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DOC.DATE: 89/10/31 NOTARIZED: NO DOCKET # ACCESSION NBR:8911090074 FACIL:STN-50-528 Palo Verde Nuclear Station, Unit 1, Arizona Publi 05000528 AUTHOR AFFILIATION AUTH.NAME Arizona Public Service Co. (formerly Arizona Nuclear Power Arizona Public Service Co. (formerly Arizona Nuclear Power SHRIVER, T.D. LEVINE, J.M. RECIPIENT AFFILIATION RECIP.NAME

SUBJECT: LER 89-006-01:on 890731, inadvertent ESF actuation. W/8

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Arizona Public Service Company

PALO VERDE NUCLEAR GENERATING STATION PO BOX 52034 • PHOENIX, ARIZONA 85072-2034 192-00544-JML/TDS/JEM October 31, 1989

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

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS) Unit 1 Docket No. STN 50-528 (License NPF-41) Licensee Event Report 89-006-01 File: 89-020-404

Attached please find Supplement Number 1 to Licensee Event Report (LER) No. 89-006-00 prepared and submitted pursuant to the requirements of 10CFR 50.73. In accordance with 10CFR 50.73(d), we are herewith forwarding a copy of this report to the Regional Administrator of the Region V Office.

If you have any questions, please contact T. D. Shriver, Compliance Manager at (602) 393-2521.

Very truly yours,

0. M. Levine Vice President Nuclear Production

JGH/TDS/JEM/kj

Attachment

cc: W. F. Conway E. E. Van Brunt, Jr. J. B. Martin T. J. Polich M. J. Davis A. C. Gehr INPO Records Center (all w/a)

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(6-89)	4		-	U.5, NI	JCLEAR R	EGULATU	RY COMMIS	SION	-	APPROVEC EXP	OMB NO. 3150-010 IRES: 4/30/92	04 `
· · ·			/ENIT DED					E	STIMATE NFORMAT	D BURDEN PER	RESPONSE TO C	OMPLY WTH THIS
	COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO											
	THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.											
FACILITY NAME (1)									Į Pi	OCKET NUMBER	(2)	PAGE (3)
Palo	Verde l	Jnit 1							0	5 0 0	0151218	1 OF 1 3
Inad	vertent	Engineer	ed Safet	v Fea	ture	Actua	tion					4
EVENT DATE (5)		LER NUMBER	(6)		PORT DAT	E (7)			OTHER F	ACILITIES INVO	LVED (8)	
MONTH DAY Y	EAR YEAR	SEQUENTIA NUMBER		MONTH	DAY	YEAR		FACIL	ITY NAM	ES	DOCKET NUMBER	3(5)
							N	/A			0 5 0 0	1011
017 311 8	19 819	- 01010	5 - 01 1	1110	311	8 9	N	/Δ			0.5.0.0	
	THIS RE	PORT IS SUBMIT	ED PURSUANT	TO THE R	LOUIREM	ENTS OF	0 CFR §: /	Check one	or more of	the following) (1	0 5 0 0	
MODE (9)	N 20.	.402(b)		20,405	(c)		Ň	50,73(a)	(2)(iv)		73,71(b)	
POWER LEVEL	20.	,406(a)(1)(i)		60,36(c	:)(1)			50.73(a)	(2)(v)		73.71(c)	
	20.	,405(s)(1)(ii)	-	50,36(0	;}{2) .)/2)/()			50,73(a)	(2)(vii) (2)(viii)(A)		OTHER (Spi below and in	ecity in Abstrect n Text, NRC Form
	20.	.405(s)(1)(iv)	-	50,73()(2)(#)			50,73(a)	(2)(viii)(8)	•	JOOAI	
	20.	,405(a)(1)(v)		50,73(4)(2)(iii)			50,73(e)	(2){x)			
				ICENSEE	CONTACT	FOR THI	S LER (12)			· · · · · · · · · · · · · · · · · · ·		
NAME										AREA CODE	TELEPHONE NUM	BER
Timo	thy D. S	Shriver,	Complian	ce Ma	nager					61012	319131-	12151211
		COMPLET	E ONE LINE FO	R EACH C	OMPONEN	T FAILUR	E DESCRIBE	ED IN THIS	REPORT	(13)		
CAUSE SYSTEM	OMPONENT	MANUFAC	REPORTABLE			CAUS	SYSTEM	СОМРО	NENT	MANUFAC-	REPORTABLE	
		, ionen								IVALA	IO NPROS	
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		SUPPLEN	IENTAL REPOR	T EXPECT	ED (14)					EXPECTE	D MONTH	DAY YEAR
YES (If yes, comp	ete EXPECTED	SUBMISSION DA	TE)	b	X NO					DATE (1	50	
ABSTRACT (Limit to 14	100 speces, I.e., a	opproximately fifte	n single-space typ	ewritten lii	nes) (16)							
On Ju	ly 31.	1989, Pal	o Verde	Unit	1 was	s in a	a refu	elina	outa	ae with	the core	
off-1	off-loaded to the Spent Fuel Pool.											
Un th	e night	SN1Tt 01	the Trat	, 198 in "B'	59, UI " []a		perso	nnei rical	were swit	making p	reparatio Auviliar	ns
0pera	tors we	re strip	ing Tra	in "B'	" load	is who	en at	appro	ximat	elv 0115	MST on	y
July	31, 198	9, there	was a lo	oss of	f powe	er to	panel	1E-P	NB-D2	6 which	caused a	2. 1
loss	of powe	r to the	Remote 1	indica	ating	and	Contro	1 (RI	C) un	nit for r	adiation	
monit	or RU-3	8 thus ir	itiating		rain '	'B" C	ontain	ment	Purge	e Isolati P" Contro	ON J. Doom	
ACLUA Fssen	tial Fi	gnai (CP) Itration	Actuatio	ie CPI	inal (CRFF	AS) wh	ich i	n tur	n cross-	trinned	
CREFA	S "A".	all in ac	cordance	e with	h dest	ian.	Due t	o the	plan	ned elec	trical	
outage, all safety equipment for CPIAS and CREFAS was in its actuated												
condition prior to the event with the exception of the Train "B" Control Room												
Essential Air Handling Unit Which started as designed. Approximately one (1)												
RII-38. RII-38 was placed back on line and at approximately 0221 MST on July												
31, 1989, the CPIAS and CREFAS were reset.												
An in	An investigation of the event has been completed. Attempts to recreate this											
event	, inter	views Wit auinment	n all n n bluoc	SVIOVI Shi ta	su per Sntifv	sonn(/ the	:1, an ront	u lro Cance	uvies of t	nouting he event	or the	•
erect	i ical e	yarpment					1006	Juuse		MC GTGIL	•	
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NRC Form 366 (6-89)												

