William S. Orser Vice President Nuclear Operations

4

..

Detroit

10CFR50.73



Nunlear Generation

Fermi 2 6400 North Dixie Highway Newport, Michigan 48166 (313) 586-5201

November 22, 1989 NRC-89-0249

U. S. Nuclear Regulatory Commission Attention: Document Control Desk Washington, D.C. 20555

Reference: Fermi 2 NRC Docket No. 50-341 Facility Operating License No. NPF-43

Subject: Licensee Event Report (LER) No. 89-029-00

Please find enclosed LER No. 89-029-00, dated November 22, 1989, for a reportable event that occurred on October 23, 1989. A copy of this LER is also being sent to the Regional Administrator, USNRC Region III.

If you have any quescions. please contact Joseph Pendergast at (313) 586-1682.

Sincerely.

ullle

Enclosure: NRC Forms 366, 366A

cc:

A. B. Davis J. R. Eckert

R. W. Defayette/W. L. Axelson

- W. G. Rogers
- J. F. Stang

Wayne County Emergency Management Division

8911280504 891122 PDR ADOCK 05000341 S PDC

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13) CAUSE SYSTEM COMPONENT MANUFAC TURER TO NPRDS CAUSE SYSTEM COMPONENT MANUFAC TURER TO NPRDS	NRC Form 366 (9-63) 7			LIC	ENSEE E	VENT RE	PORT	(LER)		CLEAR REGULAT APPROVED OMB EXPIRES 8/31/88	ORY COMMISSION NO. 3150-0104
This is Open interved Safety Feature Actuations Due to Loss of Reactor Protection System Motor Generator Set "B" Power View parts as Set of the state of the st	FACILITY NAME (1)	Fermi	2								
User busines of across tart in convertion to the second of the second o	TITLE (4)	Engine	ered Safe	ty Feat	ure Actu Set "B	ations ' Power	Due t	and the second se	angle make garden as	he day day he	- Lill
Intermediate Notation Notation N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 8 9 N/A 0 5 0 0 0 1 1 2 2 2 2 2 2 2 2	EVENT DATE (5)	T	NAME OF ADDRESS OF ADDRES					OTHER	ACILITIES INVO	LVED (8)	
1 0 23 8 9 0 2 9 N/A 0 5 10 0 0 1 12 2 8 9 8 9 0 2 9 N/A 0 5 10 0 10	MONTH DAY Y	AR YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH DA	Y YEAR			165	DOCKET NUMBE	R(3)
OPERATING WERE NOT IN BUILDENTED PURSUANT TO THE REQUIREMENT OF THE REPORT TO THE REQUIREMENT OF THE REPORT TO THE REPORT								N/A		0 15 10 10	010111
VALUE 00 5 Pression Pressi	hand and a second	+			1 1 2		CER 8- (the failowing) [1	how also and a subserved	10111
Lives 0_10_0 Resentation R		E hanny					X	pr			
(10) 0		20.4	05(e)(1)(i)		50.36(c)(1)			50.73(e)(2)(v)		73.71(c)	
AND CONTRACT CONTRACT FOR THIS LEGENERIC IN THIS LICENESS CONTRACT FOR THIS CONTONES TO MADE FOR THE CONTONES TO MADE FOR										bereased below and	
NAME B0.7300(2000) B0.7300(2000) NAME Joseph Pendengast, Licensing Engineer Tricerocome Number COMPLETE ONLINE FOR TACK TOR THE LER ID AME a CODE CAUSE SYSTEM COMPONENT MANUFAC COMPLETE ONLINE FOR TACK TOR THE LER ID AME a CODE CAUSE SYSTEM COMPONENT MANUFAC VESUTEN COMPONENT MANUFAC Statistics TO HERDS CAUSE SYSTEM COMPONENT MANUFAC MONTH Statistics TO HERDS CAUSE SYSTEM COMPONENT MANUFAC MONTH CAUSE SYSTEM COMPONENT MANUFAC MANUFAC MONTH CAUSE SYSTEM MANUFAC MONTH CAUSE SYSTEM MANUFAC MONTH CAUSE SYSTEM MANUFAC										365A)	
NAME Joseph Pendergast, Licensing Engineer TULEHHOME KUMBER COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIED IN THE REPORT (13) AREA CODE AIL 3 3 1 3 5 8 6 - 1 1 6 8 2 CAUSE SYSTEM COMPONENT MANUFAC PEROTABLE CAUSE SYSTEM COMPONENT CAUSE SYSTEM COMPONENT MANUFAC PEROTABLE CAUSE SYSTEM COMPONENT MANUFAC PEROTABLE CAUSE SYSTEM COMPONENT MANUFAC PEROTABLE CAUSE SYSTEM COMPONENT MANUFAC PEROTABLE CAUSE SYSTEM COMPONENT MANUFAC PEROTABLE TO MARDE MANUFAC PEROTABLE CAUSE SYSTEM COMPONENT MANUFAC PEROTABLE TO MARDE MANUFAC PEROTABLE BUPLEMENTAL REPORT EXPECTED (14) VEB IT we, company Attemptor texpected (16) X NO DATE (15) DATE (15) ABETRACT (LINT IN 1600 DECENT 23, 1989, at 1020 hours, a half scram signal was received. All of the expected scrutions/isolations were received. Shutdown Cooling was not expected to isolate at the time of the event since the affected Shutdown Cooling suction valve in the system was de-energiz							-				
