

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8706230184 DOC. DATE: 87/06/12 NOTARIZED: NO DOCKET #  
 FACIL: STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Publi 05000529  
 AUTH. NAME AUTHOR AFFILIATION  
 BRADISH, T. R. Arizona Nuclear Power Project (formerly Arizona Public Serv  
 HAYNES, J. G. Arizona Nuclear Power Project (formerly Arizona Public Serv  
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-044-00: on 870515, discovered that 860423, both  
 independent trains of control room essential filtration sys  
 inoperable due to maint, exceeding action statement for Tech  
 Spec 3.7.7. Caused by design. W/880612 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: Standardized plant. M. Davis, NRR: 10y.

05000529

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PDS LA	1 1	PDS PD	1 1
	LICITRA, E	1 1	DAVIS, M	1 1
INTERNAL:	ACRS MICHELSON	1 1	ACRS MOELLER	2 2
	AEOD/DOA	1 1	AEOD/DSP/ROAB	2 2
	AEOD/DSP/TPAD	1 1	DEDRO	1 1
	NRR/DEST/ADF	1 0	NRR/DEST/ADS	1 0
	NRR/DEST/CEB	1 1	NRR/DEST/ELB	1 1
	NRR/DEST/ICSB	1 1	NRR/DEST/MEB	1 1
	NRR/DEST/MTD	1 1	NRR/DEST/PSB	1 1
	NRR/DEST/RSE	1 1	NRR/DEST/SCB	1 1
	NRR/DLPQ/HFT	1 1	NRR/DLPQ/GAB	1 1
	NRR/DOEA/EAB	1 1	NRR/DREP/RAB	1 1
	NRR/DREP/RPB	2 2	NRR/PMAS/ILRB	1 1
	NRR/PMAS/PTSB	1 1	REG FILE 02	1 1
	RES DEPY GI	1 1	RGN5 FILE 01	1 1
EXTERNAL:	EG&G GROH, M	5 5	H ST LOBBY WARD	1 1
	LPDR	1 1	NRC PDR	1 1
	NSIC HARRIS, J	1 1	NSIC MAYS, G	1 1
NOTES:		1 1		



## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>Palo Verde Unit 2</b>	DOCKET NUMBER (2) <b>0 5 0 0 0 5 2 9</b>	PAGE (3) <b>1 OF 0 3</b>
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TITLE (4) **Both Trains of Control Room Essential Filtration System Inoperable During Maintenance Due to Inadequate Design**

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	3	8	6	8	6	0	4	4	0	0	0	0	0	0	0	0
										N/A	0	5	0	0	0	0	0	0
										N/A	0	5	0	0	0	0	0	0

  

OPERATING MODE (8) <b>3</b>		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) <b>1</b> <b>0</b>		20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)			
		20.405(a)(1)(i)		50.38(c)(1)	<input checked="" type="checkbox"/>	50.73(a)(2)(v)		73.71(c)			
		20.405(a)(1)(ii)		50.38(c)(2)	<input checked="" type="checkbox"/>	50.73(a)(2)(vi)		OTHER (Specify in Abstract below and in Text, NRC Form 366A)			
		20.405(a)(1)(iii)	<input checked="" type="checkbox"/>	50.73(a)(2)(ii)		50.73(a)(2)(viii)(A)					
		20.405(a)(1)(iv)		50.73(a)(2)(iii)		50.73(a)(2)(viii)(B)					
		20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(ix)					

LICENSEE CONTACT FOR THIS LER (12)		TELEPHONE NUMBER	
NAME <b>Thomas R. Bradish, Compliance Supervisor (Ext. 6936)</b>		AREA CODE <b>6 0 2</b>	<b>9 3 2 1 - 5 3 0 0</b>

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO				
			<b>0 8</b>	<b>3 0</b>	<b>8 7</b>

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

On May 15, 1987, it was discovered that beginning on April 23, 1986 at 1500 MST through April 25, 1986 at 1004, with Palo Verde Unit 2 in Mode 3 (HOT STANDBY), both independent trains of the Control Room Essential Filtration System (CREFS) were inoperable as a result of a maintenance activity being conducted on one train. With both trains of CREFS inoperable, the ACTION Statement for Technical Specification 3.7.7 was exceeded and Limiting Condition for Operation 3.0.3 should have been entered.

As a result of an engineering evaluation, it was discovered that the design of the CREFS is such that the opening of a single duct or housing access door in either train of CREFS can prevent the unaffected train from meeting the Control Room pressurization requirement of Technical Specification 4.7.7.d.3. A subsequent review of the work conducted on this system led to the discovery of the CREFS' April 23, 1986 inoperability.