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NRC FORM 366A (6-89)	LICENSEE EVENT REPORT TEXT CONTINUATION			LER)	APPROVED OMB NO. 3150-0104 EXPIRES; 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 500 HRS, FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 2055, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.
FACILITY NAME (1)				DOCKET NUMBER (2)	LER NUMBER (6) PAGE (3)
Palo V	erde	Unit 1		0 5 0 0 0 5 2 8	8 9 - 0 0 6 - 0 1 0 2 0 1 3
TEXT (If more space is re I.	DES	Odditional NRC Form 388A's) (17)	OCCURR	ED:	
	Α.	Initial Condition	ons:		_ * *
		On July 31, 198 the core (AC) o	9, Pal ff-loa	o Verde Unit 1 was ded to the Spent Fu	in a refueling outage with el Pool (ND).
	Β.	Reportable Even Times of Major (t Desc Dccurr	ription (Including ences):	Dates and Approximate
		Event Classific	ation:	An event or condi automatic actuati Feature (ESF)(JE)	tion that resulted in an on of an Engineered Safety •
- - -		On the night sh preparations for switchgear (SWG non-licensed) we Oll5 MST on July IE-PNB-D26 which and Control (RIG Exhaust Radiatio "B" Containment The CPIAS cross Actuation Signa CREFAS "A", all	ift of r an o R)(EB) ere st y 31, n caus C)(IL) on Mon Purge -tripp I (CRE in ac	July 31, 1989, Uni utage of all the Tr (ED)(EJ). Nuclear ripping Train "B" 1 1989, there was a 1 ed a loss of power unit for the Conta itor (RU-38)(MON)(I Isolation Actuatio ed Train "B" Contro FAS)(JE)(VI) which cordance with desig	t 1 personnel were making ain "B" Class 1E electrical Operators (utility, oads when at approximately oss of power to panel to the Remote Indicating inment Power Access Purge L) thus initiating a Train n Signal (CPIAS)(JE)(VA). 1 Room Essential Filtration in turn cross-tripped n.
• *		Prior to the even personnel were p 1E electrical su exception to the panel (PL)(EF) 480 Volt (EC) Me supply breaker PNB-V26. Anothe (BU)(EJ)(1E-PKD supplied by temp Charger (BYC)(E	ent on prepar witchg e outa lE-PNB ptor C (BKR) er exc -M44) porary J).	the night shift of ing for an outage o ear to perform prev ge was the Class 1E -D26 being supplied ontrol Center (MCC) on MCC 36 and volta eption was the "D" and its respective power from MCC M10	July 31, 1989, Unit 1 f all the Train "B" Class entive maintenance. One 120 Volt (EF) distribution by temporary power from (EC) M10 through the normal ge regulator (RG)(EF) Battery (BTRY)(EJ) Bus loads which were being via the B-D Battery
-		Nuclear Operator strip the loads making progress then taken off the "B" Battery	rs (ut from on th the "B to su	ility, non-licensed MCC's 20, 32, 34, 3 at evolution. The " Bus (1E-PKB-M42) pply power for brea) had been dispatched to 6, 38 and 72 and were "B" Battery Charger was leaving the bus powered by ker operation.
		During this same licensed) invol Engineered Safe	e time ved wi ty Fea	frame, the Reactor th the downpower wa ture Actuation Syst	Operator (utility, s at the Balance of Plant em (BOP ESFAS)(JE) panel



