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SUBJECT: LER 89-021-01:on 891106,locked high radiation area gates found open & unguarded in both Units 1 & 3.

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Arizona Public Service Company
PALO VERDE NUCLEAR GENERATING STATION
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JAMES M. LEVINE
VICE PRESIDENT
NUCLEAR PRODUCTION

192-00629-JML/TRB/KR
February 8, 1990

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528 (License No. NPF-41)
Licensee Event Report 89-021-01
File: 90-020-404

Attached please find Supplement Number 1 to Licensee Event Report (LER) No. 89-021-00 prepared and submitted pursuant to 10CFR50.73. In accordance with 10CFR50.73(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. R. Bradish, (Acting) Compliance Manager at (602) 393-2521.

Very truly yours,

James M Levine

JML/TRB/KR/kj

Attachment

cc: W. F. Conway (all w/a)
E. E. Van Brunt
J. B. Martin
T. L. Chan
D. H. Coe
A. C. Gehr
INPO Records Center

NRC FORM 366 (6-89) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Palo Verde Unit 1	0 5 0 0 0 5 2 8	1 OF 0 8

TITLE (4)

Locked High Radiation Area Gates Found Open and Unguarded in Both Unit 1 and Unit 3

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
1 1	0 6	8 9	8 9	0 2 1	0 1				Palo Verde Unit 3	0 5 0 0 0 5 3 0
									N/A	0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Thomas R. Bradish, (Acting) Compliance Manager	AREA CODE 6 0 2 3 9 3 - 2 5 2 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On November 6, 1989, at approximately 0905 MST, Palo Verde Unit 3 was in Mode 5 (COLD SHUTDOWN) when a Unit 3 Radiation Protection Technician (RPT) discovered a Unit 3 Locked High Radiation Area (LHRA) gate open and unguarded. The gate was last verified to be locked at approximately 0815 MST on November 6, 1989.

On November 9, 1989, at approximately 0745 MST, Palo Verde Unit 1 was in a refueling outage with the core off-loaded when a Unit 1 RPT discovered a Unit 1 Locked High Radiation Area (LHRA) gate open and unguarded. The gate was last verified to be locked at approximately 2100 MST on November 8, 1989.

The open and unguarded gates are contrary to the administrative requirements of Technical Specification 6.12.2. The individuals responsible for opening the LHRA gates have not been identified. The root cause of the unauthorized, open LHRA gates was that the gates were intentionally forced open by unknown individuals.

As immediate corrective action, Radiation Protection personnel verified the rooms to be unoccupied and secured the gates. Furthermore, additional locking mechanisms have been installed on the LHRA doors and gates in Units 1, 2, and 3 to prevent unauthorized entry.

A previous similar event was reported in Unit 3 LER 88-005.

I. DESCRIPTION OF WHAT OCCURRED:

A. Initial Conditions:

On November 6, 1989, Palo Verde Unit 3 was in Mode 5 (COLD SHUTDOWN) at approximately 370 pounds per square inch (psi) and 120 degrees Fahrenheit (F). On November 9, 1989, Palo Verde Unit 1 was in a refueling outage with the core (AC) off-loaded to the Spent Fuel Pool (ND).

B. Reportable Event Description (Including Dates and Approximate Times of Major Occurrences):

Event Classification: Conditions prohibited by the plant's Technical Specifications (6.12.2) and Title 10 of the Code of Federal Regulations, Part 20, Standards for Protection Against Radiation, Section 20.203(c)(2).

On November 6, 1989, at approximately 0905 MST, a Unit 3 Radiation Protection Technician (RPT) (contractor, non-licensed) discovered a Locked High Radiation Area (LHRA) gate open and unguarded. The gate is located in Unit 3 on the 70' elevation of the Auxiliary Building (NF) at the access point to the "A" Shutdown Cooling (BP) Heat Exchanger (HX) Room. The posting on the exterior side of the gate met the requirements of the station posting procedure. In addition, the interior access way was posted with an LHRA posting. The gate and its locking mechanism showed evidence of tampering. The gate was last verified to be shut and locked at approximately 0815 MST on November 6, 1989, during a routine LHRA door check performed each shift.