Joseph Pendergast, Licensing Engineer AREA CODE COMPLETE ONE LINE FOR LACH COMPONENT FAILURE DESCRIPED IN THE REPORT (13) COMPLETE ONE LINE FOR LACH COMPONENT FAILURE DESCRIPED IN THE REPORT (13) CAUSE SYSTEM COMPONENT MULTICE DESCRIPED IN THE REPORT (13) CAUSE SYSTEM COMPONENT MULTICE DESCRIPED IN THE REPORT (13) CAUSE SYSTEM COMPONENT MULTICE DESCRIPED IN THE REPORT (13) CAUSE SYSTEM COMPONENT MULTICE DESCRIPTO IN MULTICE PERCETAGE MURTICE COMPONENT MULTICE DESCRIPTO IN MULTICE DESCRIPTION IN MULTICE BUMPLEMENTAL REPORT EXPECTED (14) ADD VES IT yes, complete EXPECTED SUBMISSION DATE! ADD ADD Superimental REPORT EXPECTED (14) ADD Superimental REPORT PERCETED (14) ADD ON OCCLOBER 23, 1989, at 1020 hours, a half scram signal was rescre				L	ICENSEE CONT	ACT FOR THIS	LER (12)			-	
Joseph Pendergast, Licensing Engineer 3 1 3 5 8 6 - 1 6 8 4 CAUSE 97STEN COMPONENT MANUAC PEPORTABLE CAUSE 97STEN COMPONENT MANUAC PEROFTED SUPERISTOR SUPPLEMENTAL REPORT ENCODED CAUSE 97STEN COMPONENT MANUAC SUPPLEMENTAL REPORT ENCODED SUPPLEMENTAL REPORT ENCODED SUPPLEMENTAL REPORT ENCODED CAUSE 97STEN COMPONENT MANUAC VES IF rect SUPPLEMENTAL REPORT ENCODED VES IF rect MONTEN DAY VES IF rect SUPPLEMENTAL REPORT ENCODED ON OCTOBER 23, 1989, at 1020 hours, a half scram signal was received when power was lost on Reactor Protection System bus <td>NAME</td> <td>Martin St.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>AREA CODE</td> <td>TELEPHONE NUM</td> <td>ABER</td>	NAME	Martin St.							AREA CODE	TELEPHONE NUM	ABER
CAUSE SYSTEM COMPONENT MANUFAC TEORYTABLE TO MPROS BUPPLEMENTAL REPORT EXPECTED IN BUPPLEMENTAL REPORT EXPECTED IN IN THE INFORMATION OF INFORMATION IN THE INFORMATION IN THE INFORMATION COOLING WAS NOT EXPECTED INFORMATION IN THE		Joseph	n Penderga	ist, Lic	ensing b	ingineer			31113	5 18,61	-1161812
CAUSE OVERM COMPONENT TURER TO WARDS CAUSE STATE COMPONENT TURER TO WARDS SUPPLEMENTAL REPORT EXPECTED (14) SUPPLEMENTAL REPORT EXPECTED (14) SUPPLEMENTA			COMPLETE	ONE LINE FOR	EACH COMPON	ENT FAILURE	DESCRIBE	D IN THIS REPOR	T (13)	4 4 4 4 4	
YES (If yes, complete EXPECTED SUBMISSION DATE) X NO ABSTRACT (Limit to 1400 Bases, i.e. approximately Affeen single tables typewritten limes) [16] ABSTRACT (Limit to 1400 Bases, i.e. approximately Affeen single tables typewritten limes) [16] On October 23. 1989, at 1020 hours, a half scram signal was received when power was lost on Reactor Protection System bus "B". Several Engineered Safety Features were actuated. All of the expected actuations/isolations were received. Shutdown Cooling was not expected to isolate at the time of the event since the affected Shutdown Cooling suction valve in the system was de-energized open for surveillance testing. The valve did close when power was restored to it. The loss of RPS bus "B" was attributed to the location of a breaker operating switch in a high traffic area in the plant. A Security investigation was conducted to determine if any personnel could have bumped the switch. This Licensee Event Personnel could have bumped the switch. This Licensee Event	CAUSE SYSTEM C	OMPONENT				CAUSE	SYSTEM	COMPONENT			
VEB (If yes. complete EXPECTED SUBMISSION DATE) ABSTRACT (Limit to 1400 Lakes, i.e. approximately influent subscience typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately influent subscience typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately influent subscience typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately influent subscience typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately influent subscience typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately influent subscience the subscience the subscience the subscience the subscience that the subscience the subscience the subscience the subscience of the event since the affected Shutdown Cooling suction valve in the system was de-energized open for surveillance testing. The valve did close when power was restored to it. The loss of RPS bus "B" was attributed to the location of a breaker operating switch in a high traffic area in the plant. A Security investigation was conducted to determine if any personnel could have bumped the switch. This Licensee Event Personnel could have bumped the switch. This Licensee Event means the subscience th							<u> </u>				