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NRC FORM 366A (6-89)	U.S. 1	NUCLEAR REGULATORY COMMISSION	APPROVED OMB NO, 3150-0104 EXPIRES: 4/30/92
	LICENSEE EVENT REPORT (TEXT CONTINUATION	LER)	ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.
FACILITY NAME (1)		DOCKET NUMBER (2)	LER NUMBER (6) PAGE (3)
			YEAR WEAR NUMBER
Palo Verde	e Unit 1	0 5 0 0 0 5 2 8	8 9 - 0 0 6 - 0 1 0 3 0 1 3
TEXT (If more space is required, u	se additional NRC Form 365A'sJ (17)		
	where he was placing in preparation for th electrical switchgear was stripping loads f The area 4 Nuclear Op breakers with tempora	the Loss of Power (e downpowering of t (1E-PBB-SO4), and rom MCC M-34. erator had a questi ry power and made a	LOP)(JE) modules in bypass the Train "B" Class 1E the area 4 Nuclear Operator on concerning stripping a call to the Control Room
	Which Was received at of power occurred to power to distribution annunciator (ANN)(IB) This resulted in de-e initiated the Contain Train "B". In accord cross-tripped Control "B" (CREFAS) which in planned electrical ou CREFAS was in its act exception of the Trai (AHU)(VI) which start	approximately 0115 distribution panel panel 1E-PNB-D26 w and computer (CPU) nergizing the RIC f ment Purge Isolatio ance with system de Room Essential Fil turn cross-tripped tage, all equipment uated condition' pri n "B" Control Room ed as designed.	1E-PNB-D26. The loss of vas identified by (IB) alarms (ALM)(IB). For RU-38 which then on Actuation Signal (CPIAS) esign, CPIAS "B" tration Actuation Signal I CREFAS "A". Due to the c associated with CPIAS and or to the event with the Essential Air Handling Unit
1	The Reactor Operator took the call from th area 4 Nuclear Operat supplied with tempora which could be connec	who had just return e area 4 Nuclear Op or that he should n ry power and that t ted with MCC M36.	ed from the BOP ESFAS panel perator and informed the not open any breakers they had an ESF actuation
. '	After the telephone (the Shift Supervisor prints to find the su as the area 4 Nuclear After approximately o loss of power to dist with no apparent oper	TEL)(FI) conversati (utility, licensed) pply breaker for di Operator continued ne (1) minute and t ribution panel 1E-P ator action.	on the Reactor Operator and researched electrical stribution panel 1E-PNB-D26 with stripping loads. wo (2) seconds after the NB-D26, the power returned
	The area 4 Nuclear Op and questioned wheath breaker. The Reactor wait on opening the " heard from the area 5 dispatched the area 4 M3626 closed. The ar reported it closed to	erator then contact er to open the "B" Operator told the B" Battery Charger Nuclear Operator. Nuclear Operator t ea 4 Nuclear Operat the Reactor Operat	ed Control Room personnel Battery Charger supply area 4 Nuclear Operator to supply breaker until he The Reactor Operator then to MCC M36 to check breaker or checked the breaker and tor.
	The on-shift personne contacted Radiation P reset Radiation Monit placed RU-38 back on	l made all required rotection personnel or RU-38. The Radi line. At approxima	l notifications and (utility, non-licensed) to ation Protection personnel itely 0221 MST on July 31,