Interim controls have been established to preclude unauthorized opening of the doors/inspection panels affecting the Control Room pressure boundary. As long term corrective action to prevent recurrence, a Plant Change Request has been initiated to install a pair of isolation dampers in each train of CREFS for Units 1, 2, and 3.

There have been no previous similar events reported regarding the inoperability of both independent trains of a safety system due to the system design.

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PDR ADOCK 05000529  
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## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO 3150-0104

EXPIRES: 8/31/88

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		86	044	00	02	OF	03

Palo Verde Unit 2

05000529

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

On May 15, 1987, it was discovered that beginning on April 23, 1986 at 1500 MST through April 25, 1986 at 1004, with Palo Verde Unit 2 in Mode 3 (HOT STANDBY), both independent trains of the Control Room Essential Filtration System (CREFS) (VI) were inoperable as a result of maintenance activity being conducted on one train. With both trains of the CREFS inoperable, the ACTION Statement for Technical Specification 3.7.7 was exceeded and Limiting Condition for Operation 3.0.3 should have been entered. Both trains of CREFS were inoperable for approximately 1 day, 19 hours.

A potential concern was identified during a design review for Control Room (NA) habitability and an Engineering Evaluation Request (EER) was initiated. The EER was dispositioned to document that the design of the CREFS is such that the opening of either train of CREFS can prevent the unaffected train from meeting the Control Room pressurization requirement of Technical Specification 4.7.7.d.3. Technical Specification 4.7.7.d.3 states that the CREFS must maintain the Control Room at a positive pressure of greater than or equal to 1/8-inch Water Gauge relative to adjacent areas during system operation at a makeup flow rate to the control room of less than or equal to 1000 cubic feet per minute.

Although the CREFS design meets the applicable requirements of the Palo Verde Technical Specifications and the Final Safety Analysis Report, the root cause of this event has been determined to be the system design by the Palo Verde Architect/Engineer which did not take into account the need to perform required surveillance testing or maintenance activities on one train of CREFS during plant operation.

As immediate corrective action, Night Orders were issued to Licensed personnel in Units 1, 2, and 3 identifying the problem and requiring that Unit Supervision be notified prior to permitting any breach of the Control Room Pressure boundary. Caution labels were then manufactured and have been attached to all doors/inspection panels which affect the Control Room Pressure boundary. These labels identify the requirement to notify the Shift Supervisor prior to opening the doors/inspection panels.

Following disposition of the EER, the Palo Verde Plant Review Board (PRB) developed a project position that the performance of surveillance tests and preventive maintenance does not render the Control Room pressure boundary inoperable as these evolutions are necessary, are short in nature, and are easily restored. These evolutions may be likened to the opening and closing of the Control Room access doors. However, extended maintenance evolutions were determined to be unacceptable when the CREFS is required to be operable by Technical Specifications.

## 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 2	DOCKET NUMBER (2)  0 5 0 0 0 5 2 9	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 6	0 4 4	0 0	0 3	OF	0 3

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

Subsequent to the PRB decision, Operation's procedure "CONTROL BUILDING HVAC (HJ)" was revised to include specific guidelines for allowing the Control Room pressure boundary to be breached. Based on the PRB position, a review was conducted for Units 1 and 2 to determine if previous maintenance activities could have rendered both Trains of CREFS inoperable. On May 15, 1987 it was identified that on April 23, 1986 the CREFS Train "A" essential fan (FAN) had been removed for bearing replacement. This maintenance activity left an unattended opening in the ducting and rendered both CREFS trains inoperable due to the fact that neither train can be isolated from the Control Room without installing temporary blankouts in the ducting of the affected CREFS train.

As long term corrective action to prevent recurrence, a Plant Change Request has been initiated to install a pair of isolation dampers in each train of the CREFS for Units 1, 2, and 3.

The CREFS is designed to provide the required environment for personnel occupancy and equipment operation in the Control Room during emergency conditions. On April 23, 1986, with Unit 2 in Mode 3 (HOT STANDBY), the CREFS Train "A" had been declared inoperable for essential fan bearing replacement. This maintenance activity rendered both trains of CREFS inoperable. Unit 2 had reached Initial Criticality-Mode 2 (STARTUP) on April 18, 1986 where it had remained for approximately four days before being returned to Mode 3. A review of the reactor power level history just prior to the event was conducted for Unit 2 and the data is being utilized to determine the approximate decay heat in the reactor fuel elements (AC) during the event. It is believed that the results of the review will show that insufficient decay heat existed and that no accident scenario, resulting in the release of radioactivity, can be postulated as a result of failed reactor fuel elements. In addition, since no spent fuel was stored on site during the event, there was no threat from a fuel handling accident. Additional analysis will be conducted to determine the safety significance of other postulated accidents. The results of these evaluations will be submitted in a supplement to this report.

