

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCZSSION NBR:8908180267 DOC.DATE: 89/08/14 NOTARIZED: NO DOCKET #  
 FACIL:STN-50-528 Palo Verde Nuclear Station, Unit 1, Arizona Publi 05000528  
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SUBJECT: LER 89-008-00:on 890429,low level radioactivity found in  
 onsite landfill.

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Arizona Public Service Company

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192-00506-JGH/TDS/RJR

August 14, 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 89-008-00  
File: 89-020-404

Attached please find Licensee Event Report (LER) No. 89-008-00 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,



J. G. Haynes  
Vice President  
Nuclear Production

JGH/TDS/RJR/kj

Attachment

cc: W. F. Conway (all w/a)  
D. B. Karner  
E. E. Van Brunt, Jr.  
J. B. Martin  
T. J. Polich  
M. J. Davis  
A. C. Gehr  
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## 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 6

TITLE (4)  
Low Level Radioactivity Found in On-Site Landfill

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)				
0	4	2	9	8	9	0	0	8	1	4	8	9	N/A	0 5 0 0 0 5 3 0
														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)	20.406(c)	60.73(a)(2)(iv)	73.71(b)						
				20.406(a)(1)(i)	60.36(c)(1)	60.73(a)(2)(v)	73.71(c)						
				20.406(a)(1)(ii)	60.36(c)(2)	60.73(a)(2)(vii)	X OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
				20.406(a)(1)(iii)	60.73(a)(2)(i)	60.73(a)(2)(viii)(A)	Voluntary Report						
				20.406(a)(1)(iv)	60.73(a)(2)(ii)	60.73(a)(2)(viii)(B)							
			20.406(a)(1)(v)	60.73(a)(2)(iii)	60.73(a)(2)(ix)								

## LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Timothy D. Shriver, 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	MANUFACTURER	REPORTABLE TO NRPDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS

## SUPPLEMENTAL REPORT EXPECTED (14)

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

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

On July 14, 1989 an internal audit revealed that cooling tower sludge contained low level amounts of radioactivity. An investigation determined that cooling tower sludge had been removed from Units 1 and 3 for disposal in an onsite landfill.

As corrective action the company has requested approval from a state agency to dispose of cooling tower sludge in the Landfill. Further the Company proposes to seek authority under 10 CFR 20.302 for onsite disposal of licensed material.



## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO 3150-0104

EXPIRES: 8/31/88

FACILITY NAME (1)  Palo Verde Unit 1	DOCKET NUMBER (2)  0 5 0 0 0 5 2 8 8 9 - 0 0 8 - 0 0	LER NUMBER (6)			PAGE (3)		
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

## I. DESCRIPTION OF WHAT OCCURRED:

## A. Initial Conditions:

On July 14, 1989 Palo Verde Unit 1 was in refueling with the reactor core off-loaded. Palo Verde Unit 3 was also in refueling with the reactor core off-loaded.

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

## Event Classification: Voluntary Report

During an internal Quality Assurance audit on Friday, July 14, 1989, one of the auditors (utility, non-licensed) became interested in the potential for radioactivity in Unit 1 cooling tower sludge. This interest stemmed from (1) an event in January 1987 when Unit 1 discovered a Steam Generator tube leak and shutdown for repairs, and (2) NRC Information Notices addressing the potential for radioactivity in sludge (e.g., Nos. 80-10, 85-92 and 88-22). A sample of the Unit 1 cooling tower sludge was drawn and analyzed. Low level amounts of Cobalt-60, Cesium-137 and Manganese-54 were discovered and an investigation was promptly initiated.

Thereafter, it was confirmed that cooling tower sludge had been removed from Units 1 and 3 for disposal in an onsite landfill (referred to as the Water Reclamation Facility Sludge Disposal Landfill). In respect to Unit 1, this had taken place on April 29, 1989, when approximately 120 cubic yards of material were transferred by dump truck from the Unit 1 cooling towers to the Landfill. Unit 3 cooling tower sludge had been disposed of in the Landfill between March 14, 1989 and June 24, 1989. In this case, approximately 340 cubic yards of sludge were disposed of in the Landfill.

During the course of investigation, the possibility of cooling tower sludge being disposed in the Rubbish Landfill and other locations at the Palo Verde Nuclear Generating Station was identified. Although there is no basis to conclude that these disposals included licensed material, the investigation will include an evaluation of these possible incidents.

The Landfill is operated subject to the conditions of a Groundwater Quality Protection Permit issued by the Arizona Department of Environmental Quality (ADEQ) on August 21, 1988. Generally, waste disposal of materials in the Landfill is limited to non-hazardous, non-putrescible, non-radioactive wastes in a manner approved by the ADEQ.





## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/88

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

Pursuant to the terms of that Permit, APS had requested approval from that Agency for disposal of cooling tower sludges in the Landfill, which APS believed had been granted on May 16, 1989. At the time the disposals in question took place, however, formal approval for the disposal of cooling tower sludge had in actuality not yet been received.

At the time the disposals were made in the Landfill, it was not believed that the sludge possessed radioactive characteristics because of analytical results obtained through testing of the secondary systems.

