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)
D. C. COOK UNIT 2	0 5 0 0 0 3 1 6	1 OF 0 2

TITLE (4)
REACTOR TRIP WITH SAFETY INJECTION

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 1	1 1	8 4	8 4	0 2 9	0 0	1 2	1 1	8 4		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)			
1		20.402(b)	20.405(c)	X 50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)	0 7 3	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)	X 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)	Safety Injection Initiation Report
		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
KENNETH R. BAKER, OPERATIONS SUPERINTENDENT	AREA CODE 6 1 6 4 6 5 - 5 9 0 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	
X	A B	X C V	C 6 3 5	Y							

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)

AT 0736 ON 11-11-84, THE UNIT 2 REACTOR WAS MANUALLY TRIPPED FROM ABOUT 73% POWER DUE TO A PARTIALLY STUCK OPEN PRESSURIZER SPRAY VALVE, NRV-163. SUBSEQUENT AUTOMATIC INITIATION OF BOTH TRAINS OF SAFETY INJECTION TOOK PLACE AS PRESSURIZER PRESSURE CONTINUED TO DECREASE. THERE WERE NO ANOMALIES DURING THE INITIATION OF THE SAFETY INJECTION. PRESSURIZER PRESSURE WAS LATER RESTORED TO 2000 PSIG AND SAFETY INJECTION RESET.

THE VALVE WAS PLACED IN THE CLOSED POSITION AND AIR REMOVED FROM THE OPERATOR. THE UNIT LATER RETURNED TO OPERATION WITH ONE SPRAY VALVE AVAILABLE FOR SERVICE.

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

THE UNIT HAD JUST RETURNED TO 100 PERCENT. DIFFICULTIES WERE BEING EXPERIENCED WITH MAINTAINING PRESSURIZER(AB) PRESSURE WITH ALL BACKUP HEATERS IN SERVICE, THE PRESSURE WOULD DECREASE SLIGHTLY ON SMALL DECREASES IN T-AVERAGE. PRESSURIZER PRESSURE DECREASED TO LESS THAN 2205 POUNDS PER SQUARE INCH - GAUGE ON CHANNELS II AND IV AT 0430. A DECREASE IN POWER TO COMPLY WITH TECHNICAL SPECIFICATION 3.2.5 WAS BEGUN AT 0530. AT 0555 PRESSURIZER PRESSURE WAS GREATER THAN 2205 POUNDS PER SQUARE INCH - GAUGE ON ALL PRESSURIZER PRESSURE CHANNELS.

AT 0630 PRESSURIZER PRESSURE AGAIN WAS LESS THAN 2205 POUNDS PER SQUARE INCH - GAUGE ON CHANNELS II AND IV. AT 0710 REACTOR POWER WAS 80 PERCENT AND DECREASING. AT 0730 AN ATTEMPT TO RESEAT THE PRESSURIZER SPRAY VALVE, NRV-163, WAS MADE BY OPENING THE VALVE SLIGHTLY UNTIL A PRESSURE REDUCTION WAS NOTED AT WHICH TIME THE VALVE'S CONTROL SWITCH WAS PLACED IN "FAST CLOSED".

AT 0736 WITH PRESSURIZER PRESSURE AT 2050 POUNDS PER SQUARE INCH - GAUGE AND DECREASING A MANUAL REACTOR TRIP WAS INITIATED. OPERATORS TRIPPED THE NUMBER 23 REACTOR COOLANT PUMP TO MINIMIZE PRESSURIZER SPRAY FROM NRV-163. HOWEVER, PRESSURIZER SHRINK RESULTING FROM THE TRIP, COMPOUNDED THE PRESSURE LOSS AND AN AUTOMATIC SAFETY INJECTION OCCURRED AT 0737 FROM LOW PRESSURIZER PRESSURE. PRESSURIZER PRESSURE DROPPED TO 1910 POUNDS PER SQUARE INCH - GAUGE. THERE WERE NO ANOMALIES DURING THE INITIATION OF SAFETY INJECTION.

FOLLOWING CONTAINMENT ENTRY IT WAS DETERMINED THAT WITH THE ACTUATING AIR REMOVED THE SPRAY VALVE, NRV-163, WOULD REMAIN PARTIALLY OPEN. THE SPRING CLOSING FORCE OF THE VALVE WAS INCREASED AND THE VALVE OPERATOR DE-ACTIVATED TO ASSURE THE VALVE WAS CLOSED AND WILL REMAIN IN THE CLOSED POSITION AGAINST SYSTEM PRESSURE.

THE CAUSE OF THE STUCK OPEN SPRAY VALVE IS NOT KNOWN AT THIS TIME. THE VALVE WILL BE REPAIRED DURING AN UPCOMING UNIT OUTAGE.

OPERATING LICENSE DPR-74
DOCKET NUMBER 50-316
SPECIAL REPORT # SI-09

SAFETY INJECTION ACTUATION - NOVEMBER 11, 1984

1. CONDITIONS PRIOR TO OCCURRENCE

The Reactor was in operational Mode 1 at 100% rated thermal power. Tave was at 574°F. Control Rods were in manual mode of operation. Steam Generator level controls, Pressurizer pressure and level controls were in automatic mode of control. Steam Generator level and Pressurizer level controls were functioning normally. The operators reported difficulties in maintaining pressurizer pressure prior to the reactor trip and safety injection. All Control Rods were fully withdrawn except Control Bank "D" which was at 219 steps. Reactor Coolant System Boron Concentration was 821 ppm.

2. DESCRIPTION OF OCCURRENCE

At 0736 on 11-11-84 the Unit 2 reactor was manually tripped from about 73% power due to a partially stuck open pressurizer spray valve. Subsequent automatic initiation of both trains of safety injection took place as pressurizer pressure continued to decrease. There were no anomalies during the initiation of safety injection.

3. CAUSE OF OCCURRENCE

The cause of the depressurization was a partially stuck open pressurizer spray valve, NRV-163.

4. ANALYSIS OF OCCURRENCE

The following is a list of major items that were reviewed for their safety implications:

(a) Reactor Coolant System Cooldown

Tave dropped from 573°F to 538°F rapidly. The cause of the cooldown was due to automatic dumping of main steam to the condenser.

The overall duration of the safety injection was 4 minutes. The overall cooldown was within the 100°F/hr. cooldown rate as specified by Technical Specifications.

(b) Thermal Effects of Safety Injection

During this occurrence East and West Centrifugal Charging pumps injected into the Reactor Coolant System through all four safety injection nozzles approximately 4 minutes. The maximum flow one pump can put through these lines is 470 gpm (T.S. 4.5.2.f) The maximum total injection into the RCS for 2 pumps operating for 4 minutes is 3760 gallons. The injection of 3760 gallons corresponds to a 12.5 minute injection of the design base used in FIRL Report F-C4542 which calls for two charging pumps, each having a flow rate of 150 gpm. The initial temperature of the injected borated water was 165°F. This safety injection constitutes less than .000315 or 3.15/10,000 of allowable cycles. The total accumulated cycles to date are 20.8/10,000 for train A and 23.0/10,000 for train B.

(c) Effects on the Emergency Core Cooling System Piping (ECCS)

The piping and supports in the ECCS were given a visual inspection to determine if any mechanical damage was experienced during the safety injection. There was no evidence of any mechanical damage or abnormal movements of the piping.

CORRECTIVE ACTIONS

The safety injection equipment functioned correctly. Therefore, there are no corrective actions.