Arizona Public Service Company

Р.О. ВОХ 53999 - PHOENIX, ARIZONA 85072-3996 192-00491-JGH/TDS/DAJ June 8, 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 No. NPF-41) Licensee Event Report 89-012-00 File: 89-020-404

Attached please find Licensee Event Report (LER) No. 89-012-00 prepared and submitted pursuant to 10CFR 50.73. In accordance with 10CFR 50.73(d), we are herewith forwarding a copy of the LER 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,

VG Haynes

J. G. Haynes Vice President Nuclear Production

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JGH/TDS/DAJ/kj

Attachment

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

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		LICE	INSEE EVE	ENT RE	PORT	(LER)		APPROVEI EXPIRES I	D DIMB 8/21/66	NO. 3150-1	0104
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Ι.	DESI	CRIPTION OF WH	AT OCCURRE	D:							
	Α.	Initial Cond	iitions:								
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As part of the APS investigation, engineering department personnel have been reviewing the adequacy of emergency lighting available for performing a shutdown outside the control room due to a fire and assuming a concurrent loss of off-site power and unavailability of normal and essential lighting (per 10CFR50 Appendix R requirements). Utilizing appropriate design documentation and 42A0-2ZZ44, "Shutdown Outside the Control Room Due to Fire and/or Smoke," APS Nuclear Engineering Department (NED) personnel identified the equipment required to be operated from outside the control room. Next, Unit 2 Operations, Engineering Evaluations Department (EED), and Operations Standards personnel performed system walkdowns to identify potential lighting problems. The system walkdowns were performed using the following acceptance criteria:

- The Safe Shutdown equipment in 42A0-2ZZ24, "Shutdown Outside the Control Room Due to Fire and/or Smoke (Unit 2)," was accessible utilizing a Safe Shutdown pathway being illuminated with eight (8)-hour emergency lighting.
- The Safe Shutdown equipment was identifiable utilizing the Equipment Identification Tag and available eight (8)-hour emergency lighting.
- The actions required by 42AO-22Z44 were capable of being performed utilizing available eight (8)-hour emergency lighting.

The potential lighting problems identified during the system walkdowns were reviewed to determine which of the problems were design basis deficiencies (i.e., not in compliance with 10CFR50 Appendix R and UFSAR Design Bases). The review was performed by management and engineering personnel from EED, NED, and Operations Standards. Based upon the results of the system walkdowns and engineering reviews, APS has determined that the following emergency lighting was required to be added in the following Unit 2 areas in order to meet the Emergency Lighting System Design Basis requirements in Section 9.5.1 of the UFSAR or the requirements of 10CFR50 Appendix R (III)(J):

 Emergency lighting is being added for operating SIB-UV-671, "Containment Spray Control Valve" (BE)(V). SIB-UV-671 is located on the 88 foot elevation of the Auxiliary Building (NF) and is required to be closed in order to prevent the inadvertent loss of Refueling Water Tank (RWT)(CB)(TK) water and/or the initiation of an undesired Recirculation Actuation (JE)(BP).

NRC FORM 366A

LICENSEE EVENT REPORT (L	LER) TEXT	CONTINUATION
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NRC Form 366A

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- Emergency lighting is being added for performing necessary 2. operations in Auxiliary Relay Cabinet ZAA-CO3 (CAB). The cabinet is located on the 120 foot elevation of the Auxiliary Building. A disconnect switch (JS) is required to be opened in order to prevent spurious signals from opening of Auxiliary Spray Valve CHA-HV-205 (CB)(V) and subsequent uncontrolled cool-down.
- Emergency lighting is being installed for six (6) valves 3. which are required to be operated in order to sample Reactor Coolant System (RCS)(AB) boron concentration:
 - a. Valves EW-HCV-146 and EW-HCV-66, "Nuclear Cooling Water System (NCWS)(CC) Supply Isolations" are located in the Shutdown Heat Exchanger (BP)(HX) Valve (V) Gallery on the 70 foot elevation of the Auxiliary Building. These valves are required to be unlocked and opened in order to provide a source of cooling water (Essential Cooling Water System (BI)) to the Nuclear Sampling System sample cooler (CLR).
 - b. Valve SSN-V819, "RCS Hot Leg Loop 1 Sample Line Isolation Valve (SSN-HV15) Bypass" (V) is located on the 88 foot elevation of the Auxiliary Building. This valve is required to be opened to provide a flow path for the RCS water since valve SSN-HW.5, "RCS Hot ing Loop 1 Sample Line Isolation Valve" (V) fails that upon a loss of power.
 - c. Valves NC-V049, "Sample Cooler AX-9 Inlet" (CLR) and NC-V054, "Sample Cooler AX-9 Outlet" are located on the 140 fact elevation of the Auxiliary Building. These valves are required to be checked open in order to ensure that the RCS sample is sufficiently cooled.
 - d. Valve NCN-UV-99, "Normal Chillers Return to Nuclear Cooling Isolation" is located on the 77 foot elevation of the Auxiliary Building. This valve is required to be shut in order to isolate the Normal Chillers (KM)(CHU) so that an excessive demand is not placed on the Essential Cooling Water System.
- 4. Emergency lighting is being installed for flow indicator NC-FI-55, "Sample Cooler AX-9 Nuclear Cooling Water Flow Indication" (FI). The flow indicator is located on the 140 foot elevation of the Auxiliary Building. The flow indicator is required to be monitored during boron sampling to ensure that Nuclear Cooling Water System flow is present.

