NRC FORM 366
U.S. NUCLEAR REGULATORY COMMISSION
(4-95)

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 04/30/98
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), 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.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Catawba Nuclear Station Unit 1	05000413	1 of 6

TITLE (4)
Standby Shutdown Facility Inoperable in Excess of Technical Specification Allowed Outage Time due to Mispositioned Breakers Caused by Personnel Error

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(S)
12	29	1998	1998	-	019	-	00	01	28	1999	Catawba Unit 2	05000414

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)	100	20.2201(b)	20.2203(a)(2)(v)	x	50.73(a)(2)(i)	50.73(a)(2)(viii)	
		20.2203(a)(1)	20.2203(a)(3)(i)		50.73(a)(2)(ii)	50.73(a)(2)(x)	
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)		50.73(a)(2)(iii)	73.71	
		20.2203(a)(2)(ii)	20.2203(a)(4)		50.73(a)(2)(iv)	OTHER Specify in Abstract below or in NRC Form 366A	
		20.2203(a)(2)(iii)	50.36(c)(1)		50.73(a)(2)(v)		
		20.2203(a)(2)(iv)	50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
G. A. Copp, Regulatory Compliance	(803) 831-3622

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	
				None							

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 29, 1998 with Units 1 and 2 in Mode 1 at 100% power, Operations discovered that two breakers located on the Standby Shutdown Facility (SSF) 600 volt motor control center SMXG were open. With these breakers open, the SSF was inoperable for both Unit 1 and Unit 2. Investigation revealed that the breakers had been open for about 13 days which is greater than the Technical Specification Allowed Outage Time of 7 days for the SSF. The breakers were left in the open position following preventive maintenance activities on SMXG. This is reportable as operation outside the Technical Specifications. The root cause was inadequate work practice in that the Normal Power Checklist was not used to determine the correct position for these breakers as part of the process for restoring SMXG to operable status. The breakers were closed upon discovery to restore the SSF to operable status. Planned corrective action is to communicate to all operators that procedures or procedure checklists should be utilized to determine restoration positions where procedural guidance exists.

BACKGROUND

Catawba Nuclear Station, Units 1 and 2 are four loop Westinghouse pressurized water reactors [EIIS:RCT]. The station design includes a Standby Shutdown Facility (SSF) to provide an alternate and independent means to achieve and maintain hot standby condition for one or both units. The SSF is a non-safety related system which is used to cope with certain fire, flood, security, and loss of power events.

The SSF includes a diesel generator [EIIS:EK] with supporting equipment and one standby makeup pump [EIIS:P] per unit with associated filter [EIIS:FLT], isolation valves [EIIS:ISV], and piping in the event that normal charging/makeup to the Reactor Coolant System [EIIS:AB] is unavailable. The diesel generator provides electrical power to the SSF components in the event all AC power is lost. The standby makeup pump is located in the annulus of each unit and supplies makeup for Reactor Coolant System leakage and reactor coolant pump seal [EIIS:SEAL] injection flow. The latter function must be available within ten minutes to assure no loss of reactor coolant pump seal integrity.

The SSF diesel generator provides AC electrical power to SSF components through 600 volt load center [EIIS:SWGR] 1SLXG. This load center is connected to 600 volt motor control center SMXG which provides electrical power to most SSF components. Two circuit breakers [EIIS:52] on SMXG provide electrical power to unit load centers 1EMXS and 2EMXS which in turn supply electrical power to selected unit related loads. Electrical loads supplied by 1EMXS and 2EMXS include the normally closed suction and discharge valves for the standby makeup pumps and the sump pumps associated with the turbine driven auxiliary feedwater pumps on the each unit.

Operations Management Procedure (OMP) 2-18 "Tagout Removal and Restoration Procedure" describes how to control and document equipment removal from and restoration to service. This procedure describes the "return position" as the position specified by the procedure checklist, the body of the procedure, or the position specified by the Approving SRO based on plant conditions.

Technical Specification 3.7.13 requires the SSF to be operable. With the system inoperable, required action is to restore the inoperable equipment to operable status within seven days or shutdown the affected unit(s). This Technical Specification was deleted effective January 16, 1998 as a result of implementation of Improved Technical Specifications; however,

this same requirement still exists in the Selected Licensee Commitment Manual.

EVENT DESCRIPTION

The Work Control Group scheduled a preventive maintenance activity to clean, inspect, retorque connections, and cycle the breakers on motor control center SMXG for December 16, 1998. Both Unit 1 and Unit 2 were in Mode 1 at 100% power at this time. Operations developed the "Removal" portion of a Removal and Restoration (R&R) procedure for SMXG to allow this work to proceed. This R&R listed the breakers for all electrical sources of power which could energize any part of SMXG. The R&R directed breakers F02C and R03D, along with other breakers on SMXG, to be placed in the OFF (open) position.

December 16, 1998

0120 Hours
Log entry was made in the Technical Specification Action Item Log (TSAIL) declaring it inoperable.

About 0600 hours
Operations Non-Licensed Operators (NLOs) isolated and tagged motor control center SMXG to allow preventive maintenance activities to be performed on SMXG breakers. Breakers F02C and R03D on SMXG were tagged and placed in the OFF position.