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	U.S.	NUCLEAR REGULATORY COMMISSION				
(5-89) ,	0.0.		APPROVED OMB NO. 3150-0104 EXPIRES: 4/30/92			
	LICENSEE EVENT REPORT (TEXT CONTINUATION	(LER)	ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 2055, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.			
FACILITY NAME (1)		DOCKET NUMBER (2)	LER NUMBER (6) PAGE (3)			
Dala Vanda	Unit 1		YEAR SEQUENTIAL IN REVISION NUMBER NUMBER			
TEXT (If more spece is required, u	se additional NRC Form 366A'sI (17)					
	1989, the Reactor Ope and continued with th	rator reset the CPI e Train "B" downpow	AS and CREFAS actuations Fer without further incident.			
C.	Status of structures, the start of the even	systems, or compon t that contributed	ents that were inoperable at to the event:			
	Not applicable - no structures, systems, or components were inoperable at the start of the event that have been determined to have contributed to the event.					
D.	Cause of each compone	Cause of each component or system failure, if known:				
	Not applicable - no component or system failures have been identified.					
E.	Failure mode, mechani known:	Failure mode, mechanism, and effect of each failed component, if known:				
	Not applicable - no f	ailed çomponents ha	ve been identified.			
F.	For failures of compo or secondary function	nents with multiple s that were also af	functions, list of systems fected:			
	Not applicable - no c	omponent failures h	ave been identified.			
· G.	For failures that ren estimated time elapse train was returned to	dered a train of a d from the discover service:	safety system inoperable, y of the failure until the			
	Not applicable - no f	ailures have been i	dentified.			
н.	<pre>•Method of discovery o procedural error:</pre>	f each component or	system failure or 🛛 🛶			
	Not applicable - no c errors have been iden	omponent or system tified.	failures or procedural			
I.	Cause of Event:					
	,The cause of the CPIA for RU-38 due to a lo	S ESF actuation was ss of power to dist	a loss of power to the RIC ribution panel 1E-PNB-D26.			
	After having investig event there has been cause the MCC Breaker manual operation.	ated the apparent p no single reproduci M3626 contactor to	otential causes for the ble occurrence that could open then reclose without			
	А					

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NRC FORM 366A , (6.89)	_	U.S. 1	UCLEAR REGULATORY COMMISSION	APPROVED OMB NO. 3150-0104		
I	LICENS TEX	EE EVENT REPORT (T CONTINUATION	LER)	EXPIRES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 2055, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.		
FACILITY NAME (1)			DOCKET NUMBER (2)	LER NUMBER (6) PAGE (3)		
		· '		YEAR WISSEGUENTIAL WINDER		
Palo Verde	Unit 1		0 5 0 0 0 5 2 8	8 9 — 0 0 6 — 0 1 0 5 0F 1 3		
TEXT (<i>II more spece is required, use e</i>	A los would panel	s of power to M1(have resulted in s which was not (0 or load shedding n the loss of other evidenced by the al	by BOP ESFAS relay K202 equipment and distribution arm readout.		
	A gro closi	und fault trippin ng the breaker an	ng M3626 would not nd the contactor.	reset without an operator		
	Shifting of the transfer switch to off on 1E-PNB-V26 would cause a loss of panel 1E-PNB-D26 but would not interrupt power to the voltage regulator and the alarm point "PNB-D26 STBY SPLY LOST" would not be actuated.					
- -	The Nuclear Operator's statement of how he conducted the load stripping and the Reactor Operator's statement that the Nuclear Operator was on the phone as the actuations occurred, also verified by the RMS alarm typer and walk through reenactment gives credence to the statement by the Nuclear Operator that he was not at the breaker M3626 when the loss of power to 1E-PNB-D26 did occur.					
	Due to the indeterminate nature of the specific cause of the event, two types of potential causes have been identified; control equipment malfunction and operator actuation of electrical supply breakers.					
-	Equip	ment Malfunction	Action Plan .			
	1.	Research alarm l loss did indeed	PNB-D26 STBY SPLY L occur.	OST alarm to ensure a power		
. · /	2.	Check operation	of BOP ESFAS relay	K202 (load shed)		
	-3.	Check continuity sequencing relay	y of BOP,ESFAS rela y)	y (RLY) K232 (start		
	4.	Perform inspect operation.	ion of breaker M322	6 to ensure proper		
	5.	Perform reenactr time of the even	ment of plant condi nt.	tions and evolutions at the		
	6.	Perform BOP ESF	AS power supplies t	est.		
	Opera	tor Error Action	Plan			
	1.	Review alarm typ to establish chu information.	pers (TPW) in regar ronology of events	d to statements and attempt and fill in any missing		