VEB (If yes. complete EXPECTED SUBMISSION DATE) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen single space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen single space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen single space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen single space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen single space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen single space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen single space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen single space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen single space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen single space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen single space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen single space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen single space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen single space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes, i.e. approximately fifteen space typewritten lines) (16) ABSTRACT (Limit to 1400 Lakes,		1.1	111					111	111		
VES (If yet, complete EXPECTED SUBMISSION DATE) ABSTRACT (Limit to 1400 uncer, i.e. approximately fitteen imple uncer typewritten imple (16) ABSTRACT (Limit to 1400 uncer, i.e. approximately fitteen imple uncer (16) ABSTRACT (Limit to 1400 uncer, i.e. approximately fitteen imple (16) ABSTRACT (Limit to 1400 uncer, i.e. approximately fitteen imple (16) ABSTRACT (Limit to 1400 uncer, i.e. approximately fitteen imple (16) ABSTRACT (Limit to 1400 uncer, i.e. approximately fitteen imple (16) ABSTRACT (Limit to 1400 uncer, i.e. approximately fitteen imple uncer (16) ABSTRACT (Limit to 1400 uncer, i.e. approximately fitteen imple uncer (16) ABSTRACT (Limit to 1400 uncer, i.e. approximately fitteen imple uncer (16) ABSTRACT (Limit to 1400 uncer, i.e. approximately fitteen uncer (16) ABSTRACT (Limit to 1400 uncer, i.e. approximately fitteen uncer (16) ABSTRACT (Limit to 1400 uncer, i.e. approximately fitteen uncer (16) The expected actuations/isolations were received. Shutdown Cooling was not expected to isolate at the time of the event since the affected Shutdown Cooling suction valve in the system was de-energized open for surveillance testing. The valve did close when power was restored to it. The loss of RPS bus "B" was attributed to the location of a breaker operating switch in a high traffic area in the plant. A Security investigation was conducted to determine if any personnel could have bumped the switch. This Licensee Event Penort will be given to operations personnel as required reading.			SUPPLEME	NTAL REPORT	EXPECTED (14	3		le canactéric conditioner de la constitución		ED .	H DAY YEAR
AMSTRACT (Limit to 1400 space: is, approximately fitteen signed was received when power was lost on Reactor Protection System bus "B". Several Engineered Safety Features were actuated. All of the expected actuations/isolations were received. Shutdown Cooling was not expected to isolate at the time of the event since the affected Shutdown Cooling suction valve in the system was de-energized open for surveillance testing. The valve did close when power was restored to it. The loss of RPS bus "B" was attributed to the location of a breaker operating switch in a high traffic area in the plant. A Security investigation was conducted to determine if any personnel could have bumped the switch. This Licensee Event Perort will be given to operations personnel as required reading.	VES ///	EXPERTED	CURALISSION DATE						SUBMISS DATE (1	(ON (5)	
A rotential besign change will be evaluated to the breaker breaker covers should be installed at panels when the breaker operating switches are located in high traffic areas.	On C rece "B", the Cool the de-e when The brea A S peri Rep A P brea	october eived w Seve expect ling wa affect energiz power loss o aker op ecurity sonnel ort wil otentia aker co	23, 198 hen powe ral Engi ed actua s not en ed Shute ed Shute ed open was rea f RPS bu erating invest could ha l be giv bers sh	89. at er was incered ations/ kpected for su stored us "B" switch igation ave bur ven to n Chang ould be	1020 h lost o Safer Visolat to iso oling prveill to it. was at h in a n was con ped th operat ge will e insta	ours, n Reac y Feat ions w olate suction ance t tribut high t onduct ions p be ev illed a	tor ures ere at t n va esti ed t raff ed t ch. oerso alua at pa	Protecti were ac received he time lve in t ng. The o the lc ic area o detern This Li nel as ted to c nels whe	on Syst tuated. . Shut of the he syst valve ocation in the nine if leensee require letermine n the b	em bus All o down event s em was did clo of s plant. any Event d readi ne if	ince se