- 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 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 failures 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.

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

Not applicable - there were no component or system failures or procedural errors.



## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO 3150-0104

EXPIRES: 8/31/88

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

## I. Cause of Event:

APS utilizes a sampling procedure, which includes sample requirements for radioactivity, for discharge paths to the cooling water canals. Since sampling had not detected radioactivity there was no reason to believe that radioactivity existed in the cooling water canals. Thus, no sampling was conducted of the sludge prior to disposal to the landfill.

The sources of the low levels of radioactivity in the cooling tower sludge is presently theorized to be the process of regeneration of condensate demineralizer resin (SF), steam generator blowdown sumps (WI) and/or discharge of condensate (SD) to the circulating water system (KE). Since extremely low concentrations of radionuclides may be present in any of these paths, it may not be possible to positively identify the specific path that led to the sludge activity buildup.

## J. Safety System Response:

Not applicable - no safety system response was involved.

## K. Failed Component Information:

Not applicable - no failed components were involved.

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

The sludge was deposited at an on-site landfill. Micro R meter surveys of the affected area have indicated no detectable radiation levels above background. Thus, this event does not adversely affect the health and safety of the public.

## III. CORRECTIVE ACTIONS:

## A. Immediate:

On July 14, 1989, as a precaution, the Water Reclamation Landfill was posted as a CONTROLLED AREA BOUNDARY, RADIOACTIVE MATERIAL STORAGE AREA Radiation Exposure Permit (REP) required for entry.

During the period July 15-17, 1989 preliminary samples were taken by Arizona Public Service of the Unit 1 and Unit 3 cooling towers and the Water Reclamation Facility landfill. Results at each of these locations showed very low levels of radioactivity.



## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO 3150-0104

EXPIRES: 8/31/86

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TEXT (If more space is required, use additional NRC Form 365A's) (17)

On July 18, 1989 Arizona Public Service requested the services of Arizona State University for further analysis. This was done to provide an independent organization with environmental sampling expertise.

On July 18, 1989, samples were obtained of the Unit 1 and Unit 2 cooling tower sludge. The Unit 2 sludge samples were all less than the lower limit of detection for each sample. Further, eleven samples were taken in Area No. 1 of the WRF landfill and two samples were taken from in Area No. 2 of the WRF landfill.

Area 1 is approximately 90 feet by 440 feet and Area 2 is approximately 10 feet by 15 feet. These sites were chosen based on the color differences between the cooling tower sludge and the WRF sludge for area 1. Area 2 consisted of two discrete piles of cooling tower sludge and was identified by the individual who dumped the sludge.

On July 20, 1989, additional samples were taken of the Unit 1 and Unit 2 cooling tower sludge and a single sample of one location at the Water Reclamation landfill was taken for ion exchange resin examination.

Based on the gamma spectroscopic results of the landfill samples taken on July 18 and 20, a total of thirty-four more samples were taken from Area Nos. 1 and 2 on July 24, 1989. On July 27, 1989, eight additional samples were taken in Area No. 1 and 20 samples were taken from a new site in Area No. 1.

The sampling plan continued with an additional thirty samples taken on August 3, 1989 to determine the boundary of the Manganese-54, Cobalt-60, Cesium-134 and Cesium-137 positive indication shown in Area 1 and to confirm whether or not Cobalt-60 activity exists at the new site in Area 1 as previously indicated.

The landfill samples analyzed by Arizona State University have shown positive indications for Manganese-54, Cobalt-60, Cesium-134, and Cesium-137 at one sample location of approximately 40 feet by 40 feet by 1 foot deep in Area 1. At this location Cobalt-60 and Cesium-137 levels were found to have a value of 2E-6 microcuries per gram and Manganese-54 and Cesium-134 were found to have a value of 4E-7 microcuries per gram. All of the other samples from Area 1 and Area 2 have shown lower level of detection values for Manganese-54, Cobalt-60, Cesium-134, and Antimony-125, with the exception of one location of approximately 20 feet by 20 feet by 1 foot deep within Area 1 which gave a value of approximately 3E-8 microcuries per gram for Manganese-54 and approximately 9E-8 microcuries per gram for Cobalt-60. Cesium-137 levels found were similar to those levels detected in the preconstruction environmental soil analysis performed in 1976.



## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO 3150-0104

EXPIRES: 8/31/88

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

## B. Action to Prevent Recurrence:

The Company has requested that the ADEQ act upon its pending request for aproval to dispose of cooling tower sludge in the Landfill. Pending receipt of that approval, no further cooling tower sludge disposals will be made in the Landfill.

The Company proposes to seek authority under 10 CFR 20.302 for onsite disposal of licensed material, including cooling tower sludge. This approval would enable the Company to leave in place the cooling tower sludge already situated in the landfill, and would accommodate the need for future disposals as the need arises.

Retrieval of the material from the Landfill for eventual off-site disposal is not considered a preferred alternative because the material presents no hazards to human health and the environment. Such being the case, its disposal in low level radwaste facilities would be considered an inefficient use of available resources.

## IV. PREVIOUS SIMILAR EVENTS:

Not applicable - no similar events have been reported.