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NRC FORM 366A . (6-89)		U.S. NUCLEAR REGULATORY COMMISSION	APPROVED OMB NO, 3150-0104 EXPIRES: 4/30/92
	LICENS	EE EVENT REPORT (LER) T CONTINUATION	ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS, FORWARD COMMENTS REGADDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 2055, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.
FACILITY NAME (1)		DOCKET NUMBER (2)	LER NUMBER (6) PAGE (3)
Palo Verde	Unit 1	0 5 0 0 0 5 2 8	819 - 010 6 - 011 016 OF 1 3
TEXT (If more spece is required, i	2.	Walk through operators' statement: questions for personnel interview	s to obtain information for
	3.	Conduct personal interviews to at information and clarify previously	tempt to collect additional y gathered information.
ж	4.	Perform test of "B" Charger alarm whether additional information can	to determine validity and n be drawn from it.
	5.	Perform operator reenactment to condetermine missing items.	orrelate information and
	Equip	ment Malfunction Action Plan Result	ts
	. 1.	Equipment Malfunction of the equip resulted in the loss of power ala	oment which could have
•		Due to the unusual nature in which lost and returned it was necessary of power on 1E-PNB-D26 had occurre to the opening of the M3626 breake downstream problem with the invert switch.	n power to 1E-PNB-D26 was y to determine that a loss ed and that the loss was due er or contactor and not a ter (INVT) or transfer
		The alarm PNB-D26 STBY SPLY LOST of contact associated with the M3626 therefore, the M3626 contact was of the alarm and then reclosed approx	only indicates when the contactor is open; open during the duration of kimately 1 minute later.
.`	2.	Equipment Malfunction of the BOP B shed M3626	ESFAS relay K202 to load
•		BOP ESFAS relay K202 was scrutiniz possibility that it was momentari condition causing the loss of powe inverter.	zed to determine the ly moved to its actuated er to the "B" 120 AC
		It was determined that the K2O2 re have also caused a loss of standby inverter and the alarm "C INV STB)	elay, had it pulsed would / power to the "C" 120 AC / SPLY LOST" to be received.
		Inspection of the Plant Monitoring showed that it was not received at alarm later that following day, du showed that the alarm was function state at the time of the incident K202 had indeed caused a shedding	g System (PMS) alarm typer t that time. Receipt of the uring a separate evolution, ning and in a non-alarming and would have come in if of M3626.

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NRC FORM 366A (6-89)	U.S.	NUCLEAR REGULATORY COMMISSION	APPROVED OMB NO. 3150-0104 EXPIRES: 4/30/92
LICENS TEX	EE EVENT REPORT	(LER)	ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.
FACILITY NAME (1)	•	DOCKET NUMBER (2)	LER NUMBER (6) PAGE (3)
			VEAR WESSEDUENTIAL WEREVISION
Palo Verde Unit 1		0 5 0 0 0 5 2 8	819 - 010 6 - 011 017 OF 13
TEXT III more space is required, use additional NRI	Form 3004'9/077 Inspection was the one in ques could have actu functions and i due to the cons that could occu	made of a Potter Br stion to determine i lated and displayed t was determined by struction of the rel ir and had no histor	rumfield relay identical to if it was feasible that K202 only part of its assigned y the System Engineer that ay it was unlikely that ry of that type of failure.
3.	Equipment Malfu power M3626 K232 was checke resistance acro was in its norm lost to the bre have to be depr circuitry to al	nction of the BOP E d by removing the c ss the contact. It al configuration in aker M3626, the con ressed to restore th low the inverter to	SFAS relay K232 to restore contact leads and measuring was determined that K232 mplying that if power were stactor pushbutton would be path in the control
-	It was determin inspected to en providing a pat During performa pushbutton was required to be	ed that the close p sure it was not stu h for inappropriate nce of an authorize verified to be func pushed to close the	oushbutton should be ack closed also potentially e contact operation. ed work order, the close ctioning properly, and is e contactor.
4.	Equipment Malfu temporarily los	nction of the M3626 t and restored powe	5 Breaker could have er to 1E-PNB-D26
• •	Inspection of b AC inverter, wa and checked for contacts. It p ensuring it ope breaker, and th the contactor a	preaker M3626, power s performed, under loose or burnt wir erformed a function erated normally on a at the pushbutton w fter power was rest	r supply breaker to "B" 120 an authorized work order, ring, burnt or pitted al check of the breaker a loss of power to the vas indeed required to close cored.
	Through the cou detected within or return of po	rse of the inspecti M3626 that could a wer without operato	on no problems were account for either the loss or action.
	It is necessary after the tempo been returned t to the event fr believed to be	to note that this rary power had been o normal and remove om further investig a likely cause.	inspection was conducted removed and the system had d a potential contributor ation; however, it is not