NRC Form 366 (9-83)

•

LICENSEE EN	VENT REPORT	(LER) TEXT	CONTINUATION
-------------	-------------	------------	--------------

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104 EXPIRES: 8/31/88

FACIL	ITY	NAME	(1)

AGE (1)	DOCKET NUMBER (2)		L	ER NUMBER (6)	PAGE (3)				
		YEAR	L	SEQUENTIAL		NUMBER			
Fermi 2	0 5 0 0 0 3 4	1 819	-	9 2 9	-	010	012	OF	0 4

TEXT Iff more space is required, use additional NRC Form 306A's) (17)

Initial Plant Conditions:

Operational Condition: 5 (Refueling) Reactor Power: O Percent Reactor Temperature: 98 degrees Fahrenheit Reactor Pressure: O psig

Description of the Event:

On October 23, 1989, at 1020 hours, a half scram signal was received when power was lost to Reactor Protection System bus "B" (RPS) (JC). The loss of power caused several Engineered Safety Features to actuate. All of the expected actuations/isolations were received. These included:

- The Control Center Heating Ventilation and Air Conditioning System (VI) (CCHVAC) shifted to the recirculation mode.
- Reactor Building Heating Ventilation and Air Conditioning (VA) (RBHVAC) isolated.
- The Standby Gas Treatment System (BH) (SGTS) automatically started.
- Division 2 Non-Interruptible Air Supply control air compressor (COMP) (NIAS) automatically started.

Operations personnel quickly determined that the loss of power to RPS bus "B" had been caused by a trip of RPS motor generator "B". All expected isolations and actuations were verified to have occurred. Shutdown cooling had not isolated since the Residual Heat Removal (RHR) Shutdown Cooling Valve Ell-FCO8 was de-energized in the open position at the time of the event for a battery surveillance test.

Power was restored to RPS bus "B" from the alternate power supply at 1103 hours. At 1210 hours, the above described system actuations and isolations were returned to normal except for E11-F008 which was still de-energized open for the surveillance.

At 1214 hours, power was restored to E11-F008 initiating a closure of the valve and isolating Shutdown Cooling. Operations personnel immediately recognized the valve closure as an expected isolation due to the previous RPS bus "B" power loss. The valve was opened and Shutdown Cooling restored in approximately one minute.

