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SUBJECT: LER 88-017-01:on 880615,limitorque motor operator potential safety hazard caused by troque switch cam binding failure.
W/8 ltr.

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NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

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TITLE (4) Limitorque Motor Operator Potential Safety Hazard Caused by Torque Switch Cam Binding and Torque Switch Lug Failures Due To Cause Unknown

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)
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0 6	1 5	8 8	8 8	— 0 1 7	— 0 1	0 9	3 0	8 8		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)			
4	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 0 0 0	20.405(a)(1)(i)	50.36(c)(1)	X 50.73(a)(2)(v)	73.71(c)
	20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	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)	
	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)	10 CFR Part 21

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Steven L. Washington, Compliance Engineer	5 0 9 — 3 7 7 - 1 2 0 8 0

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	

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 June 15, 1988 after a Plant investigation and evaluation, two problems with Limitorque Model SMB-000 and SMB-00 Motor Operators found during the Spring 1988 Refueling and Maintenance Outage were determined to be reportable per 10CFR Part 21 and 10CFR 50.73(a)(2)(v). On May 15, 1988 during Valve/Motor Operator (MOVATS) testing , outboard isolation main steamline drain valve (MS-V-67B) operated erratically. An investigation found that Limitorque Model SMB-000 and SMB-00 Valve Motor Operator torque switches manufactured from Melamine had two potential defects. First, the cam block can bind on its steel shaft causing premature torque switch actuation. Secondly, the torque switch cam lug can fracture potentially causing failure of the torque switch and subsequent damage to the valve and/or motor operator. Based on the findings, the investigation to date has identified 21 Limitorque Motor Operator torque switches with one or both defects. Of the 17 motor operators found with defects, 15 are Model SMB-000 and 2 are Model SMB-00. Each of the valves found with defects has a safety-related function. Seven of the valves are Nuclear Steam Supply Shutoff System (NS4) Valves, six are Main Steamline Leakage Control (MSLC) System valves. The four remaining valves are in the Reactor Core Isolation Cooling (RCIC), Containment Atmospheric Control (CAC), Containment Instrument Air (CIA), and Auxilary Steam Systems.

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

Abstract (Continued)

These defects have been evaluated to have two potential safety hazards. For the cam binding problem, valves have their safety-related valve direction (open or close) torque switch bypassed; however, in the close direction the torque switch is reactivated when the valve limit switch trips at 95 to 100% closed. This means the potential exists for valves to not fully close. For the cam lug breaking problem, the torque switch could fail to operate and the valve and/or motor operator could be damaged. To date none of the valves with defects identified failed to operate. An engineering evaluation has been completed and the cause of the lug fracture problem is a design problem. While not establishing a definitive cause the shrinkage problem is associated with the Melamine material. The immediate corrective action was to replace all Melamine torque switches in SMB-000 and SMB-00 Motor Operators located in the steam tunnel and containment. Corrective actions completed: all safety-related SMB-000 and SMB-00 motor operators were inspected and all "Melamine" torque switches removed and the engineering evaluation performed to determine the cause of the two defects was completed. The evaluation of the balance of plant SMB-000 and SMB-00 motor operators remains to be completed.

Plant Conditions

a) Power Level - 0%
b) Plant Mode - 4 (Cold Shutdown)

Event Description

On June 15, 1988 after a Plant investigation and evaluation two problems with Limitorque Model SMB-000 and SMB-00 Motor Operators found during the Spring 1988 Refueling and Maintenance Outage were determined to be reportable per 10CFR Part 21 and per 10CFR 50.73 (a)(2)(v).

On May 5, 1988, during Valve/Motor Operator (MOVATS) testing, Outboard Main Steamline Isolation Drain Valve (MS-V-67B) operated erratically. An investigation of the problem revealed that the cam-block of the open direction torque switch was binding on its steel shaft causing premature and erratic actuation of the torque switch. At disassembly, the normally free-running shaft/cam could hardly be operated by hand. Preliminary analysis is that the cam block became distorted resulting in it binding on the steel shaft, and the distortion may have been caused by the area temperatures in the steam tunnel. The defective cam block was made of plastic, tradename, Melamine. Limitorque began using another material, tradename Fiberite, to replace Melamine around 1980. The torque switch manufacturer, Limitorque, has stated that Fiberite has more favorable temperature stability, but the material change had been made on a strength basis.

