



DEC 07 2001

LRN-01 – 0363

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

LER 354/2001-005-00
HOPE CREEK GENERATING STATION
FACILITY OPERATING LICENSE NO. NPF-57
DOCKET NO. 50-354

Gentlemen:

This Licensee Event Report entitled "Reactor Vessel Level – Low (Level 3) SCRAM" is being submitted pursuant to the requirements of 10CFR50.73(a)(2)(iv)(A). The attached LER contains no commitments.

Sincerely,

A handwritten signature in black ink, appearing to read "D. F. Gardnow".

D. F. Gardnow
Vice President -
Operations

Attachment

/MGM

C Distribution
LER File 3.7

IE22

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NE08-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose 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

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME Hope Creek Generating Station	2. DOCKET NUMBER 05000354	3. PAGE 1 OF 4
--	-------------------------------------	--------------------------

4. TITLE
Reactor Vessel Level – Low (Level 3) SCRAM

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	10	01	2001	005	00	12	7	01		05000
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE 3	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check all that apply)									
	20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)						
10. POWER LEVEL 0%	20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)						
	20.2203(a)(1)	50.36(c)(1)(i)(A)	X 50.73(a)(2)(iv)(A)	73.71(a)(4)						
	20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)						
	20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A						
	20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)							
	20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)							
	20.2203(a)(2)(v)	50.73(a)(2)(i)(B)	50.73(a)(2)(vii)							
	20.2203(a)(2)(vi)	0.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)							
20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)								

12. LICENSEE CONTACT FOR THIS LER

NAME Michael G. Mosier, Senior Licensing Engineer	TELEPHONE NUMBER (Include Area Code) 856-339-5434
---	---

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	JB	C15	F130	Y					

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

16. ABSTRACT (Limit to 1400 spaces i.e. approximately 15 single-spaced typewritten lines)

On October 10, 2001 at 0245 a reactor scram occurred due to low water level (12.5"), although the reactor was already in a shutdown condition with all control rods inserted. The cause of the scram signal was Reactor Vessel Level dropping below the level 3 trip set point. The Start Up Level Control Valve was unable to adequately respond to the level changes in automatic control. Minutes earlier at 0239 a trip of both Reactor Water Cleanup (RWCU) pumps tripped on low flow. This was a distraction to the operating crew, and resulted in loss of reactor water conductivity indication and vessel water cleanup. The apparent cause for the tripping of the RWCU pumps was flashing of the water in the instrument lines associated with flow detection for the pumps. A review of the procedures for the depressurization was performed; no discrepancies were identified in the performance of the procedure or with the actions described in the procedure. Corrective actions include revising the RWCU procedure, training and repairing the start up level control system.

The reactor vessel dropping below the level 3 trip setpoint caused an automatic actuation of the Reactor Protection System {JC}, therefore, this event is being reported in accordance with 10CFR50.73(a)(2)(iv)(A).

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET (2) NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER		REVISION NUMBER		
Hope Creek Generating Station	05000354	2001	0	0	5	00	2 OF 4

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

PLANT AND SYSTEM IDENTIFICATION

General Electric – Boiling Water Reactor (BWR/4)

- Reactor Water Cleanup System {CE/C2}*
- Feedwater Water Level Control System {JB/C15}
- Reactor Protection System {JC}*

* Energy Industry Identification System {EIIIS} codes and component function identifier codes appear as (SS/CCC)

IDENTIFICATION OF OCCURRENCE

Event Date: October 10, 2001

CONDITIONS PRIOR TO OCCURRENCE

Hope Creek Generating Station was in Operating Condition 3 (Hot Shutdown) and at 809 psig, depressurizing for the start of Refueling Outage 10 (RF10). No structures, systems, or components were inoperable at the time of the occurrence that contributed to the event.