There were no structures, components, or systems that were inoperable at the start of the event, other than those previously described, that contributed to the event. There were no unusual characteristics of the work location which contributed to the event. There were no automatic or manually initiated safety system responses.

There have been no previous similar events reported regarding the inoperability of two independent trains of a safety related system due to the system design.



## Arizona Nuclear Power Project

P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

192-00228-JGH/TRB/TJB

June 12, 1987

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

Subject: Palo Verde Nuclear Generating Station (PVNGS)  
Unit 2  
Docket No. 50-529  
Licensee Event Report 2-86-044  
File: 87-020-404

Dear Sirs:

Attached please find Licensee Event Report (LER) No. 2-86-044 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. R. Bradish, Compliance Supervisor at (602) 932-5300, Ext. 6936.

Very truly yours,

J. G. Haynes  
Vice President  
Nuclear Production

JGH/TJB/cld

Attachment

cc: O. M. DeMichele (all w/a)  
E. E. Van Brunt, Jr.  
J. B. Martin  
R. P. Zimmerman  
R. C. Sorenson  
E. A. Licitra  
A. C. Gehr  
INPO Records Center

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11



# REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8706230184 DOC. DATE: 87/06/12 NOTARIZED: NO DOCKET #  
 FACIL: STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Publi 05000529  
 AUTH. NAME AUTHOR AFFILIATION  
 BRADISH, T. R. Arizona Nuclear Power Project (formerly Arizona Public Serv  
 HAYNES, J. G. Arizona Nuclear Power Project (formerly Arizona Public Serv  
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-044-00: on 870515, discovered that 860423, both  
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 Spec 3.7.7. Caused by design. W/880612 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: Standardized plant. M. Davis, NRR: 1Cy.

05000529

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PD5 LA	1 1	PD5 PD	1 1
	LICITRA, E	1 1	DAVIS, M	1 1
INTERNAL:	ACRS MICHELSON	1 1	ACRS MOELLER	2 2
	AEOD/DOA	1 1	AEOD/DSP/ROAB	2 2
	AEOD/DSP/TPAB	1 1	DEDRO	1 1
	NRR/DEST/ADE	1 0	NRR/DEST/ADS	1 0
	NRR/DEST/CEB	1 1	NRR/DEST/ELB	1 1
	NRR/DEST/ICSB	1 1	NRR/DEST/MEB	1 1
	NRR/DEST/MTB	1 1	NRR/DEST/PSB	1 1
	NRR/DEST/RSB	1 1	NRR/DEST/SGB	1 1
	NRR/DLPQ/HFB	1 1	NRR/DLPQ/QAB	1 1
	NRR/DOEA/EAB	1 1	NRR/DREP/RAB	1 1
	NRR/DREP/RPB	2 2	NRR/PMAS/ILRB	1 1
	NRR/PMAS/PTSB	1 1	<u>REG FILE</u> 02	1 1
	RES DEPY GI	1 1	RGNS FILE 01	1 1
EXTERNAL:	EG&G GROH, M	5 5	H ST LOBBY WARD	1 1
	LPDR	1 1	NRC PDR	1 1
	NSIC HARRIS, J	1 1	NSIC MAYS, G	1 1
NOTES:		1 1		

TOTAL NUMBER OF COPIES REQUIRED: LTTR 44 ENCL 42



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## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Palo Verde Unit 2										DOCKET NUMBER (2) 0 5 0 0 0 5 2 9										PAGE (3) 1 OF 3	
TITLE (4) Both Trains of Control Room Essential Filtration System Inoperable During Maintenance Due to Inadequate Design																					
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)						
									N/A						0 5 0 0 0						
0 4	2 3	8 6	8 6	0 4	0 0	0 6	1 2	8 7	N/A						0 5 0 0 0						
OPERATING MODE (9) 3			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																		
POWER LEVEL (10) 1 0			20.402(b)			20.405(c)			50.73(a)(2)(iv)			73.71(b)									
			20.405(a)(1)(i)			50.36(c)(1)			X 50.73(a)(2)(v)			73.71(c)									
			20.405(a)(1)(ii)			50.36(c)(2)			X 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)(ix)												
LICENSEE CONTACT FOR THIS LER (12)																					
NAME Thomas R. Bradish, Compliance Supervisor (Ext. 6936)										TELEPHONE NUMBER											
										AREA CODE 6 0 2		9 3 2 - 5 3 0 0									
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																					
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS											
SUPPLEMENTAL REPORT EXPECTED (14)										EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR							
X YES (If yes, complete EXPECTED SUBMISSION DATE)										NO		0 8	3 0	8 7							

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

On May 15, 1987, it was discovered that beginning on April 23, 1986 at 1500 MST through April 25, 1986 at 1004, with Palo Verde Unit 2 in Mode 3 (HOT STANDBY), both independent trains of the Control Room Essential Filtration System (CREFS) were inoperable as a result of a maintenance activity being conducted on one train. With both trains of CREFS inoperable, the ACTION Statement for Technical Specification 3.7.7 was exceeded and Limiting Condition for Operation 3.0.3 should have been entered.