NRC Form 366A (9-53)	LICENSEE EVE	NT REPORT (LER) TEXT CONTINU	REPORT (LER) TEXT CONTINUATION						U.S. NUCLEAR REGULATORY COMMISSION APPROVED OME NO. 3150-0104 EXPIRES 6/31/00						
FACILITY NAME (1)		DOCKET NUMBER (2)	T	L	ER NUMBER (6)	-	PAGE (3)								
			YEAR		BEQUENTIAL	REVISION		TT							
	Fermi 2	0 15 10 10 10 13 1 411	8 9	_	01219	- 00	01	3 OF	0 14						
TEXT IN MICH ADADA IS CARDING	I use additional NRC From MEASSINT	anone second to many the second	A		character spectrum	Accordence Accord									

Cause of the Event:

A thorough investigation was conducted. The trip of the RPS Motor Generator set "B" was attributed to the location of the breaker operating switch. The switch is located in an area that has seen high traffic during the refueling outage. The Motor Control Center is located at the bottom of a stairwell leading to a path that is traveled heavily during the refueling outage. A clearance of twenty-six inches exists between the path and the switch. Workers handling bulky objects may have had difficulty negotiating the clearance, and not realized they bumped the switch. Security has investigated and found no evidence of deliberate tampering with the switch.

The following is a detailed explanation of the El1-F008 operation during this event.

At the time of the event an uncommon condition existed in that E11-F008 was de-energized in the open position for a battery surveillance. Operations personnel checked plant conditions and alarms against expected actuations and isolations as described in Enclosure "B" of NPP 23.316, "RPS 120 VAC and RPS MG Sets". The difference was noted that E12-F008 had not closed and Shutdown Cooling had not isolated as normally would have been expected.

The closure of valve E11-F008 upon re-enerization was due to a seal-in closure signal created by the isolation signal. This was through the open/intermediate position of the valve operating pushbutton. The signal actuated the "close" coil. With the valve operator in the full open position and de-energized, no method of removing the "close" seal-in existed except for pushing the "open" pushbutton prior to re-energizing the valve operator. Thus, when the valve operator was re-energized, the seal-in "closure" signal caused the valve to close.

It should also be noted that there are differences between AC and DC valve operating circuits. For most DC operators and nearly all AC operators, de-energization of the valve Motor Control Center de-energizes both the operator logic and the valve motor. For some DC operators, the power supply to the valve motor is 260 VDC while the operator logic is 130 VDC supplied from an independent source. Some of these selected DC operators have control relay contacts/relays in the valve operator logic that serve to de-energize the logic when the valve motor power is lost. F11-F008 does not have these controls/relays and it is necessary to either pull control power fuses in the valve operator's logic or break the seal-in "close" by pressing the open pushbutton to

NRC Form 366A (9-83)	LICENSEE EVENT REPORT (LER) TEXT CONTINUATION								
FACILITY NAME (1)		DOCKET NUMBER (2)	1	LE	R NUMBER (6	0		PAGE (3)	
			YEAR		NUMBER	REN	WIGION		
	Fermi 2	0 5 0 0 3 4 1	8 9	-	0 2 9	9-0	010	0 4 OF	014

TEXT Iff more space is required, use additional NRC Form 3664's/ (17)

prevent valve closure before power restoration after a closure signal is received. When E11-F008 closed, the condition was recognized immediately by operations personnel and actions taken to restore Shutdown Cooling were complete in approximately one minute.

Analysis of the Event:

All of the safety systems which actuated/isolated functioned as designed when the RPS "B" power supply was lost. CCHVAC, RBHVAC, SGTS, and NIAS responded by actuating or isolating per design.

The loss of Shutdown Cooling was for only one minute. Prompt operator action was taken. In addition, the gate between the Spent Fuel Pool and the Reactor Cavity was open. The volume of water contained in the Reactor Cavity and Spent Fuel Pool. coupled with the heat removal capability of the Fuel Pool Cooling and Cleanup System could have served as an additional source of heat removal had there been a need to remove excess heat. Under operating conditions requiring Shutdown Cooling, a loss of this capability for approximately one minute would have had a negligible effect on reactor coolant temperature. Therefore, the health and safety of plant employees and the public was protected at all times.

Corrective Actions:

A security investigation was initiated to identify any personnel who could have bumped the switch or tampered with the switch. No deliberate tampering is suspected.

Potential Design Change 10972 will be evaluated to determine if breaker covers should be installed at panels when the breaker operating switches are located in high traffic areas. This evaluation is expected to be complete by March 15, 1990.

This Licensee Event Report will be given to Operations personnel as required reading. It will serve to alert operators to the particular conditions which were encountered during this event. This will be complete by December 30, 1989.

Previous Similar Events:

Licensee Event Report 88-025. "Reactor Protection Trip System B De-energized Due To Personnel Mishap" described a similar event however the individual who caused the actuation was identified.