DESCRIPTION OF OCCURRENCE

On October 10, 2001 at 0245 a reactor scram occurred due to low water level (12.5"), although the reactor was already in a shutdown condition with all control rods inserted. There are several elements that contributed to the scram, including startup level control valve {JB/C15} performance problems, maintaining reactor level lower than normal, and proceeding with the depressurization without stable level control. The event was terminated when the crew stabilized the plant by terminating the pressure reduction, and allowed water level to restore to normal operating level. Manual control was taken on the startup level control valves and the pressure reduction was resumed without incident. Minutes earlier at 0239 both of the Reactor Water Cleanup (RWCU) pumps {CE/C2} tripped on low flow. This was a distraction to the operating crew, and resulted in loss of reactor water conductivity indication and vessel water cleanup. RWCU system pump trips during depressurization have occurred in the past at lower reactor pressures and were procedurally addressed by direction in the integrated operating procedures (IO's) to reduce the system to one pump operation. This is the first time that pressure was reduced this rapidly at elevated pressures, and the pump trip was not anticipated.

The reactor vessel level dropping below the level 3 trip setpoint caused an automatic actuation of the Reactor Protection System {JC}, therefore, this event is being reported in accordance with 10CFR50.73(a)(2)(iv)(A).

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET (2) NUMBER (2)	LER NUMBER (6)				PAGE (3)		
		YEAR	SEQUENTIAL NUMBER		REVISION NUMBER			
Hope Creek Generating Station	05000354	2001	0	0	5	00	3	OF 4

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

DESCRIPTION OF OCCURRENCE (Cont'd)

Level was restored and shutdown progressed to enter into RF10 on October 10, 2001.

CAUSE OF OCCURRENCE

The apparent cause for the reactor scram was insufficient water level in the reactor. This condition was a result of poor performance of the startup level control system for maintaining reactor level in the desired band, and not terminating the plant cool-down that was aggravating the condition. Although the crew had been provided training in the simulator, most of the crewmembers had very little experience with operating the station during shutdown conditions and even less experience with operating the reactor feed system in a degraded condition. The infrequent performance of operation in this mode precludes gaining this experience, and the simulator does not duplicate this specific condition well. This lack of experience manifested itself in the crews actions to continue the aggressive cool-down in the face of large level swings and in maintaining level-set lower than normal (~20. rather than the normal 35.) while level was unstable.

The apparent cause of the RWCU pumps tripping is flashing of the water in the instrument lines associated with flow detection for the pumps resulting in the generation of a low flow trip signal. This flashing was initiated by the plant cool-down and the related pressure drop in the reactor vessel. Reducing the RWCU system suction pressure while the associated piping remained at elevated temperatures resulted in steam production in the sensing lines for system flow instrumentation. Although the rate of pressure reduction was within the bounds of the operating procedures and technical specifications, the rate at which the pressure was reduced going into RF10 had not been previously performed. The RWCU pump trips are not reportable, although it was a distracter.

PRIOR SIMILAR OCCURRENCES

A review of LERS over the past two years identified no reportable events due to start up level control valve problems at the Hope Creek or Salem Generating Stations causing a reactor scram on low water level.

SAFETY CONSEQUENCES AND IMPLICATIONS

No significant challenge to reactor safe operation occurred. The reactor scram, although reportable, occurred after the control rods were fully inserted into the reactor. The reactor level, while going below the level 3 scram trip setpoint, did not challenge the starting set points of any automatic injection systems. The operators promptly restored reactor vessel water level to the proper range following receipt of the level 3 alarm and scram. The RWCU system trip resulted in a loss of the primary conductivity indication for reactor coolant, however backup indication was available.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

FACILITY NAME (1)	DOCKET (2) NUMBER (2)	LER NUMBER (6)			PAGE (3)			
Hope Creek Generating Station	05000354	YEAR	SEQUENTIAL NUMBER		REVISION NUMBER	4	OF	4
		2001	0	0	5			

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

Additionally, the relatively short duration of the loss of cleanup capability did not represent a significant challenge to reactor chemistry. Based on the above, there was no impact to the health and safety of the public.

A review of this condition determined that a Safety System Functional Failure (SSFF) has not occurred as defined in Nuclear Energy Institute (NEI) 99-02.

CORRECTIVE ACTIONS:

1. The RWCU procedure will be revised to place the RWCU system in single-pump operation prior to commencing a controlled plant depressurization.
2. This event was reviewed with the operating crews during the just in time startup training. The review included a simulator scenario that introduced plausible minor failures similar to the feed problems that will evolve into larger transients.
3. This event will be incorporated into requalification training with the operating crews. This will include simulator scenarios consistent with this event.
4. The Startup Level Control system was repaired during RF10.

COMMITMENTS

The corrective actions cited in this LER are voluntary enhancements and do not constitute commitments.