Based on the findings above, a decision was made to replace all Melamine torque switches in safety-related motor operators in both the Steam Tunnel and Containment since both have high area temperatures, above 100 F. During the replacement of torque switches in the steam tunnel, seven Model SMB-000 Melamine torque switches were found with their cam lug broken. Limitorque was contacted again and they advised that a design change made in the early 1980's replaced the molded cam lug with a new metal insert lug. Preliminary cause determination is that this defect is due to shock loading and not environmentally caused.

To date all broken cam lugs have occurred in a manner that enough of the lug remained in place for the torque switch to still operate although the setpoint may have shifted. It is postulated that eventually the lug would break away and the torque switch would fail. Since the cam lug breaking does not appear to be environmentally related, a decision was made to replace all Melamine torque switches in safety-related motor operators with the Fiberite switches with metal cam lugs. The binding problem was also later found in valves that are not subjected to higher than normal temperatures or radiation.

Immediate Corrective Action

- An investigation and evaluation of the torque switch problems was immediately initiated, and the torque switch manufacturer, Limitorque, was contacted.

- All safety-related valves with Limitroque SMB-000 and SMB-00 Motor Operators in the Containment and Steam Tunnel were inspected and all Melamine torque switches were replaced with the new Fiberite torque switches with metal lug.

  Eleven SMB-000 motor operators with previously installed Fiberite torque switches were inspected to establish that the metal lugs were present and the cam block was not binding. No defects were found.

Further Evaluation

There were no structures, systems, or components that were inoperable prior to the event that contributed to the event.

10CFR Part 21 Evaluation. To date 56 valves with Limitorque Model SMB-000 or SMB-00 Motor Operators have been inspected and 17 Motor Operator torque switches have been identified with one or both defects. Each of the 17 valves operated by Motor Operators with defects has a safety function. Seven of the valves are part of the Nuclear Steam Supply Shutoff System (NS^4) and six are part of the Main Steamline Leakage Control System (MSLC). The other four valves are, one each, in the Reactor Core Isolation Cooling (RCIC) System, Containment Atmosphere Control (CAC) System, Auxilary Steam (AS) System, and Containment Instrument Air (CIA) System. Both the NS^4 and MSLC systems have a safety function of preventing offsite exposures during accident conditions. Therefore, the defects have been found in components necessary to prevent or mitigate the consequences of accidents which could result in potential offsite releases.

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The Limitorque motor operator torque switches are in some cases bypassed in accordance with Plant commitments for IE Circular Number 81-13 "Torque Switch Electrical Bypass Circuit for Safeguards Service Valve Motors." For those valves whose "open" direction torque switch is jumpered (See Table 1) there is no safety hazard from either defect since the motor operator is controlled only by the limit switch. For those valves with the "close" direction torque switch jumpered two potential hazards exist. First, the "close" direction limit switches are set to reactivate the torque switch when the valve is between 95 to 100% closed. This means that if the cam block is binding and a premature switch actuation occurs the valve may not fully close. While the purpose of the torque switch bypass jumpers is to make sure that torque switches would not prevent a valve from accomplishing its safety function, the fact that several valves with an isolation safety function may not fully close could create under accident conditions a substantial safety hazard. The second hazard is valve motor operators with broken cam lugs could fail to turn off the motor operator which could result in damage to the valve and/or the motor operator. The potential for valve and/or motor operator damage for multiple valves with safety functions could create, under accident conditions, a substantial safety hazard.

