50-395

NRC FILE CENTER COPY

MEMORANDUM TO:	Ellis W. Mersc	hoff, Director
	Division of Re	actor Projects
	Region II	

FROM: William H. Bateman, Project Director (Original Signed By) Project Directorate II-1 Division of Reactor Projects I/II, NRR

SUBJECT: POWER LOCKOUT FEATURE ON HIGH HEAD SAFETY INJECTION CROSS-CONNECT VALVES - TIA: 94-018 FOR VIRGIL C. SUMMER NUCLEAR STATION, UNIT NO. 1 (TAC NO. 89539)

In a May 20, 1994, memorandum, Jon Johnson requested technical assistance in determining if there is a need for a power lockout feature on high head safety injection (HHSI) cross-connect valves at Virgil C. Summer Nuclear Station, Unit No. 1.

The staff has concluded that these values should have their power locked out in order to meet the single-failure criterion as required by BTP EICSB 18. Further, the administrative controls implemented by the licensee to ensure that the supply breakers for both values are locked out in the open position if the HHSI pump C is aligned to the train B HHSI is also acceptable, provided a redundant value position indication for these values is available in the control room to fully satisfy the requirements of BTP EICSB 18.

Docket No. 50-395

能

Attachment: February 16, 1995, memo from Carl H. Berlinger

CONTACT: Stephen Dembek, NRR/DRP 415-1455

Distribution	
Central File	JZwolinski
PUBLIC	OGC
PDII-1 Reading File	ACRS (4)
SVarga	

DOCUMENT NAME: G:\SUMMER\SUM89539.MEM

OFFICE	LA: POITRA	PM: PDLI-1	D:PDIITL R	/	
NAME	PAnderson	SDEmber	WBateman	The second s	
DATE	02/28/95	02/28/95	11/195		
COPY	(Yes)No	(Yes) No	Yes/No		
	Constant of the second s	OFFICI	AL DECODD COD	And the second second second second	and a second

OFFICIAL RECORD COPY

9503060238 950301 PDR ADOCK 05000395 PDR PDR

060046



UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D.C. 20556-0001

February 16, 1995

MEMORANDUM TO: William H. Bateman, Project Director Project Directorate II-1 Division of Reactor Projects I/II, NRR

FROM:

Carl H. Berlinger, Chief Electrical Engineering Branch Division of Engineering, NRR

Carl & Beslinger

SUBJECT:

REQUEST FOR TECHNICAL ASSISTANCE (TASK INTERFACE AGREEMENT) REGARDING POWER LOCKOUT ON HIGH-HEAD SAFETY INJECTION CROSS-CONNECT VALVES AT VIRGIL C. SUMMER NUCLEAR STATION (TIA 94-018) (TAC NO. M89539)

During the inspection of April 1 to 30, 1994, at V. C. Summer Nuclear Station. Region II staff identified two charging/high-head safety injection (HHSI) pump cross-connect motor-operated valves, XVG-8133A and XVG-8133B, that are not included in the list of valves that require power lockout in order to meet the single-failure criterion in the fluid system as recommended by Branch Technical Position (BTP) EICSB 18, "Application of the Single-Failure Criterion to Manually Controlled Electrically Operated Valves." The concern is that when pump "C" is aligned to train "B," a "hot short" in the control circuitry (a single failure) of either the XVG-8133A or the XVG-8133B valve could cause a valve to mechanically change position while all HHSI flow is being delivered via the train "B" flow path, thus defeating the automatic function for both trains of HHSI. Both of these valves must be open during normal operations. A "power lockout" feature, if implemented, would prevent the valve from changing position in response to a hot short or inadvertent operator action.

The task interface agreement (TIA) memorandum from Jon R. Johnson, Region II. to Gus C. Lainas, DE/NRR, dated May 20, 1994, asked NRR to determine whether a "power lockout" feature is needed on these HHSI pump cross-connect valves at Summer or whether administrative controls implemented by the licensee for these valves provide adequate safety for the life of the plant.

BTP EICSB 18 establishes the acceptability of disconnecting power to electrical components of a fluid system as one means of designing against a single failure that might cause an undesirable component action. In the course of its review, the staff has always required a list in the Technical Specifications (TS) of all valves that require power lockout in order to meet the single-failure criterion in the fluid system. During licensing of the Summer plant, the licensee included in the Summer TS a list of valves that require power lockout. However, these two valves were not included in this

CONTACT: O. Chopra, DE/EELB 415-3265

William H. Bateman

4. .

list. The licensee's view is that Section 6.3.2.20 of the FSAR (involving valves that require power lockout) is a "licensing basis" issue rather than part of the plant's "design basis." The licensee contends that the spurious closure of these valves under a specific charging/safety injection pump alignment and during a specific time interval of a postulated accident is an event of such low probability as to require no corrective action in design or operation. The licensee has currently established administrative controls such that if plant conditions require the operation of HHSI pump "C" on train "B," then the supply breakers for both XVG-8133A and XVG-8133B would be locked open with the valves in the open position.

The Electrical Engineering Branch has reviewed the information in the TIA and concludes that the scenario as postulated could disable the HHSI, thereby compromising plant emergency response to small break (SB) loss-of-coolant accident (LOCA) and cooldown transient events. We have also reviewed the licensee's clarification/justification of its position as submitted on May 19, 1994. For purposes of evaluating the contribution to the risk of singlefailure, we agree that the postulated single-failure represents a small risk. However, we do not agree that the risk probability justification proposed by the licensee applies to this issue because the design-basis/licensing-basis accident is postulated regardless of probability. Therefore, we conclude that these valves should have their power locked out in order to meet the singlefailure criterion as required by BTP EICSB 18. Further, the administrative controls implemented by the licensee to ensure that the supply breakers for both valves are locked open with valves in the open position if the HHSI pump "C" is aligned to the train "B" HHSI is also acceptable, provided a redundant valve position indication for these valves is provided in the control room in order to fully satisfy the requirements of BTP EICSB 18. This memorandum completes our report on TAC No. M89539.