As a result of an engineering evaluation, it was discovered that the design of the CREFS is such that the opening of a single duct or housing access door in either train of CREFS can prevent the unaffected train from meeting the Control Room pressurization requirement of Technical Specification 4.7.7.d.3. A subsequent review of the work conducted on this system led to the discovery of the CREFS' April 23, 1986 inoperability.

Interim controls have been established to preclude unauthorized opening of the doors/inspection panels affecting the Control Room pressure boundary. As long term corrective action to prevent recurrence, a Plant Change Request has been initiated to install a pair of isolation dampers in each train of CREFS for Units 1, 2, and 3.

There have been no previous similar events reported regarding the inoperability of both independent trains of a safety system due to the system design.

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1. The first part of the report is a general introduction to the subject of the study. It discusses the importance of the study and the objectives of the research. It also provides a brief overview of the methodology used in the study.

2. The second part of the report is a detailed description of the study area. It includes information about the location of the study area, the population of the study area, and the characteristics of the study area. It also discusses the data sources used in the study.

3. The third part of the report is a detailed description of the study results. It includes information about the findings of the study, the conclusions drawn from the findings, and the implications of the findings. It also discusses the limitations of the study and the need for further research.

4. The fourth part of the report is a conclusion and recommendations section. It summarizes the main findings of the study and provides recommendations for future research and policy. It also discusses the overall impact of the study and the need for further research.

## 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 2	DOCKET NUMBER (2)  0 5 0 0 0 5 2 9	LER NUMBER (8)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 6	0 4 4	0 0	0 2	OF	0 3

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

On May 15, 1987, it was discovered that beginning on April 23, 1986 at 1500 MST through April 25, 1986 at 1004, with Palo Verde Unit 2 in Mode 3 (HOT STANDBY), both independent trains of the Control Room Essential Filtration System (CREFS)(VI) were inoperable as a result of maintenance activity being conducted on one train. With both trains of the CREFS inoperable, the ACTION Statement for Technical Specification 3.7.7 was exceeded and Limiting Condition for Operation 3.0.3 should have been entered. Both trains of CREFS were inoperable for approximately 1 day, 19 hours.

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1. The first part of the report discusses the general situation of the country and the progress of the work. It also mentions the results of the survey and the conclusions drawn from it.

2. The second part of the report deals with the specific details of the work, including the methods used, the data collected, and the analysis of the results.

3. The third part of the report presents the findings of the study and discusses their implications. It also includes a list of references and a summary of the work.

4. The fourth part of the report contains the conclusions and recommendations of the study. It also includes a list of references and a summary of the work.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

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FACILITY NAME (1)  Palo Verde Unit 2	DOCKET NUMBER (2)  0 5 0 0 0 5 2 9	LER NUMBER (8)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		8 6	— 0 4 4	— 0 0	0 3	OF 0 3

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

Subsequent to the PRB decision, Operation's procedure "CONTROL BUILDING HVAC (HJ)" was revised to include specific guidelines for allowing the Control Room pressure boundary to be breached. Based on the PRB position, a review was conducted for Units 1 and 2 to determine if previous maintenance activities could have rendered both Trains of CREFS inoperable. On May 15, 1987 it was identified that on April 23, 1986 the CREFS Train "A" essential fan (FAN) had been removed for bearing replacement. This maintenance activity left an unattended opening in the ducting and rendered both CREFS trains inoperable due to the fact that neither train can be isolated from the Control Room without installing temporary blankouts in the ducting of the affected CREFS train.

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## Arizona Nuclear Power Project

P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

192-00228-JGH/TRB/TJB

June 12, 1987

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

Subject: Palo Verde Nuclear Generating Station (PVNGS)  
Unit 2  
Docket No. 50-529  
Licensee Event Report 2-86-044  
File: 87-020-404

Dear Sirs:

Attached please find Licensee Event Report (LER) No. 2-86-044 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. R. Bradish, Compliance Supervisor at (602) 932-5300, Ext. 6936.

Very truly yours,

J. G. Haynes  
Vice President  
Nuclear Production

JGH/TJB/cld

Attachment

cc: O. M. DeMichele (all w/a)  
E. E. Van Brunt, Jr.  
J. B. Martin  
R. P. Zimmerman  
R. C. Sorenson  
E. A. Licitra  
A. C. Gehr  
INPO Records Center

TE22  
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