The Supply system has completed its evaluation of the Melamine torque switches used in Limitorque Model SMB-000 and SMB-00 motor operators. The evaluation did establish that the torque switch cam lugs could fracture during normal valve operations and while not establishing a definitive root cause for the cam shrinkage problem the evaluation did show that in this application the fiberite with metal lug torque switch is superior to the Melamine torque switch.

The test program was conducted using accelerometers mounted onto the torque switch rotating mechanism and on the spring pack assembly to measure dynamic response during the valve stroke operating cycle, and de-clutching in preparation for manual valve operation without the motor running. Both the normal valve operation and the de-clutching event were shown to be capable of fracturing the Melamine torque switch cam lugs. Static fracture tests conducted on Melamine cams revealed wide strength variations on materials which had been subjected to various operating environments in the Plant. All testing was done using cams which had been removed from service in the Plant.

Torque switches are normally employed in a series electrical circuit to shutdown the electric motor upon closing the valve to a predetermined desired thrust value. In gate valve applications, opening is enhanced by the Limitorque "hammerblow" feature built into the gearbox mechanism for this purpose. Due to the elastic nature of all valve superstructure assemblies, the gate does not physically lift at the hammerblow instant, but slightly later since the structure must transmit the load through the yoke and stem to the gate and valve body. The instrumented valve testing revealed that the fastest transient on the torque switch mechanism occurred just following the instant when the gate physically lifts out of the valve wedge. At this moment, the instantaneous release in stored strain energy yields a significant transient through the entire valve assembly. Since the spring pack is intended to monitor the stem load, and the torque switch is mechanically following the spring pack, the torque switch does physically react to this transient condition.

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

For low to moderate torque switch settings when the stem thrust is relatively low, release of the strain energy input to the valve superstructure does not present a problem. Testing work conducted in this program exhibited a relatively linear relationship of torque switch dynamic transient to actual switch setting. For very high settings, including work performed to locked rotor motor conditions, the switch was shown to be prone to failure.

Physical properties of plastic materials are highly dependent upon specific compounding, including the type of fillers used. Limitorque has advised that information on materials is considered to be proprietary. Samples of old production Melamine and current production Fiberite were, however, inspected by the Fiberite Corporation at the Supply Systems request. They reported the Melamine to be similar to their product M2840, and the Fiberite to be similar to their compound FM3510.

While they do not have long term product shrinkage data, they report that Melamine has a much greater tendancy to shrink with time and temperature exposure than Fiberite. Impact resistance of the Fiberite compound is about four times greater than Melamine, and Melamine is known to degrade in impact resistance with time. Melamine is also reported to be more susceptible to immediate post molding warpage. If cams with a minor warpage were placed in a service environment which would promote shrinkage, a binding of the cam onto the operating shaft would develop.

The cam-block distortion problem is confined to Limitorque Model SMB-000 and early production SMB-00 motor operators. The Melamine torque switch for SMB-000 operators is manufactured by Limitorque and is part #10717. Note this is the same model number as the Fiberite with metal lug torque switch and identification can only be done by field inspection. The Melamine torque switches are white and the Fiberite torque switches are brown. Current production SMB-00 torque switches operating parts are all metal with some plastic for electrical insulation. The Melamine torque switch for SMB-00 operators was manufactured by Limitorque and is part #11500010. The cam lug failures have only been found in SMB-000 Motor Operator torque switches.

Region V of the Nuclear Regulatory Commission was notified of the 10CFR Part 21 determination at 1315 hours on June 17, 1988 by the Assistant Plant Manager, J. W. Baker.

Corrective Actions To Be Taken

All safety related SMB-000 or early production SMB-00 Motor Operators will be inspected or otherwise justified prior to Plant restart. (Completed July 28, 1988)

An engineering evaluation performed and the evaluation findings will be reported in a Supplemental Report expected to be submitted by September 30, 1988. (Completed September 30, 1988. See discussion of results in the revised Further Evaluation Section of this LER.)

An evaluation will be performed to determine actions necessary for balance of Plant valves with SMB-000 and early production SMB-00 Motor Operators.