Subsequently, on November 9, 1989, at approximately 0745 MST, a Unit 1 RPT (contractor, non-licensed) discovered an LHRA gate open and unguarded during a routine LHRA door check. The gate is located in Unit 1 on the 112' elevation of the Radwaste Building (NE) at the access point to the High Level Storage Area. The posting on the exterior side of the gate met the requirements of the station posting procedure. While the gate was open, the LHRA posting was not visible. The gate was last verified to be shut and locked at approximately 2100 MST on November 8, 1989, during a routine LHRA door check.

The open and unguarded gates are contrary to the administrative requirements of Technical Specification 6.12.2 and Title 10 of the Code of Federal Regulations, Part 20, "Standards for Protection

Against Radiation," Section 20.203(c)(2).

Technical Specification 6.12.1 requires that each high radiation area in which the intensity of radiation is greater than 100 but less than 1000 millirem/hour (mrem/hr) shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by issuance of a Radiation Exposure Permit (REP). Any individual or group permitted to enter such areas shall be provided with or accompanied by one or more of the following:

a. A radiation monitoring device (RI) which continuously indicates the radiation dose in the area.

b. A radiation monitoring device which continuously integrates the radiation dose rates in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made knowledgeable of them.

c. A radiation protection qualified individual (i.e., qualified in radiation protection procedures) with a radiation dose rate monitoring device who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the facility Radiation Protection Supervisor or his designated alternate in the REP.

In addition to the above, Technical Specification 6.12.2 requires that areas with radiation levels greater than 1000 mrem/hr accessible to a major portion of the whole body shall be provided with locked doors to prevent unauthorized entry. The doors are to remain locked except during periods of access by personnel under an approved REP.

The documentation that supports the administrative control of LHRA access requirements indicates that no authorized entries were made into the affected areas during the time interval between LHRA door checks.

C. Status of structures, systems, or components that were inoperable at the start of the event that contributed to the event:

Not applicable - no structures, systems, or components were

inoperable at the start of the event which contributed to this event.

D. Cause of each component or system failure, if known:

Not applicable - no component or system failures were involved.

E. Failure mode, mechanism, and effect of each failed component, if known:

Not applicable - no component failures were involved.

F. For failures of components with multiple functions, list of systems or secondary functions that were also affected:

Not applicable - no component failures were involved.

G. For a failure that rendered a train of a safety system inoperable, estimated time elapsed from the discovery of the failure until the train was returned to service:

Not applicable - no failures were involved which rendered a train of a safety system inoperable.

H. Method of discovery of each component or system failure or procedural error:

Not applicable - there have been no component or system failures or procedural errors identified.

I. Cause of event

In an attempt to positively identify the individuals who opened the LHRA gates, interviews were conducted with the personnel who were in Unit 1 and 3's Radiologically Controlled Areas (RCA) during the periods for which the gates may have been open and unguarded. The individuals who opened the LHRA gates have not been identified.

The root cause of the unauthorized, open LHRA gates was that the gates were intentionally forced open by unknown individuals (SALP Cause Code X). The locking mechanisms installed on the gates were ineffective in preventing unauthorized, intentional opening (i.e., they could have been easily defeated with common hand tools). The Unit 3 gate and its locking mechanism showed evidence of

tampering. The documentation that supports the administrative control of LHRA access requirements (e.g., LHRA Key Issue Logs and Radiation Exposure Permit Sign-In Sheets) indicates that no authorized entries were made into the affected areas during the time interval between LHRA door checks. The Unit 1 gate could have been opened with common hand tools. The individuals opened the gates without authorization and without a key. The individuals who opened the gates violated LHRA administrative control requirements.

The ineffectiveness of the locksets installed on the LHRA gates to prevent unauthorized entry was identified and evaluated during a previous similar event (see Section IV). The corrective action recommendations included the implementation of a site modification to install special locking mechanisms on LHRA doors and gates that are expected to require locking as LHRAs. The site modification for installation of special locking mechanisms was issued but had not been implemented at the time of this event. The implementation of the site modification may have reduced the probability of an unauthorized, intentional opening of the LHRA gates. An investigation of the untimely completion of the site modification was performed.

In addition, an evaluation was performed of the existing LHRA administrative controls including procedures, posting, training, and work practices that control access to the LHRAs. The administrative controls were found to be adequate.