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NRC FORM 366A		U.S.	NUCLEAR REGULATORY COMMISSION	APPROVED OMB NO. 3150 0104
	LICENS TEX	EE EVENT REPORT	(LER)	EXPIRES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 500 HRS, FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S, NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.
FACILITY NAME (1)			DOCKET NUMBER (2)	LER NUMBER (6) PAGE (3)
				YEAR WINSCOUNTAL WINSCON
Palo Verd	de Unit 1		0 5 0 0 0 5 2 8	8 9 - 0 0 6 - 0 1 0 8 0F 1 3
TEXT (If more space is required	d, use additional NR(: Form 366A's) (17)		· · · · · ·
	5.	Equipment Malfu	inction of unknown of	prigin
^		A reenactment of up to the event evolutions and ESFAS from its source would ca be seen, genera	of the plant conditi t was performed to c the transferring of normal AC source to ause any peculiar ac ated by the BOP ESFA	ions and evolutions leading determine if different plant f power supplying the BOP o a slightly degraded DC ctivities or indications to AS cabinet.
		The reenactment and allowed the being powered f degraded, the A ESFAS and the p	t was conducted per e "B" Battery Bus to from its battery alc AC power was then in plant monitored for	an authorized work order, o degrade slightly while one. With the battery bus iterrupted to the "B" BOP a response.
- -		Though the cabi related to the did provide an power.	inet showed no respo loss of power to th unexpected response	onse that could be directly ne "B" 120 AC regulator, it e upon re-energizing AC
		When AC power w typer showed th associated with Actuation Signa Signal (AFAS) 1 Isolation Actua action returned	vas returned to the nat the load sequence n a CREFAS, Fuel Bui al (FBEVAS), Auxilia and 2, CPIAS and C ation Signal (CRVIAS I 1 minute later to	cabinet, the PMS alarm cer went into the mode ilding Essential Ventilation ary Feedwater Actuation Control Room Ventilation S) and then without operator mode "zero", or normal mode.
	•	The System Engi beneficial to p power supplies support for the	neer evaluated this perform a test on th and ensure they wer e cabinet.	and determined it would be ne "B" BOP ESFAS cabinets re providing adequate
		This was perfor	med as stated in th	e following action plan.
•	6.	Equipment Malfu	nction of the "B" B	30P ESFAS power supplies
		Performance of accomplished in potential cause the previous te	a test of the "B" B order to determine of the "B" BOP ESF est.	BOP ESFAS power supplies was if the supplies were a FAS indication seen during
	•	The test was ru malfunctions or de-energization	n on September 28, r abnormalities whic n of 1E-PNB-D26, "B"	1989 and exposed no h have any bearing on the ' train 120 volt AC.
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NRC FORM 366A .		U.S.	NUCLEAR REGULATORY COMMISSION	APPROVED OMB NO. 3150-0104
(923)	LICENS TEX	EE EVENT REPORT (T CONTINUATION	(LER)	EXPIRES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THI INFORMATION COLLECTION REQUEST: 500 HRS, FORWAR, COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORD AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAL REGULATORY COMMISSION, WASHINGTON, DC 2055, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFIC OF MANAGEMENT AND BUDGET, WASHINGTON, DC 2050.
FACILITY NAME (1)			DOCKET NUMBER (2)	LER NUMBER (6) PAGE (3) YEAR SEQUENTIAL REVISION NUMBER
Palo Verde	e Unit 1	6.com 3654/01 (17)	0 5 0 0 0 5 2 8	819 - 010 6 - 011 019 0F 1 1
	Opera	ator Error Action	Plan Results	,
	1	Review alarms t	o correlate stateme	ent
		Review of the R alarm typers sh typers of one m times of actuat shows that the monitor (RU-34) actuations occu would be one of	adiation Monitoring owed a disparity in inute and eighteen ion. Using this as Nuclear Operator re two minutes and fi rred. RU-34 being the first breakers	g System (RMS)(IL) and PMS a the times of the two seconds by comparing the s a guide the RMS typer emoved power from radiation ive seconds before the powered from breaker M3437 s to be opened on MCC M34.
,		The next breake been the M3406 This breaker wa Operator had op room to request give indication monitor was "of would give no i	r that should have breaker which was s s supplied temporar ened mistakenly and information. That and subsequent res f the line and unre ndication if the po	caused an alarm would have supplying power to RU-146. by power that the Nuclear I had called the control breaker did not, however, search showed that the eachable" and therefore ower was interrupted.
. '		The next alarm 45 seconds prio Battery Charger alarm could be feeder breaker charger. The s having concise off the line in of 1E-PNB-D26.	pertaining to the s r to the actuations trouble alarm. Re brought in either f (M3627), or the AC hift supervisor sta communication that accordance with pr	equence of events occurred and that was the "B" esearch showed that the from the opening of the AC input breaker at the ites that he remembers the "B" Battery Charger was ocedure prior to the loss
	• •	It was also not it is expected would have also failure but, th	ed that if those br that M3628 (the nex been opened and al is alarm was not re	eakers had been opened then t breaker in the series) armed on RU-143 detector ceived.
	2.	Walkdown Sequen	ce of events to cor	relate statements
,		To gain orienta necessary for t the personnel s accurately desc progress would	tion with the seque he investigator to tatements to attemp ribed the manner in have evolved.	ence of events it was walk down the event with ot to determine if they which the evolutions in
		Using known tim that the manner normal and appr	es of events from t in which the Nucle opriate and would t	he alarm typer it was found ar Operator proceeded was ake the approximate amount