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The torque switch manufacturer, Limitorque, will be notified by letter of this 10CFR Part 21 determination. (Completed August 1, 1988)

Supply System Engineering performed a series of tests on a Limitorque SMB-00 operator which was installed on a valve assembly normally used for training electrical craft.

Safety Significance

There are no adverse safety consequences as a result of this event. None of the motor operated valves with the noted defects ever failed to operate. The safety significance analyses which follow describe the potential consequences if a valve had failed to operate because of a defect. No actual valve failures occurred.

The Outboard Main Steamline Isolation Drain Valves (MS-V-67A-D) are included in Group 1 of the NS^4. The safety purpose of these valves is to prevent leakage from the Reactor to the Turbine Building. There are four Main Steamlines, each with an Inboard and an Outboard Main Steamline Isolation Valve (MSIV). In the event of an accident which requires NS^4 Group 1 isolation, the first line of defense is the inboard Main Steamline Isolation Valves. The second line is the outboard MSIVs and the Drainline Isolation Valves (MS-V-67A-D). All four drainline isolation valves had torque switch cam block distrotion and two of the four 67 A & B had torque switch cam lugs broken off. The safety significance of the cam-block distortion should be minimal, since the close torque switch is bypassed until the valve is between 95-100% closed. In the case of the broken torque switch cam lugs if the valve failed in the close direction, there would be no safety significance; if, however, the torque switch failed in the open direction, then the valve or motor operator damage could fail the valve open. For this case to be safety significant, the inboard MSIV for the same line as the postulated failed drainline valve would have to fail to close or leak. No actual valve failures occurred.

The purpose of the Main Steamline Leakage Control System (MSLC) is to control and minimize the release of fission products which leak past the MSIVs following a loss of coolant accident. The inboard MSLC has two valves in series per main steam bleed line. There are four main steam bleed lines, one line per main steamline. Four valves were found with defects: one in each bleed line. Bleed line valve (MSLC-V-3D) is the first valve in the series and it was found with the cam-block binding problem. This problem had minimal effect since both the open and close torque switches are bypassed. Again, in the close direction, the valve may only close to 95-100% fully closed, but this valve is redundant to the inboard D steamline MSIV. In bleed lines A, B, and C the second valve in series MSLC-V-2A-C each had the cam-lug broken off. These valves are normally closed so there is a potential for these valve/motor operators to be damaged when closed and then fail to operate in their open safety direction. If a "two" valve failed to open under LOCA conditions, the inboard MSLC for that steamline would be inoperable which would force reliance on the outboard MSLC system. No actual valve failures occurred.

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The Outboard MSLC has a depressurization line and a bleed line which connect to a common header for all four main steamlines. Each of these lines has two valves in series and the first valve in each line had both torque switch defects. The purpose of the depressurization line and valves is to open for sixty seconds after an auto-initiation and depressurize the steam line header to atmospheric pressure. After the steamline header has been depressurized to atmospheric pressure, the bleed line valves open. Again these valves are normally closed and the safety direction of operation is open. With the lug broken off the potential exists for both the depressurization and bleed line valve motor operator to be damaged and fail to operate in the open safety direction. The open direction torque switch is bypassed so neither the lug broken off or cam-binding problems would affect normal operation in the open direction. Overall the torque switch defects impacted the MSLC system more than any other. No actual valve failures occurred.

Residual Heat Removal (RHR) Valves RHR-V-123A and B with Limitorque SMB-000 Motor Operators RHR-MO-99A & B are part of the NS^4 Group 5. These valves are on a bypass line around testable check valve RHR-V-50A in RHR Shutdown Cooling Loop A and RHR-V-50B in RHR Shutdown Cooling Loop B. The testable check valve bypass line isolation valves (RHR-V-123A&B) both had the cam block distortion defect. The valve safety direction is close and therefore the close torque switch is bypassed (jumpered). This means the valves would go at least 95% closed and this potential defect had minimal safety significance. No actual valve failures occurred.