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	LICENSEE EVENT REPORT (LER) TEXT CONTINUATION	APPROVED OMB NO 3150-010
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5. Emergency lighting is being added for performing necessary actions in Direct Current (DC) Control Centers E-PKA-M41 and E-PKB-M42 (EJ). The DC Control Centers are located on the 100 foot elevation of the Control Building (NA). Several control switches and breakers are required to be operated inside the control centers in order to prevent spurious actuations. These actions are required to preclude steam generator (SG) overfilling, uncontrolled RCS cool-down, degraded core cooling, and to isolate spurious control room signals. 155104

- Emergency lighting is being added for monitoring Emergency Diesel Generator "B" (EK)(DG) operation on panel J-DGB-B01 (PNL). The panel is located on the 100 foot elevation of the Diesel Generator Building (NB).
- 7. Emergency lighting is being installed for breakers E-NAN-SOIL, E-NAN-SOIM, E-NAN-SO2L, and E-NAN-SO2M, "13 kv Supply Breakers to Reactor Coolant Pumps (RCPs)" (BKR)(EA). The breakers are located on the 100 foot elevation of the Turbine Building (NM). The breakers are required to be opened to stop the RCP's and remove fuses (FU; in order to prevent inadvertent pump restarts.
- 8. Emergency Lighting is being added for performing necessary actions in Motor Control Center E-PHE-M32 (ED). The control center is Tocated on the 100 foot elevation of the Control Building. Breaker PHB-M3222 (BKR) is required to be closed following an Emergency Diesel Generator start in order to sequence on the Engineered Safety Features (ESF) Equipment Room Essential Air Handling Units (VI)(AHU).
- 9. Emergency lighting is being added for performing necessary actions in Auxiliary Relay Cabinet ZJB-CO1 (CAB). The cabinet is located on the 100 foot elevation of the Control Building. Disconnect switches are required to be operated in order to prevent spurious signals from opening of ESF Switchgear Room Isolation Dampers (DMP). This is required in order to ensure continued habitability of the ESF Switchgear Rooms and Remote Shutdown Rooms.
- 10. Emergency lighting is being added for determining the level in the "B" Train Essential Chilled Water System (EC)(KM) surge tank. The EC Surge Tank is located on the 74 foot elevation of the Control Building. The EC Surge Tank Level Indicator (LI) is required to be periodically checked to ensure adequate Chilled Water System inventory.

NRC FORM 3864

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	13.	Emergency ligh "Charging Line located on the	ting is Isolat	bei	Value	added	for (B)	r ope (V).	T	tine he y	g CH valv	I-HI	V-524 is	, The			

14. Emergency lighting is being added for illuminating the "B" Emergency Diesel Generator Jacket Cooling Water Surge Tank Level Indicator (LB)(LI); Drain Line N-033-HEDA; valve P-DGB-V013, "Jacket Water Make-up Combined Header Stop"; valve P-DGB-V064, "Jacket Water Make-up Combined Header Solenoid Stop Bypass"; and valve P-DGB-V072, "Jacket Water Standpipe Drain." These components are located on the 100 foot elevation of the Emergency Diesel Generator Building. These components are required to be illuminated in order to support local jacket cooling water make-up requirements.

System flowpath for boration.

valve is required to be opened in order to ensure a Charging

- 15. Emergency lighting is being added for ensuring Safe Shutdown access/egress pathways in the following locations:
 - a. Turbine Building 100 foot elevation, Room T101.
 - b. Auxiliary Building 70 foot elevation, Room A-B27
 - c. Control Building east stairwell from the 74 foot elevation to the 100 foot elevation, corridor J-A08, Stairway B.
 - Control Building/Turbine Building breezing access/egress on the 100 foot elevation near room J-123.

