



Carolina Power & Light Company
Robinson Nuclear Plant
3581 West Entrance Road
Hartsville SC 29550

OCT 27 1999

Serial: RNP-RA/99-0211

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

LICENSEE EVENT REPORT NO. 1999-01-00
INADVERTENT DE-ENERGIZATION OF
480 VOLT BUS CAUSED BY PERSONNEL ERROR

Ladies and Gentlemen:

The attached Licensee Event Report is submitted in accordance with the requirements of 10 CFR 50.73. Should you have any questions regarding this matter, please contact Mr. H. K. Chernoff.

Very truly yours,

A handwritten signature in cursive script that reads "T. D. Walt".

T. D. Walt
Plant General Manager

PMY/pmy

Attachment

c: Mr. L. A. Reyes, NRC, Region II
Mr. R. Subbaratnam, NRR, NRC
NRC Resident Inspector, HBRSEP

Handwritten initials "JE22" with a vertical line to the right of the numbers.

Estimated burden per response to comply with this mandatory information collection request: 50 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)

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TITLE (4)
Inadvertent De-energization of 480 Volt Bus 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)
09	27	1999	1999	- 001	- 00	10	27	1999		

OPERATING MODE (9) 5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR (Check one or more of the following) (11)										
POWER LEVEL(10) 000	20.2201(b)			20.2203(a)(2)(v)			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)			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 H. K. Chernoff, Supervisor, Licensing/Regulatory Programs	TELEPHONE NUMBER 843-857-1437
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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
N/A									

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED	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 September 27, 1999, at approximately 2233 hours EDT with the plant in cold shutdown conditions, preventive maintenance was being conducted on a breaker for Circulating Water Pump B in the 4160 volt (V) Bus room. An electrician inadvertently contacted the trip/close switch for 4160 V breaker 52/15. This de-energized the transformer that normally feeds 480 V Bus E-2. The "B" Emergency Diesel Generator automatically started, as a result of an under-voltage condition, as designed and loaded to the bus, restoring power to Bus E-2. The operating "B" Residual Heat Removal (RHR) pump, stopped as a result of the loss of power to bus E2. RHR pump "A" was manually started by the operators which restored shutdown cooling within two minutes. The temperature of the Reactor Coolant System was estimated to have risen <= two degrees Fahrenheit. The cause of this event has been determined to be the technician's inattention to detail relative to his surroundings. The individual involved was counseled regarding inattention and the need for awareness of his surroundings. Corrective actions have been implemented to heighten worker awareness prior to the job and add visual reminders in the form of barrier markers with warning signs at the entrances to the area.

This condition is being reported in accordance with 10 CFR 50.73(a)(2)(iv) as an event that resulted in an automatic actuation of an engineered safety feature.

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I. DESCRIPTION OF EVENT

On September 27, 1999 two electricians were assigned to perform Preventative Maintenance (PM) on de-energized 4160 V [EA] Bus 4, Cubicle-23 [BKR] which contains a circuit breaker for Circulating Water [KG] Pump "B" [P]. During performance of the maintenance the breaker arc chute [CHT] was inspected and cleaned. At approximately 2233 hours EDT, while positioning the removed arc chute out of the way of the breaker being worked, one of the technicians inadvertently came into contact with the trip/close switch [JS] for breaker 52/15 [BKR] on the energized 4160 V bus causing 480 V Bus E-2 [BU] to de-energize.

The inadvertent switch operation de-energized the transformer that feeds 480 V Bus E-2 [EA]. The "B" Emergency Diesel Generator automatically started as designed and loaded to the bus, restoring power. The operating residual heat removal [BP] pump [P] "B," stopped as a result of the loss of power to bus E2. RHR pump "A" was manually started by the operators restoring shutdown cooling within two minutes.