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NRC FORM 366A . 13-89)	U.S. N	IUCLEAR REGULATORY COMMISSION	APPROVED OMB NO, 3150 0104 EXPIRES: 4/30/92
LICENSI TEX	EE EVENT REPORT (T CONTINUATION	LER)	ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P\$30), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3160-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.
FACILITY NAME (1)		DOCKET NUMBER (2)	LER NUMBER (6) PAGE (3)
			YEAR WESSEQUENTIAL WORKSION
Palo Verde Unit 1		0 5 0 0 0 5 2 8	8 9 - 0 0 6 - 0 1 10 0 1 3
TEXT [If more space is required, use additional NRC	Form 366A's) (17)	<u>, , , , , , , , , , , , , , , , , , , </u>	· · · · · ·
	of time stated control room and actuations occur the operator wor MCC M34 and prov M36 (M3626 caus in the time fran Observation of there was nothin indication that the cause of, an Therefore, the question the ye encountered add that correlates supposition bein proceeded to MCC breaker, in a m seconds and open would have had approximately 30 middle of the en	to strip loads up t d have it be at the rred. It also disp uld have been able ceed to MCC M36 and ing the actuation) me as outlined by t equipment and break ng that would have anything was actua nd led him to call statement that he c llow tag that was o ressing temporary p into the time rest ng that he stripped C M36 and opened th inute and twenty se ned the breaker nex to hurry to the pho O feet away) and ca volution for no rea	to M3406 then call the same time as the layed an unlikelihood that to complete stripping of complete stripping of MCC and call the control room the alarm typer. the alarm typer. ters in the area showed that given the operator ting, that he may have been the control room. called the control room to on M3406 (the first tag lower) is a logical action raints. The adverse all of MCC M34 then the "B" Battery Charger conds, then waited 40 t to it (M3626). Then he one (3 to 5 seconds, 11 the control room in the son other than to question
· ·	a breaker that Personal intervision conducted througemphasis on even to 1E-PNB-D26.	nad been opened mom iews with the opera gh a reenactment of nts leading to and	tors concerned were the event with particular following the loss of power
4.	Walk-through of	personnel statemen	ts
· · ·	On August 26, 19 was performed to acquired from th and plant data more information of communication	989 a walk-through o attempt to elicit he personnel statem recording mediums; n concerning time b ns between operator	of the personnel statements more facts than those ents, personnel interviews specifically trying to gain etween actions and content s.
	From the Reactor that he had enter Assistant Shift Supervisor a con evolution of dom in transit and the receipt of	r Operator's standp ered the control ro Supervisor's desk ncern about leaving wnpowering 1E-PBB-S had not reached the the actuation.	oint it was established om and started to the to discuss with the Shift CPIAS unbypassed for the 04. He was speaking while assistant's desk prior to
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NRC FORM 366A (5-89)	U.S. M	UCLEAR REGULATORY COMMISSION	APPROVED OMB NO. 3150-0104
LICEN	ISEE EVENT REPORT (EXT CONTINUATION	LER)	EXPIRES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 2055, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.
FACILITY NAME (1)		DOCKET NUMBER (2)	LER NUMBER (6) PAGE (3)
			VEAR WINSER NUMBER
Palo Verde Unit		0 5 0 0 0 5 2 8	8 9 - 0 0 6 - 0 1 11 0 1 3
TEXT (If more space is required, use additional N	VRC Form 366A'sJ (17)		
-	From the time o Nuclear Operato silence the ala acknowledge but	f the actuation unt r the Reactor Opera rm using the BO7 Ma ton then answer the	cil the phone call from the ator only had time to ain Control Board e phone immediately adjacent.
	He spoke moment whether to open	arily with the Nucl temporary powered	lear Operator concerning breakers.
	Following the p proceeded to BO alarm response was not previou pertinent.	hone conversation t 6 Main Control Boar for CREFAS. He sta sly in service and	the Reactor Operator then d where he addressed the ated that he knew that CPIAS considered CREFAS more
2	The alarm respo actuations, whi that the affect responded prope the Shift Super actuation.	nse directed the op ch he then proceede ed equipment was al rly he went to the visor in determinin	perator to verify equipment ed to do. After verifying I either tagged out or had system prints to accompany ng the specific cause of the
.*	Upon determinat he contacted th the control roo and the Reactor he waited on th that the breake	ion of the affected e Nuclear Operator m. The Nuclear Ope Operator told him e line. The operat r was found closed.	l breaker he then believes by radio and had him call erator responded with a call to check closed M3626 while or returned information
.`	The expired tim Operator made t identification	e from the actuation he Nuclear Operator being approximately	on until the Reactor r aware of the breaker v 1.5-2 minutes.
•	The walk with t as the Nuclear any clarificati communications.	he Nuclear Operator Operator's statemen on as to the conten	was essentially the same at and also did not provide at of the phone
Bas ide	ed upon this inves ntified.	tigation, several p	ootential causes have been
Equ	ipment Malfunction	S	
. 1.	1E-PNB-D26 beca operator action	me deenergized and	reenergized with no
2.	Alarm indicatin without a loss	g loss of standby s of 1E-PNB-D26.	supply to 1E-PNB-D26 alarms

