMBER	LER NUMB	ER L REVISIO NUMBER	PA	GE
		0 5 0 0 0 5 2 8	9 5 - 0 0 6	- 0 0	0 6 0	of 1 0
TEXT	The MOV had most recen closed during quarterl timing and position in testing on January 11,	tly been electri y performance of dication verific 1994.	cally stroke ASME Section ation surve	ed open on XI s illance	and troke	:
	The failed key materia 1994, and was measured properties of the fail 1018 plain carbon stee the AISI 1018 material sufficient margin to w the high stem speed of and JSIBUV0671.	l was hardness t to be 97 HRB. ed key were cons l. The root cau properties do n ithstand the sho the actuators i	ested on Aug On this bas idered simi se of failu ot provide ck loads as nstalled on	gust 31 is, the lar to re is t the key sociate JSIAUV	AISI hat with d wit 0672	h
	On April 2, 1994, Unit by VSM personnel, duri motor pinion key repla isolation valve 3JSIBU key was found to have replacement WO had bee cause analysis perform previously on April 18	3 was defueled ng the performan cement for Unit V0615, that the been sheared. T n initiated as a ed for the condi , 1993.	when it was ce of the se 3 Train B L installed me he motor pin result of f tion identi:	identi chedule PSI hea otor pi nion the roo fied	fied d der nion t	
	The functional require header isolation and c through 4. During pow closed and opens upon (SIAS) (JE)(BP/BQ).	ment of 3JSIBUV0 ontainment isola er operation, th a Safety Injecti	615 is to p tion in Mode e valve is n on Actuation	rovide es 1 normall n Signa	lpsi y 1	
	VSE personnel, upon di initiated an investiga Investigation Program. material was hardness showed that the key wa low carbon steel and m present. This type of material originally sp root cause of failure grade of steel that wa conditions that exists	scovery of the s tion in accordan On August 31, tested, and the s fabricated fro any non-metallic material is wea ecified for this was determined t s found in the k for this MOV.	heared moto: ce with the 1994, the fa metallurgica m a resulfi: sulfide ind ker than the motor actua o be due to ey for the	r pinio APS In ailed k al resu zed gra clusion e AISI ator. the in loading	n key ciden ey de of s wer 1018 The ferio	re or
	On April 13, 1994, Uni by VSM personnel, duri pinion key replacement Injection (HPSI) long 3JSICHV0321, that the have been sheared. Th been initiated as a re performed for the cond	t 3 was defueled ng the performan for Unit 3 Trai term loop recirc installed motor e motor pinion k sult of the root ition identified	when it wa ce of sched n A High Pr ulation iso pinion key ey replacem cause anal on April 1	s ident uled mo essure lation was fou ent WO ysis 8, 1993	ified tor Safet valve ind to had	l Y