Normal power supply was restored to 480 V Bus E-2 at 0035 hours EDT on September 28, 1999, by shutting breaker 52/15 to re-energize and restore power to Station Shutdown Transformer 2C & 2G [EA]. 480 V Bus 3 and the Dedicated Shutdown Bus were then returned to service. "B" Emergency Diesel Generator was then shutdown at 0107 hours EDT and returned to standby.

This condition is being reported in accordance with 10 CFR 50.73(a)(2)(iv) as an event that resulted in an automatic actuation of an engineered safety feature.

II. CAUSE OF EVENT

This event was caused by a utility electrician's lack of awareness of his surroundings and inattention to detail, causing a switch to be inadvertently operated which tripped a bus feeder breaker. No operator errors or procedural deficiencies contributed to the event.

Two utility electricians were assigned to work a preventative maintenance ticket on a 4160 V Bus breaker. During performance of this work, in accordance with the procedures referenced by the work ticket, an arc chute for the breaker was inspected and cleaned. While positioning the removed arc chute out of the way, one of the technicians came into contact with the trip/close switch for breaker 52/15 on the energized bus causing 480 V Bus E-2 to de-energize. The switch is in the vicinity of where the chute was being temporarily stored while the work was ongoing. There were no unusual characteristics of the work location that contributed to the event. The switch was behind the technician, as he and a coworker relocated the arc chute, and therefore

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blocked from his view. This event resulted from a cognitive error by the electrician caused by his inattention to his surroundings.

There are five breakers in the area that can be operated locally. The checklist used for this work contains a caution that local controls for breakers supplying the Station Service Transformers will operate those breakers. Additionally, these breakers are labeled with a caution sign stating "~~Sensitive System Area, No Rushing.~~" The switch that was inadvertently operated is a pistol grip type switch that is turned counter clockwise to trip (open) the breaker.

This switch operates this breaker

III. ANALYSIS OF EVENT

The plant was in cold shutdown, MODE 5, after a scheduled shutdown for refueling on September 25, 1999. The Reactor Coolant System was depressurized and at approximately 157 degrees Fahrenheit. There was no significant adverse impact to safety as a result of this event. Safety equipment performed as designed. There were no equipment failures related to this event. The small increase in RCS temperature was within design operating limits of the RHR system in MODE 5.

IV. CORRECTIVE ACTIONS

The control room received immediate indications of the event and entered the Abnormal Operating Procedures, as required. The electrician also immediately contacted the control room after the event. Electrical/Instrument and Control work was stopped and a stand down was held for the Electrical/Instrument and Control shop personnel before they returned to work. The individual involved was counseled regarding inattention and the need for awareness of his surroundings.

A non-conductive chain with warning signs has been placed, de-marking the 4160 V bus breaker front panel area. This will provide a visual cue and caution prior to entry into an area with exposed controls for significant safety equipment.

As an additional action, the five pistol grip type switch handles, on the 4160 V breakers that can be locally operated, were replaced with star shaped handles, reducing the likelihood of inadvertent operation by unintentional contact.

Procedure MMM-001, "Maintenance Administrative Program," was revised to require a discussion during pre-job briefs of precautions around sensitive equipment at job sites.

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A review of other safety significant controls outside the control room, that could result in a significant challenge to safety systems if inadvertently operated is being conducted. This review is scheduled for completion before February 28, 2000. The results of this review will be included into the corrective action program for disposition.

V. ADDITIONAL INFORMATION

A. Failed Component Information:

There were no component failures associated with this event.

B. Previous Similar Events:

A review of previous Licensee Event Reports (LERs) from the last two years did not identify a previous similar occurrence of inadvertent operation of breaker control switches for 4160 V bus breakers. While not a previous similar occurrence, LER 97-010-00, "Emergency Diesel Generator Inoperability Due to Mispositioned Output Breaker Control Switch," involved an output breaker control switch found mispositioned. In that instance, the mispositioned switch was not detectable from the control room and resulted in the inability of an emergency diesel generator to automatically load to its bus.