The containment atmosphere control system (CAC) controls both oxygen and hydrogen concentrations in the containment following a Loss of Coolant Accident. CAC valve (CAC-V-6) is the suction valve from containment for CAC Loop A and has both open and close safety functions. Both the open and close torque switches are bypassed so this defect should not have affected Loop A operation and therefore had minimum potential safety significance. No actual valve failures occurred.

Reactor Core Isolation Cooling Valve (RCIC-V-10) is the suction supply valve from the condensate storage tank (CST) for the RCIC pump. The RCIC System has a redundant suction supply from the suppression pool. The RCIC suction supply is automatically transferred on low condensate storage tank level or high suppression pool level from the CST to the suppression pool. This transfer requires RCIC-V-10 to close (safety function direction) and therefore the close direction torque switch is bypassed until the valve is 95% closed. RCIC-V-10 had the cam block distortion problem and because of the torque switch bypass, the valve would have met its safety function. No actual valve failures occurred.

Fuel Pool Cooling (FPC) Valve (FPC-V-153) is a suction supply valve from the suppression pool for Suppression Pool Cleanup Pump (FPC-P-3). The Suppression Pool Cleanup system circulates suppression pool water through the FPC filter demineralizers. In the event of a Loss of Coolant Accident the suction supply valve closes to minimize contamination in the FPC system. The close direction torque switch is bypassed so the valve will close at least 95% and minimize the safety significance of this potential event. No actual valve failures occurred.

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Containment Instrument Air Valve (CIA-V-20) closes on low header pressure to isolate MSIVs and non Automatic Depressurization System (ADS) Main Steamline Safety Relief valves. The failure of this valve to fully close would negate its safety function; however, there are two other redundant valves that perform the same function. No actual valve failures occurred.

Auxilary Steam Valve AS-V-68A closes on a line break (high energy) in the Reactor building to protect safety related equipment. The failure of this valve to close in the event of a line break would negate its safety function. The singular failure of this valve would have no safety significance since there is a redundant isolation valve in series with AS-V-68A which performs the same function. No actual valve failure occurred.

This event posed no threat to the health and safety of the public or Plant personnel.

Similar Events

None

EIIS Information

Text Reference	EIIS Reference	
	System	Component
Limitorque Motor Operators (MO)	--	84
Main Steamline Isolation Drain Valves	SB	LOV
Torque Switch	--	JS
Safety Related Valves	--	V
NS^4 System	JM	--
MSLC System	SB	--
MSIV	SB	--
MS-V-67B	SB	LOV
MS-V-67A-D	SB	LOV
MSLC-V-3D	SB	LOV
MSLC-V-2A-C	SB	LOV
Bleed Line Valves	SB	LOV
RHR	BO	--
RHR-V-123A and B	BO	V
RHR-V-50A, B	BO	V
CAC System	BB	--
CAC-V-6	BB	V
RCIC System	BN	--
RCIC-V-10	BN	V
Condensate Storage Tank	KA	TK
RCIC Pump	BN	P
FPC	CG	--
FPC-V-53	CG	V
CIA-V-20	LD	V

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EIIS Information

Text Reference	EIIS Reference	
	System	Component
AS-V-68A	TC	V
CIA-MO-20	LD	84
MSLC-MO-3D	SB	84
MSLC-MO-5	SB	84
MSLC-MO-9	SB	84
RHR-MO-99A	BO	84
RHR-MO-99B	BO	84
CAC-MO-6	BB	84
RCIC-MO-10	BN	84
FPC-MO-153	CG	84
MS-MO-67A	SB	84
MS-MO-67B	SB	84
MS-MO-67C	SB	84
MS-MO-67D	SB	84
MSLC-MO-2A	SB	84
MSLC-MO-2B	SB	84
MSLC-MO-2C	SB	84
AS-MO-68A	TC	V