LICENSE	EE EVENT RI	EPORT	(LEF	R) TEXI	r co	ראכ	INU	ΑΤΙΟ	N				
FACILITY NAME PALO VERDE UNIT 1		DOC	KET NU	IMBER	Y	EAR	LEF	R NUMBI QUENTIA NUMBER	ER	REVISIO NUMBEI	2	PAGE	
		0 5 0	00	52	8 9	5	- 0	06	-	0 0	0 7	OF	1 0
TEXT The functional containment is valve provides a design basis valve is norma designed to re VSE personnel, initiated an i Investigation material was h On this basis, similar to AIS the failed key progressively catastrophic 1 The apparent r material prope withstand the diagnostic tes The above even and on April 2 reportable per 3. ASSESSME THIS EVENT: An Equipment R performed on t the AISI 1018 margin to with operation and valves (MOVS). suggest that t were not the r The motor pini been replaced The significan	requirements solation in a flow particular event recently closed aposition a upon disc nvestigat: Program. ardness te the properties over time oading. coot cause erties do n shock load ting of Mo ts were de 5, 1995, t 10CFR 50 ENT OF THE coot Cause the above of the failure esult of a con keys of and a tota ection (S:	0 5 0 ent of n Mode ath fo quirin d duri automa covery ion in on Au erties augges and w of fa not pr SAFET of Fa condit shock c test as occ a sing n 225 al of se fai s) sys	003JSs1ggsng1gg1gg1gg1gg1no1n	15 2 3 SICHVO throu	8 3 3 g injea a 9 3 2 1 n jea a 1 e thitha vs E 1 1 i doo she gro 7 s de 0)	4. decision of the second seco	- 0 s to to to to to to to to to to	0 6 o production flation flatica flation flation flation flation flation flation flati	violow. gnissing pisses in rise in r	00deallyallyfolsnoal.nincelnincel1HRcinadlal.onal.onal.al.al.al.al.onal. </td <td>07 , th lowi t key B. iden B. iden y B. iden y B. iden y Con C hat i an i c n an i an i c n an i c n an i c i c i c i c i c i c i c i c</td> <td>d e, oF nt dsd ve de</td> <td>1 0</td>	07 , th lowi t key B. iden B. iden y B. iden y B. iden y Con C hat i an i c n an i an i c n an i c n an i c i c i c i c i c i c i c i c	d e, oF nt dsd ve de	1 0

ı

۰,

, **.**

.

t

Ŷ

. • 4 •

4

? r . . .

	EPORT (LER) TEXT	CONTINUATION	
FACILITY NAME PALO VERDE UNIT 1	DOCKET NUMBER		PAGE R 0 8 0F 1 0
TEXT The SI system is designed a seven with the failure injection mode of open limited leakage passive recirculation mode of Therefore, the motor product from performing its de availability of the rest from the contained and 3. State containing a contained addition to containmer product removal and containing a contained addition to containing a contained addition. Therefore, the motor product removal and containing a contained and instrumentation. Therefore, the motor provide containment is power operation, the availability of the availability of the CSS from performing the availability of the CSS from performing the containment is power operation, the availability of the therefore, the require Additional redundancy check valves on the piping is normally fill that the containment is material to the containted and the containment is product barriers or rematerials. Therefore, consequences or implice event did not adversel or the health and safe	0 5 0 0 5 2 8 ned to meet its of a single acti- ration or with the refailure of a co- operation. Dinion key failur the failure of a co- operation. Dinion key failur the failure of a co- operation. Dinion key failur a LOCA or second nment heat removal, ontrol system. To independent 10 ainment spray pur- the failure of a co- operation. No independent 10 ainment spray pur- the failure of a co- operation key failur DV0671 did not i ng its design basis the redundant train DV0671, JSIBUV061 colation in Modes above valves are ment for containment ping inside cont- led with water, a the event of a nment atmosphere sult in any challes sult in any relect there were no a sations as a result of the public	9 5 - 0 0 6 - 0 0 functional require the single active of component during the component during the single active of component during the cas for MOVS 3JSIBU- cability of the SI ion because of the val systems is to no colimit, reduce, a cainment pressure a lary system pipe ru- val system at Units (CSS). The CSS, i also serves as a f 0 percent capacity imp, a shutdown coo sociated valves, p es for MOVS 2JSIAU mpact the capability is function becaus n. 5, and JSICHV0321 1 through 4. Dur normally closed; ment isolation was isolation is provi ainment and that the each would help er be isolated from the release of radioactive dverse safety th of this event. the operation of the set of the set of the fissi- tant of this event.	0 8 OF 1 0 ements ng the C DV0615 system e remove and and upture. a1, 2, in fission / loops oling oiping, DV0672, ity of se of all cing s met. ided by the the the the the the the the

