NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Wolf Creek Generating Station	0 5 0 0 0 4 8 2	1 OF 0 4

TITLE (4)
Inadequate Control Results In Loss Of Licensed Material

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 5 0 0 0
1 2	1 8	8 7	8 7	—	0 5 6	— 0 0	0 1	1 5	8 8		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
5	X	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
0		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)	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
Merlin G. Williams - Superintendent of Regulatory, Quality and Administrative Services	AREA CODE 3 1 6 — 3 6 4 - 8 8 3 1

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
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On December 15, 1987, during the performance of an inventory of sealed sources, one 400 microCurie Strontium-90/Yttrium-90 source could not be located. Following unsuccessful efforts to locate the source, on December 18, 1987, at approximately 0855 CST, the source was declared lost.

Additional searches have been unsuccessful in locating the lost source. It is believed that the source was lost during use. The root cause of this event has been attributed to inadequate control of licensed material, including inadequate procedures and failure of Health Physics (HP) personnel to follow procedures. The design of the fan-shaped apparatus in which the source was housed, is believed to have been a contributory cause of the event.

The fan-shaped apparatuses have been removed from service in an effort to prevent recurrence. The procedure governing the control of radioactive materials has been enhanced, referencing the procedure, "Loss of a Radioactive Source," and requiring the use of the Source Issue Log. The HP Technician who failed to follow the appropriate HP procedure has been reprimanded.

IE30
1/1

* U.S.GPO:1984-0-464-461/10750

INTRODUCTION

On December 15, 1987, during the performance of an inventory of sealed sources, one 400 microCurie Strontium-90/Yttrium-90 source could not be located. Thorough searches of source storage areas were initiated. These searches were unsuccessful, and on December 18, 1987, at approximately 0855 CST, the source was declared lost. This event is being reported pursuant 10CFR 20.402(b) as a loss of licensed material.

DESCRIPTION OF EVENTS

On December 15, 1987, during the performance of an inventory of sealed sources in conjunction with Technical Specification 3.7.9 requirements, one 400 microCurie Strontium-90/Yttrium-90 source could not be located in its normal storage location. The source was normally stored inside a locked source storage locker located in a Health Physics (HP) Calibration Laboratory [LQ]. A review of HP documentation verified that on August 1, 1987, the source was inside the source storage locker in the HP Calibration Laboratory.

Thorough searches of the HP Calibration Laboratory and other source storage areas were initiated. These searches were unsuccessful in locating the source, and on December 18, 1987, at approximately 0855 CST, the source was declared lost. The Shift Supervisor and Security personnel were notified of the loss in accordance with procedure.

The source was normally housed in the movable arm of a fan-shaped apparatus made of Plexiglas. The apparatus was used to verify instrument operabilty. Although the apparatus was inside the source storage locker in the HP Calibration Laboratory, the source was not in the movable arm.

Subsequently, interviews with HP personnel revealed that the source was not in the movable arm of the apparatus in October, 1987. An HP Technician, who was going to send the source to HP personnel working in the Containment Building [NH], found the source missing from the fan-shaped apparatus. The HP Technician removed the movable arm piece with source from an identical apparatus and placed it into the apparatus from which the source was missing. This was then sent to the HP personnel in the Containment Building.

ROOT CAUSE

The root cause of this event has been attributed to inadequate control of the source. The procedure governing the control of licensed materials, HPH Ø2-ØØ1, "Receipt, Accountability, Inventory and Leak Check of Radioactive Materials," has been determined to be inadequate. The procedure was intended to require the use of a Source Issue Log to track each issuance of each source. HP personnel interpreted the wording of the procedure as making this requirement optional, and therefore allowed sources to be issued without completing the Source Issue Log. Procedure HPH Ø2-ØØ1 did not require HP personnel to notify HP Supervision in the event that a source could not be located in the area indicated on the Source Issue Log, nor did the procedure reference the procedure, HPH Ø2-ØØ7, "Loss of a Radioactive Source."

The HP Technician, who was not able to locate the source in October, 1987, failed to notify HP Supervision immediately as required by the procedure HPH Ø2-ØØ7. This failure to follow procedures may have delayed the determination of the loss and the initiation of the subsequent searches, which may have contributed to the inability to locate the source at this time.

The design of the fan-shaped apparatus has been determined to be a contributing factor in the loss of the source. The fan-shaped apparatus was designed and built on site. It is believed that the source fell out of the apparatus during use. Experience gained when an identical fan-shaped apparatus was broken, has shown that dropping the apparatus can allow the source to fall out of the apparatus.

CORRECTIVE ACTIONS

Because the design of the fan-shaped apparatus is believed to have been a contributory cause to this event, HP management has removed the fan-shaped apparatuses from service.

To enhance the control of the sources, the procedure governing the control of radioactive materials has been revised to include a specific reference to the procedure HPH Ø2-ØØ7 and to make mandatory the use of the Source Issue Log. The procedure has also been revised to require HP personnel to contact HP Supervision in the event the HP personnel are unable to locate a source in the area indicated by the Source Issue Log. The revised procedure has been added to HP required reading. Proper use of the Source Issue Log will be verified.

The HP Technician who failed to notify HP Supervision in accordance with procedure HPH Ø2-ØØ7 has been reprimanded.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Wolf Creek Generating Station	0 5 0 0 0 4 8 2	8 7	— 0 5 6	— 0 0	0 4 OF 0 4

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

ADDITIONAL INFORMATION

Because the Source Issue Log was not used consistently in the issuance of the sources prior to this event, HP personnel have been unable to identify areas of the plant in which the source may have been used or transported. HP personnel have conducted additional searches of the source storage areas, the HP Calibration Laboratory, the Containment Building, Turbine Building [NM] and the Auxiliary Building [NF]. The areas outside these buildings where the source may have been transported were also searched. These searches were unsuccessful in locating the source.

The size of the source is approximately 5/16 inch in diameter by 3/16 inch in depth. The source is a Beta emitter. The source is a 400 microCurie, plus or minus ten percent, Strontium-90/Yttrium-90 solid form calibration source. The source is a standard capsule 150, model INB-90-500 MRC, supplied by Monsanto Company.

HP personnel have tested the portal radiation monitors with the identical source and verified that the monitors would detect the source. As a result, it is believed that the source could not have been inadvertently carried from the radiological controlled area or protected area without alarming the portal radiation monitors. Calculations using VARSKIN methodology from NUREG CR-4418 indicate that if an individual had the source in a pocket, it would take approximately 22 hours to cause erythema of the skin. However, it is believed that a substantial hazard could only exist in the unlikely event of ingestion.

The plant was in Mode 5, Cold Shutdown, at the time of discovery of these events.

There have been no previous similar occurrences.

WOLF CREEK
NUCLEAR OPERATING CORPORATION

Bart D. Withers
President and
Chief Executive Officer

January 15, 1988

WM 88-0007

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

Subject: Docket No. 50-482: Licensee Event Report 87-056-00

Gentlemen:

The attached Licensee Event Report is submitted pursuant to 10 CFR 20.402(b) concerning a loss of licensed material.

Very truly yours,

Bart D. Withers
President and
Chief Executive Officer

BDW/11k

Attachment

cc: B. L. Bartlett (NRC), w/a
R. D. Martin (NRC), w/a
P. W. O'Connor (NRC), 2 w/a

IE x 30
1/1