About 1430 hours
The Operations Unit Supervisor, a Senior Reactor Operator (SRO), prepared the "Restoration" portion of the R&R which contained the steps to follow and the breaker positions to return SMXG to service. He specified that breakers F02C and R03D be in the OFF position.

About 1800 hours
NLOs removed the tags and completed the restoration portion of the R&R for SMXG. Breakers F02C and R03D were left in the OFF position as directed by the R&R.

December 18, 1998
0328 hours
The SSF was declared operable and cleared from the TSAIL.

December 29, 1998

1430 hours
Operations personnel discovered breakers F02C and R03D open contrary to procedure OP/1/A/6350/001 (Normal Power Checklist) during an unrelated procedure validation walkdown.

About 1530 hours
Operations closed breakers F02C and R03D which restored the SSF to operable status. Problem Investigation Process Item C98-4935 was written to investigate the circumstances surrounding the event.

CONCLUSION

Both Unit 1 and Unit 2 operated with the SSF inoperable beyond the seven days allowed by Technical Specifications, due to breakers F02C and R03D on SMXG being open from 0120 hours on December 23 until 1530 hours on December 29. The Operations Unit Supervisor incorrectly determined that breakers F02C and R03D should be in the OFF (open) position as part of returning SMXG back to service. The cause of this event was inadequate work practice in that the Unit Supervisor did not refer to procedure (OP/1/A/6350/001, Normal Power Checklist) to determine the breaker "return to service" position as outlined in OMP 2-18. The restoration involved multiple procedure enclosures and R&Rs. The R&R which listed breakers F02C and R03D was 18 pages long and contained 61 breakers. These particular breakers are listed on the R&R as "Motor Control Center 1EMXS Alternate Supply" and "Motor Control Center 2EMXS Alternate Supply" which led the Unit Supervisor to believe that the normal position was OFF, since "Alternate" implied a normally open, backup supply breaker. These factors led to the Unit Supervisor specifying the wrong return position. A second SRO who reviewed the R&R did not identify the incorrect return positions specified by the Unit Supervisor. The SRO performing the review did not maintain the proper level of independence during the R&R development and review process.

OMP 2-18 does allow a SRO to determine the return position for a component. However, this is generally reserved for those cases where plant conditions exist that require some specific evaluation by a SRO. Normal expectation is that when a procedure checklist exists that contains normal component positions, it should be referenced as part of determining the return position on the R&R.

A review of operating experience over the last 24 months did not reveal any other events involving mispositioned components. This is not considered to be a recurring problem. There were no EPIX reportable failures for this event.

CORRECTIVE ACTIONS

Immediate
1) Breakers F02C and R03D were closed upon discovery to restore the SSF to operable status.

Subsequent
1) Permanent labels were placed on SMXG breakers F02C and R03D indicating that de-energizing these breakers makes the SSF inoperable.

2) A statement was added to the Equipment Database for these breakers, which will print on all future removal and restoration sheets, indicating that de-energizing these breakers makes the SSF inoperable.

Planned
1) It will be communicated to all operators that procedures or procedure checklists should be utilized to determine restoration positions where procedural guidance exists. This action is intended to reinforce existing expectations.

2) Operations will reinforce the importance of maintaining independence when reviewing work performed by others.

3) Operations will perform an assessment of the Independent Verification process. This assessment will include separate verifications such as those in the document review process.

SAFETY ANALYSIS

The SSF is a non-safety related system which is used to cope with certain low probability fire, flooding, security, and loss of power events. The critical function that the SSF provides is injection flow to reactor coolant pump seals in the event of loss of all AC power. This seal injection flow is supplied by the standby makeup pump and is assumed to be available within 10 minutes to prevent seal damage and eventual loss of

seal integrity. With the two alternate supply breakers to 1EMXG and 2EMXG open, seal injection flow could not be assured within 10 minutes for an event requiring activation of the SSF. Electrical power would have been available to the standby makeup pump (it receives power from SMXG directly), however, the pump suction and discharge valves would not have opened since they receive electrical power from 1EMXG (Unit 1 valves) and 2EMXG (Unit 2 valves). During an event requiring the SSF, additional operator action would have been required to diagnose the reason for lack of electrical power to 1EMXG or 2EMXG and restore reactor coolant pump seal injection flow. An operator would eventually determine that the alternate supply breaker to 1EMXG or 2EMXG was open, but not within the 10 minute window. Thus, the potential for loss of seal integrity would exist.

The impact on core damage frequency (CDF) of the SSF inoperability was evaluated assuming that the SSF was unavailable for a 14 day period. Actual maintenance activities, which affected safety-related equipment, that occurred during this period were included in the evaluation. The resulting increase in CDF is dominated by the Loss of Offsite Power and Turbine Building Flood initiating events.

For the flood event, the dominant diesel generator failure is the diesel generator run failure. For this sequence, several hours would be available prior to diesel failure and it was assumed that the SSF would be proactively manned and started. This evaluation also assumed that there was some probability the open breakers would be discovered and the SSF would be restored to full service. This is reasonable given the time that would be available.

From the above evaluation, the conditional increase in CDF associated with this SSF inoperability event is estimated to be less than 1E-06, which does not represent an accident sequence precursor.

The health and safety of the public were not affected by this event.