J. Safety System Response:

Not applicable - there were no safety system responses and none were necessary.

K. Failed Component Information:

Not applicable - no component failures were involved.

II. ASSESSMENT OF THE SAFETY CONSEQUENCES AND IMPLICATIONS OF THIS EVENT:

There exists no direct evidence that an entry into an LHRA was made. Information currently available does not indicate that unauthorized access into either or both LHRAs occurred and no unexpected radiation exposures have been recorded for personnel in both Unit 1 and Unit 3's RCA during the periods for which the gates may have been open and unguarded.

There were no safety consequences or implications resulting from this event as this event had no impact on the safe operation of the plant or the health and safety of the public.

III. CORRECTIVE ACTION:

A. Immediate:

As immediate corrective action, Radiation Protection personnel verified the rooms to be unoccupied and secured the gates. The dosimetry records were checked for all personnel who had access to Unit 1 and/or Unit 3's RCA during the periods for which the gates may have been open and unguarded. No unexpected radiation exposures had been recorded.

In addition, separate chains and padlocks have been utilized on the LHRA cage-type gates and anti-pick plates have been installed on the hollow metal LHRA doors to provide interim increased protection against unauthorized access to the LHRAs in Units 1, 2, and 3. Additional Radiation Protection administrative controls have been established in such a way that no individual will be prevented from leaving an LHRA where a chain and padlock has been utilized.

The priority of the site modification to install special locking mechanisms on LHRA doors and gates that are expected to require locking as LHRAs has been escalated for expeditious implementation. The new locksets have been ordered. Installation specifications for LHRA doors and gates are being developed.

The APS Vice President, Nuclear Production (utility, non-licensed) has issued a memo to all personnel stating that any intentional, unauthorized opening of a door, gate, or any other device used to control access to an LHRA or any unauthorized access into an LHRA will result in the termination of employment for the responsible individual.

As directed by the APS Vice President, Nuclear Production, an Incident Investigation Team was formed to conduct a Category 2 Incident Investigation to determine the root cause and corrective actions necessary to prevent recurrence.

B. Action to Prevent Recurrence:

An evaluation of the need for local alarms and/or self-closure mechanisms on LHRA doors and gates will be completed by February 28, 1990.

Applicable Radiation Protection procedures have been evaluated for inclusion of an additional requirement to post the interior access ways to LHRAs, such that the LHRA posting is still visible when the LHRA door or gate is open.

As a result of an evaluation of previous similar events at PVNGS, additional corrective actions have been identified as follows:

1. Applicable Radiation Protection procedures have been revised to specify that the PVNGS Site Radiation Protection Manager will be notified of recently established LHRAs, in order that management may initiate ALARA actions to reduce LHRAs.

2. Applicable Radiation Protection procedures have been revised to include enhancements (e.g., dual verification of LHRA door closure upon exit) to reduce the probability of personnel error.

As a result of an investigation of the untimely completion of a site modification to install special locking mechanisms on LHRA doors and gates that are expected to require locking as LHRAs, additional corrective actions have been identified as follows:

1. An evaluation will be performed of the causes of the untimely completion of the site modification and appropriate action(s) taken as necessary to improve the timeliness and quality of the design modification process at PVNGS. The evaluation will be completed by March 15, 1990.

2. Enhancements were made to the original site modification documents to upgrade the quality of the LHRA locking mechanisms.

3. The new locksets will be installed on all doors and gates which are currently posted as LHRAs thirty days following delivery of all required parts.

IV. PREVIOUS SIMILAR EVENTS:

A previous similar event was reported in Unit 3 LER 88-005. As reported previously, a maintenance technician entered an LHRA using a screwdriver to unlock the door and gain access into the area. The root cause was a cognitive personnel error on the part of the maintenance technician. The technician received appropriate disciplinary action and additional training. Plant personnel were informed of the event and other actions were taken to improve the Radiation Protection program. Additionally, locking mechanisms on the LHRA doors and gates were evaluated. A special locking mechanism was to be installed on LHRA doors and gates that were expected to require locking as LHRAs. It was determined that these special locking mechanisms would provide adequate protection against defeat by unauthorized personnel. These corrective action recommendations were intended to reduce the probability of personnel error and unauthorized, intentional opening events.