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		e. Auxiliary	Building 70 foot elev	ration, R	oom A-B18.	
	16.	Existing 1-1/2 emergency ligh	2 hour lighting is bei hting in the following	ng upgrad areas fi	ded to 8 ho or access/e	ur gress:
		a. Control Bu	uilding 100 foot eleva	ition, Ro	om J-103.	
		b. Auxiliary Room A-101	Building 100 foot ele	vation we	est hallway	near
		c. Auxiliary near Room	Building 120 foot lev A-216, and corridor r	el: Room lear Room	m A-206, co A-236.	rridor
	17.	Emergency Ligh operations in cabinet is loc Building. Dis opened in orde inadvertently uncontrolled 1	nting is being added f Auxiliary Relay Cabin cated on the 120 foot sconnect switch DS-21- er to prevent spurious opening an RCS vent v loss of RCS inventory.	or perfor et ZAA-CO elevation 08 is rec signals alve rest	rming neces D6 (CAB). n of the Au quired to b from ulting in a	sary The xiliary e n
	18.	Emergency Ligh Battery Charge 100 foot eleva required to be signals for in	nting is being added f er" (EJ)(BYC). The ch ation of the Control B e disconnected in orde advertently actuating	or E-PKD- arger is uilding. r to prev the bath	-H14, "Chann located on lhe charge vent spurio tery charge	nel 'D' the er is us r.
	The li Units engine perfor exist. descri	ghting issues 1 and 3 since ering walkdown med in Units 1 If additiona bed in a suppl	described above are a they were constructed is of emergency lighti and 3 to determine i al problems are identi ement to this report.	lso belie similarl ng system f additio fied, the	eved to exit ly. Further ns are being onal probler ey will be	st in r g ms
С.	Status the st	of structures art of the eve	s, systems, or compone ant that contributed t	nts that o the eve	were inoper ent:	rable at
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D.	Cause	of each compon	ent or system failure	, if know	Nn:	
	Not ap	plicable - no	component or system f	ailures w	vere involve	ed.
E.	Failur known:	e mode, mechan	nism, and effect of ea	ch failed	d component.	, if
	Not ap	plicable - no	component failures we	re involv	ved.	

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	F.	For failures of com or secondary functi	ponents with multiple ons that were also aff	functions, list of ected:	F systems
		Not applicable - no	component failures we	re involved.	
	G.	For failures that r estimated time elap train was returned	endered a train of a s sed from the discovery to service:	afety system inope of the failure ur	erable, atil the
		Not applicable - no	failures were involve	d.	
	Η.	Method of discovery procedural error:	of each component or	system failure or	
		Not applicable - th procedural errors.	ere were no component	or system failures	or
	Ι.	Cause of Event:			
		An independent inve accordance with the investigation is ex- upon the results of is expected to be s cause of this event	stigation of this even PVNGS Incident Invest pected to be completed this investigation, a ubmitted by August 30,	t is being conduct igation Program. by July 31, 1989. supplement to thi 1989 to describe	ed in The Based s report the
	J.	Safety System Respo	nsea		
		There were no safet	y system responses and	none were necessa	ary.
	К.	Failed Component In	formation:		
		Not applicable - no	component failures we	re involved.	
II.	ASSE	SSMENT OF THE SAFETY	CONSEQUENCES AND IMPL	ICATIONS OF THIS E	EVENT:
	10CF with area egre Basi syst NRC 10CF need rout	R50 Appendix R parag at least an 8-hour s needed for operati ss routes thereto." s Eighteen for the u ems shall be provide Branch Technical Pos R50, Appendix R, Sec ed for operation of es thereto"	raph III.J states, "Em battery power supply s on of safe shutdown eq The PVNGS UFSAR Secti nit lighting system st d in accordance with t ition APCSB 9.5-1 (rev tion III.J (issued Sep safe shutdown equipmen	ergency Lighting L hall be provided i uipment and in acc on 9.5.1.1.1 Safet ates, "Emergency 1 he guidance provid ised February 2, 1 tember 1, 1982), i t and in access ar	Units in all cess and ty Design lighting ded in 1977) and in areas nd egress

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The lighting deficiencies discussed in Section I.B could have resulted in operations personnel not being able to expeditiously perform required shutdown activities in the event that a plant shutdown was required due to a fire in the control room with a concurrent loss of off-site power. However, it should be noted that flashlights were available for use by operations personnel which could have been utilized to perform the required activities.

- III. CORRECTIVE ACTIONS:
 - A. Immediate:

Immediate corrective action was taken to prepare appropriate documentation for installing emergency lighting in Unit 2.

B. Action to Prevent Recurrence:

As action to prevent recurrence, APS engineering and operations department personnel have performed comprehensive lighting system walkdowns in Unit 2 and will perform appropriate system walkdowns in Units 1 and 3 prior to restart from their current refueling outages. Appropriate emergency lighting will be installed and/or modified to correct the lighting deficiencies prior to restarting Units 1, 2, and 3 from their current shutdowns.

IV. PREVIOUS SIMILAR EVENTS:

There have been no previous similar events reported pursuant to 10CFR50.73.