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Grand Gulf Nuclear Station

October 13, 2000

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

Attention: Document Control Desk

Subject: Grand Gulf Nuclear Station
Docket No. 50-416
License No. NPF-29
LER 2000-005-00
Automatic Reactor Scram Due to Offsite 500 KV Circuit Breaker
Failure

GNRO-2000/00075

Ladies & Gentlemen:

Attached is Licensee Event Report (LER) 2000-005-00, which is a final report.

Yours truly,

A handwritten signature in black ink, appearing to read "William A. Eaton".

WAE/CEB/ceb

attachment: Licensee Event Report (LER) 2000-005-00
cc: (See Next Page)

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cc:

Dixon-Herrity	J. L.	GGNS Senior Resident)	(w/a)
Levanway	D. E.	(Wise Carter)	(w/a)
Reynolds	N. S.		(w/a)
Smith	L. J.	(Wise Carter)	(w/a)
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NRC FORM 366
(6-1998)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

Estimated burden per response to comply with this mandatory information collection request: 50.0 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)

Grand Gulf Nuclear Station

DOCKET NUMBER (2)

05000-416

PAGE (3)

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TITLE (4)

Title Automatic Reactor Scram Due to Offsite 500 KV Circuit Breaker Failure

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 NAME	DOCKET NUMBER
09	15	2000	2000	005	00	10	13	2000	N/A	N/A
									N/A	N/A
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more) (11)							
1			20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(i)	50.73(a)(2)(viii)
POWER LEVEL (10)			20.2203(a)(2)(i)			20.2203(a)(3)(i)			50.73(a)(2)(ii)	50.73(a)(2)(x)
100			20.405(a)(1)(ii)			20.2203(a)(3)(ii)			50.73(a)(2)(iii)	73.71
			20.2203(a)(2)(ii)			20.2203(a)(4)		X	50.73(a)(2)(iv)	OTHER
			20.2203(a)(2)(iii)			50.36(c)(1)			50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
			20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME

Charles E. Brooks/Sr. Licensing Specialist

TELEPHONE NUMBER (Include Area Code)

601-437-6555

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

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 15 single-spaced typewritten lines) (16)

On 9/15/00 at approximately 0630 hours, while operating at steady state conditions, a reactor scram occurred. The scram was the result of a reactor protection system actuation from a turbine control valve fast closure signal. This signal was the result of a generator load transient caused by failure of a 500 kV circuit breaker located in an offsite switchyard which directly feeds the GGNS switchyard.

A generator load reject was sensed due to the grid voltage transient, causing generator load demand to automatically switch off. A turbine control valve fast closure was sensed as Turbine Control Valves (TCVs) closed. However the generator stayed online and, due to the speed demand signal that was still present, the TCVs did not go full closed. The reactor scrambled but the End of Cycle Recirculation Pump Trip (EOC-RPT) did not occur. This issue is being addressed in Licensee Event Report 200-006-00.

No major equipment was out of service except for Engineered Safety Feature Transformer 12 to 17AC bus feeder breaker, which was tagged out of service. All control rods inserted and all other equipment responded as expected. Reactor Core Isolation Cooling initiated and began injecting into the vessel, however no ECCS initiated. Additionally, due to the low grid voltage, the Division III diesel generator started on undervoltage as designed, tied to and provided power to the 17AC bus.

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YEAR

SEQUENTIAL

REVISION

NUMBER

NUMBER

2000

005

00

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

A. Reportable Occurrence

On September 15, 2000, at approximately 0630 hours, while operating at steady state conditions a reactor scram occurred. The scram was the result of a Reactor Protection System (RPS) [JC] actuation from a turbine control valve (TCV) [TA] fast closure signal. This signal was the result of a generator load transient caused by failure of a 500 kV circuit breaker located in a switchyard, which directly feeds the GGNS switchyard. The reactor scrammed but the End of Cycle Recirculation Pump Trip (EOC-RPT) did not occur. This issue is being addressed in a separate Licensee Event Report (LER 2000-006-00).

Telephone notification was made to the NRC's Emergency Notification System reporting this condition pursuant to 10CFR50.72(b)(2)(ii) – any event or condition that results in a manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS) [JC].

B. Initial Conditions

At the time of the event the reactor was in OPERATIONAL CONDITION 1 with reactor power of approximately 100 percent. Moderator temperature was approximately 530 degrees F and reactor water level approximately 36 inches.

C. Description of Occurrence

On September 15, 2000, at approximately 0630 hours, while operating at steady state conditions a reactor scram occurred. The scram was the result of RPS actuation from a TCVs [TA] fast closure signal. This signal was the result of a generator load transient caused by failure of a 500 kV circuit breaker located in an offsite switchyard, which directly feeds the GGNS switchyard. As a result of the TCV [TA] fast closure, reactor pressure rose to approximately 1070 psig. During the transient, a reactor high pressure scram signal was received as a result of the TCV [TA] fast closure and a reactor water low level scram signal was also received. Turbine bypass control valves responded properly. Both recirculation pumps downshifted on reactor water Level 3 then Reactor Core Isolation Cooling (RCIC) [BN] initiated at approximately -38 inches reactor water level; slightly above the reactor water Level 2 setpoint but within the allowable tolerances for initiation instrumentation. No other reactor water Level 2 initiations occurred. Upon restoration of reactor water level, reactor water level slightly exceeded reactor water Level 8. RCIC [BN] automatically secured and Reactor Feed Pumps automatically tripped as required on the reactor water Level 8 signal. Reactor Feed Pump A was restarted and reactor water level was then maintained in the normal range. Additionally, due to the low grid voltage, the Division III diesel generator started on undervoltage as designed, tied to and provided power to the 17AC bus.

Standby Service Water System "A" and "C" automatically started as required to support RCIC [BN] and Division III diesel generator. All other equipment operated as expected. No plant conditions or evolutions in progress at the time of the scram had an effect on the events leading to the scram or on the scram consequences.

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

D. Apparent Cause

Based on analysis, the cause of the reactor scram was TCV [TA] fast closure as sensed by secondary fluid pressure of less than 44.3 psig as load demand turned off and rate limiter was bypassed due to a sensed load reject signal. The initiating event was a ground fault at an offsite switchyard that directly feeds the GGNS switchyard and subsequent loss of the 500 kV feeder. The fault on the feeder line resulted in generator load fluctuations, which were sensed by the turbine EHC logic as a generator load reject.

E. Corrective Actions

Immediate Corrective Actions:

1. An on-shift post trip analysis was performed which provided an adequate basis for restart based on identification of the initiating event and assessment of safety system performance. Restart was allowed but restricted to 40% Core Thermal Power (CTP) and slow speed recirculation pumps until EOC-RPT operability was resolved. Further discussion of the EOC-RPT failure is being presented in a separate LER (LER 2000-006-00).

Long Term Corrective Actions:

1. CR-GGN-2000-1348 was initiated to investigate the initiating event for the scram.
CR-GGN-2000-1352 was initiated to investigate the failure of EOC-RPT to actuate.

F. Safety Assessment

There were no additional unexpected equipment responses to the scram. Reactor pressure and water level were stabilized by normal means. This event was of minimal potential consequence to the health and safety of the public. There were no Emergency Core Cooling System actuations as a result of this event.

G. Additional Information

Energy Industry Identification System (EIIIS) code are identified in the text within brackets [].