يج

颜

* **^**, ·• , c æ . • 4 ÷ . Ļ ţ

	NAME		DOCKET		I FR NUMBER	PAGE					
	PALO	VERDE UNIT 1		0 5 2 8		R 0 0 9 0F 1					
XT		CALLOR OF THE EVENT.									
	4.	An evaluation for each the APS Incident Inves concluded that the app AISI 1018 key material margin to withstand th operation and diagnost B: Design, Manufactur	event w tigation arent ro propert e shock ic testi ing, Ins	as perfo Program ot cause ies do n loads as ng of so tallatio	ormed in accordance . The evaluations of failure is the lot provide suffice sociated with norm ome MOVs (SALP Causon Error).	e with s at the ient mal se Code					
		No unusual characteris heat, or poor lighting There were no personne to this event.	tics of) direct l or pro	the work ly contr cedural	t location (e.g., p ributed to this eve errors which cont:	noise, ent. ributed					
	5.	STRUCTURES, SYSTEMS, O	R COMPON	ENTS INF	FORMATION:						
		MOVs 1JSIBUV0671, 3JSI of a Limitorque SB-0 a Warner flex wedge gate	BUV0671, ctuator valve.	0671, and 2JSIAUV0672 are comprised ator mounted on an eight-inch Borg lve.							
		The actuators and the piping through which f by 25 FT-LB, 3600 RPM	valve ar low is c AC motor	e orient ontrolle s.	ed vertically to a ed. The MOVs are o	the driven					
		MOV 3JSICHV0321 is com mounted on a three-inc and the valve are orie which flow is controll 1900 RPM DC motor.	prised o h Borg W nted 45 ed. The	f a Limi arner gl degrees MOV is	torque SB-0 actua obe valve. The a to the piping thr driven by a 25 FT	tor ctuator ough -LB,					
		MOV 3JSIBUV0615 is com mounted on a twelve-in actuator and the valve through which flow is FT-LB, 3600 RPM AC mot	prised o ch Borg are ori controll or.	f a Limi Warner <u>c</u> ented ve ed. The	torque SB-3 actua globe valve. The ertical to the pip MOV is driven by	tor ing a 150					
		No additional structur inoperable at the star event. There were no involved; therefore, n inoperable. No compon involved. There were were required. The fa Section 2.	es, syst t of the addition o safety ents wit no safet ilure mo	ems, or event w al compo- systems h multip y system de mecha	components were which contributed onent or system fa s were rendered ole functions were n actuations and n anism is described	to this ilures one in					

	NAME		DOCKET NUMBER		LER NUM	BER		[PAGE			
	PALO	VERDE UNIT 1		YEAR	NUMBER		NUMBER					
			0 5 0 0 0 5 2 8	9 5 -	00	6 -	00	1 0	OF			
EXT	6. CORRECTIVE ACTIONS TO PREVENT RECURRENCE:											
		Immediate corrective a the existing motor pin keys and return them t	ction for the ab ion keys with AI o service.	ove M SI 414	OVs wa 10 mot	or j	o re pini	plac on	e			
		LICENSEE EVENT REPORT (LER) TEXT CONTINUATION ERDE UNIT 1 DOCKET NUMBER VEAR VEAR VEAR VEAR VEAR VEAR VEAR VE	ed of n									
		Limitorque's Maintenan that could potentially size and torque output not to be a high prior criteria. Their key r fifth refueling outage	ce Update 92-02 experience a ke . The two Unit Tity for key repl replacements will (3R5) for Unit	ident: y fai 3 val acemen be pe 3 in 1	ified lure b ves we nt bas erform the fa	action action ased of ased of all of	uato d on dete on t duri of 1	rs mot rmin hese ng t 995.	or ed he			
	7.	PREVIOUS SIMILAR EVENT	'S:									
		There have been no sim reported pursuant to 1 affected MOV operabili 528/529/530/94-010 was this LER dealt with mi	ilar events to t OCFR50.73 where ty in the past t submitted on Fe salignment of th	his ty motor hree bruar e clos	ype of pinic years. y 7, 1 se ton	fa: on ko 1994 cque	ilur eys ER ; ho swi	e have weve tch	er,			

¢

...