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NRC FORM 366A (689)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED OMB NO. 3150-0104		
LICENSEE EVENT REPORT TEXT CONTINUATION			(LER)	EXPIRES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH T INFORMATION COLLECTION REQUEST: 500 HRS. FORWA COMMENTS REGARDING BURDEN ESTIMATE TO THE RECO AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLE REGULATORY COMMISSION, WASHINGTON, DC 2055, AND THE PAPERWORK REDUCTION PROJECT (3150-0104), OFF OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.		
ACILITY NAME (1)		•	DOCKET NUMBER (2)	LER NUMBER (6) PAGE (3)		
				VEAR SUBSCRUDER		
Palo Ve	erde U	nit 1	0 5 0 0 0 5 2 8	8 9 0 0 6 0 1 1 2 0F 1		
	•	Personnel Errors				
		3. Inadequate pre of loads for l	briefing/instruction E-PBB-SO4 downpower.	n given prior to stripping		
		4. Inadequate/unc temporary powe	lear instructions on yellow tag for M3626 T MOD r.			
	5. Inadequate attention to detail to plant yellow tags and intended purpose.					
		6. Lack of respon in the face of	. Lack of responsibility in reporting actual plant conditions in the face of potential personnel error.			
	J.	Safety System Respon				
		As described above in Section I.B the safety systems were in their actuated positions before the event except for the Train "B" Control Room Essential AHU which started automatically.				
	к.	Failed Component Info	ormation:			
		Not applicable - no	failed components ha	we been identified.		
II.	ASSESSMENT OF THE SAFETY CONSEQUENCES AND IMPLICATIONS OF THIS EVENT:					
	During this event all fuel was stored in the Spent Fuel Pool (ND). All safety systems required to operate were in their actuated positions or actuated as designed when the event occurred. The event did not result in any challenges to fission product barriers or result in any releases of radioactive materials. Therefore, there were no safety consequences or implications as a result of this event. This event did not adversel affect the safe operation of the plant or health and safety of the public.					
· III.	CORRECTIVE ACTIONS:					
	Α.	Immediate:				
		Power was restored to reenergized RU-38. I CREFAS were reset.	o distribution panel RU-38 was placed bac	1E-PNB-D26 which k on line and CPIAS and		
	Β.	Action to Prevent Red	currence:	, ,		
		Since the root cause actions will address	of this event is in the potential cause	determinate corrective s.		

NRC FORM 366A (U-89)	U.S. N	UCLEAR REGULATORY COMMISSION	APPROVED OMB NO. 3150-0104			
	LICENSEE EVENT REPORT (I TEXT CONTINUATION	LER)	EXPIRES: 4/30/92 ESTIMATED BURDEN PER RESPONSE TO COMPLY WTH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150.0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503,			
FACILITY NAME (1)	· · · ·	DOCKET NUMBER (2)	LER NUMBER (6) PAGE (3) YEAR SEQUENTIAL REVISION NUMBER NUMBER PAGE (3)			
Palo Ve	erde Unit 1	0 5 0 0 0 5 2 8	819 - 01016 - 011 113 0F 113			
TEXT (<i>If more space is n</i>	Ensure all operations required reading, use any similar types of e management.	personnel are awar caution during rel events to engineeri	re of this incident via ated evolutions, and report ng and operations			
	Expected Completion Da	Expected Completion Date: January 31, 1990				
	The tagging procedure yellow caution tags sp	The tagging procedure 40AC-90P15 will be revised to require that yellow caution tags specify the position of breakers.				
	Expected Completion Da	Expected Completion Date: February 28, 1990				
	The area 4 Nuclear Operator has been counseled regarding the responsibilities of plant operations.					
	If a root cause can be submitted identifying be taken.	e determined a supp the root cause and	lement to this LER will be any corrective actions to			
IV.	PREVIOUS SIMILAR EVENTS:	IOUS SIMILAR EVENTS:				
	Other ESF actuations have been previously reported. Since the root cause of this event is indeterminate, it cannot be determined if previously reported events were similar or if previous corrective actions could have prevented this event.					
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