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)
Grand Gulf Nuclear Station - Unit 1	0 5 0 0 0 4 1 6	1 OF 0 3

TITLE (4)

Unapproved Air Connection and Failed Valve Causes Invalid Condenser Offgas Samples

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 1	0 8	8 7	8 7	0 0 1	0 0	0 2	0 6	8 7	NA	0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 1 8	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)	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
	AREA CODE
Ronald W. Byrd/Licensing Engineering	6 0 1 4 3 7 - 2 1 4 9

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	
X	W F	S M V	A 6 1 0	N							

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 January 8, 1987 Chemistry section personnel determined that hydrogen samples being taken from the condenser offgas pretreatment sample station were not representative samples of the main condenser's offgas due to a failed solenoid valve which admitted instrument air into the panel and blocked the offgas flow to the sample point.

Per system design the solenoid purge valve, ASCO model number C8320A43, is a three-way valve which can be positioned to admit the flow of condenser offgas to the sample panel or allow room air to be drawn into the system for purging. An instrument air line was connected to the purge inlet side of the valve. The purge valve failed in mid-position admitting instrument air into the sample line. The 100 psig pressure of the air overcame and blocked the flow of offgas. The instrument air line connection was determined to be an unapproved connection. It could not be ascertained when this connection was made.

The instrument air line was disconnected from the purge valve and capped. The purge inlet port of the valve was capped to prevent the leakage of offgas into the room. These actions provided for the immediate availability of the sample panel. Representative samples obtained verified the hydrogen concentration to be less than 4 percent. The valve purge inlet will remain capped until the valve is demonstrated functional or replaced. A letter from the General Manager was sent to department managers concerning the situation. The letter reiterated the seriousness of unauthorized alterations.

IE22 1/1

☆U.S.GPO:1984-0-454-481/18759

NRC Form 366A (9-83)

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	
Grand Gulf Nuclear Station - Unit 1	0 5 0 0 0 4 1 6	8 7	— 0 0 1	— 0 0	0 2 OF 0 3

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

A. REPORTABLE OCCURRENCE

On January 8, 1987 Chemistry section personnel determined that hydrogen samples being taken from the condenser offgas pretreatment sample station were not representative samples of the main condenser's offgas due to a failed solenoid valve which admitted instrument air into the panel and blocked the offgas flow to the sample point.

B. INITIAL CONDITIONS

The plant was operating in mode 1 at 18 percent power when the situation was discovered. The plant was undergoing restart following the unit's first refueling outage.

C. DESCRIPTION OF OCCURRENCE

On January 6, 1986 the plant began restart following the unit's first refueling outage. Plant conditions during startup caused an abnormal amount of moisture to collect in the offgas system hydrogen analyzers (GG-1WF-AE-NO12A and GG-1WF-AE-NO12B). On January 7 at 0900 the hydrogen analyzers were declared inoperable pending purging of the collected water. Technical Specification 3.3.7.12 allows operation of the main condenser offgas treatment system to continue for up to 30 days provided grab samples are collected at least once per 4 hours and analyzed within the following 4 hours for hydrogen concentration.

The first hydrogen sample was taken at 1200 on January 7. Positive pressure and flow were noted when all samples were obtained indicating proper sample flow. On January 8 at 1023 offgas samples from the same point were obtained for an isotopic analysis to evaluate fuel performance. Chemists determined that the sample vials were lacking activity and concluded that the sample was not representative of condenser offgas. Chemistry personnel notified Control Room operators who checked and affirmed that the valve lineup was correct.

While the investigation continued, a representative sample was obtained by aligning the post treatment sample panel to sample the offgas prior to the charcoal beds. This sample was obtained at 1520 on January 8, 1987. The results showed that the hydrogen concentration was less than the Technical Specification limit of 4 percent by volume.

At approximately 2000 on January 8, the problem was identified as a failed sample/purge solenoid valve (GG-1WF-SMV-F002) which allowed higher pressure instrument air connected to the purge inlet side of the valve to flow through the panel and block the flow of offgas. The instrument air supply was isolated from the panel and a representative sample was obtained from the pretreatment panel at 2250 on January 8 which also confirmed the hydrogen concentration to be less than 4 percent by volume.

NRC Form 366A (9-83)

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	
Grand Gulf Nuclear Station - Unit 1	0 5 0 0 0 4 1 6	8 7	— 0 0 1	— 0 0	0 3 OF 0 3

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

The hydrogen analyzers were restored to service on January 10 at 1200. The total outage time for the hydrogen analyzers was 75 hours. The elapsed time for obtaining a representative sample from the initial time of analyzer inoperability was 30.3 hours.

D. APPARENT CAUSE

Per system design the purge valve, ASCO model number C8320A43, is a three-way valve which can be positioned to admit the flow of condenser offgas to the sample panel or allow room air to be drawn into the system for purging. The instrument air line connected to the purge inlet side of the valve as discussed above was determined to be an unapproved connection. Further investigations revealed that the installation of the air line connection gave the appearance of being permanent and was reported to have been in use for several years. This investigation could not conclude when the installation was first installed. The valve failed in mid-position and admitted instrument air into the line. The 100 psig pressure of the air overcame and blocked the flow of offgas.

E. SUPPLEMENTAL CORRECTIVE ACTION

The instrument air line was disconnected from the purge valve and capped. The purge inlet port of the valve was capped to prevent the leakage of offgas into the room. These actions provided for the immediate availability of the sample panel. The valve purge inlet will remain capped until the valve is demonstrated functional or replaced. A letter from the General Manager was sent to department managers concerning this situation. The letter reiterated the seriousness of unauthorized alterations and the presence of plant procedures that provide the means for approving and tracking both temporary and permanent system alterations.

F. SAFETY ASSESSMENT

The 4 percent limit for hydrogen concentration in the condenser offgas system is set to prevent a buildup of a potentially explosive mixture that could result in a release of radioactive materials to the environment.

Normal operation of the steam jet air ejectors prevents process steam from attaining a flammable concentration of hydrogen. In the event that the steam flow falls below the specified value, redundant flow instruments are capable of automatically isolating the system to prevent a buildup of hydrogen in the system. Also, catalytic recombiners reduce the explosive potential of the gas mixture by converting the hydrogen and oxygen to water. Inoperability of the hydrogen analyzers disables the hydrogen monitoring alarms and recorders, but does not affect the hydrogen concentration or the equipment that reduces the hydrogen concentration. Due to the equipment operability, it is concluded that the hydrogen concentration limits were not exceeded and the danger of an explosive mixture did not exist.

SYSTEM ENERGY RESOURCES, INC.

OLIVER D. KINGSLEY, JR.
Vice President
Nuclear Operations

February 6, 1987

U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Document Control Desk

Gentlemen:

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-29
Unapproved Air Connection and
Failed Valve Causes Invalid
Condenser Offgas Samples
LER 87-001-0
AECM-87/0029

Attached is Licensee Event Report (LER) 87-001-0 which is a final report.

Yours truly,

ODK:bms
Attachment

cc: Mr. T. H. Cloninger (w/a)
Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)
Mr. H. L. Thomas (w/o)
Mr. R. C. Butcher (w/a)

Dr. J. Nelson Grace, Regional Administrator (w/a)
U. S. Nuclear Regulatory Commission
Region II
101 Marietta St., N. W., Suite 2900
Atlanta, Georgia 30323

IE22
1/1

P. O. BOX 23070 | JACKSON, MISSISSIPPI 39225-3070 | (601) 960-9600
A Middle South Utilities Company