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Table 1

Limitorque Operator	Operator and Valve No.	Valve Description	Safety Function Direction Torque Switch Jumpers Installed		Defect Found	
			Open	Close	Cam	Lug
SMB-000	CIA-MO-20 CIA-V-20	.33 HP Motor Operator for CIA-V-20 .75" Globe Valve Close Cam Air Header Isolation Valve				
SMB-000	MS-MO-67A MS-V-67A	.5 HP Motor Operator for MS-V-67A 1.5" Gate Valve. Main Steamline "A" Outboard Drain Isolation Valve (NS4 Group 1)		X	X	X
SMB-000	MS-MO-67B MS-V-67B	.5 HP Motor Operator for MS-V-67B 1.5" Gate Valve. Main Steamline "B" Outboard Drain Isolation Valve (NS4 Group 1)		X	X	X
SMB-000	MS-MO-67C MS-V-67C	.5 HP Motor Operator for MS-V-67C 1.5" Gate Valve. Main Steamline "C" Outboard Drain Isolation Valve (NS4 Group 1)		X	X	
SMB-000	MS-MO-67D MS-V-67D	.5 HP Motor Operator for MS-V-67D 1.5" Gate Valve. Main Steamline "D" Outboard Drain Isolation Valve (NS4 Group 1)		X	X	
SMB-000	MSLC-MO-2A MSLC-V-2A	.33 HP Motor Operator for MSLC-V-2A Bleed Line Valve	X			X
SMB-000	MSLC-MO-2B MSLC-V-2B	.33 HP Motor Operator for MSLC-V-2B Bleed Line Valve	X			X

Table 1 (Continued)

Limitorque Operator	Operator and Valve No.	Valve Description	Safety Function Direction Torque Switch Jumpers Installed		Defect Found	
			Open	Close	Cam	Lug
SMB-000	MSLC-MO-2C MSLC-V-2C	.33 HP Motor Operator for MSLC-V-2C Bleed Line Valve	X			X
SMB-000	MSLC-MO-3D MSLC-V-3D	.33 HP Motor Operator for MSLC-V-3D 1.5" Gate Valve MSLC Bleed Line and Isolation Valve	X	X	X	
SMB-000	MSLC-MO-5 MSLC-V-5	.33 HP Motor Operator for MSLC-V-3D 1.5" Gate Valve Outboard Depressurization Line Valve	X		X	X
SMB-000	MSLC-MO-9 MSLC-V-9	.33 HP Motor Operator for MSLC-V-9 1.5" Gate Valve Outboard	X		X	X
SMB-000	RHR-MO-99A RHR-V-123A	Motor Operator for RHR-V-123A Testable Check Bypass I NS4Gp5 1" Gate MO RHR-V-50 Bypass		X	X	
SMB-000	RHR-MO-99B RHR-V-123B	Motor Operator for RHR-V-123B NS4 I Gp5 Isolation Valve 1" Gate MO RHR-V-50 Bypass		X	X	
SMB-000	CAC-MO-6 CAC-V-6	Motor Operator for CAC-V-6 4.0" Gate CAC Line from X-99 CAC Loop A Suction Supply Valve	X	X	X	
SMB-00	RCIC-V-10 RCIC-MO-10	1.08 HP 8A Motor Operator for RCIC-V-10 8" Gate Valve. RCIC-P-1 Supply From CST		X	X	

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Washington Nuclear Plant - Unit 2	0 5 0 0 0 3 9 7	8 8	— 0 1 7	— 0 1	1 2 OF 1 2

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

Table 1 (Continued)

Limitorque Operator	Operator and Valve No.	Valve Description	Safety Function Direction Torque Switch Jumpers Installed		Defect Found	
			Open	Close	Cam	Lug
SMB-00	FPC-MO-153 FPC-V-153	7HP 2-3A Motor Operator for FPC-V-153 6" MO Gate FPC-P-3 Suction From Suppression Pool NS4 Group 4 (MISC BOP) Inboard Isolation Valve		X	X	
SMB-000	AS-MO-68A AS-V-68A	Motor Operator for AS-V-68A 4" Motor Operator Gate Valve Isolates Auxillary Steam Line To Reactor Building		X		X

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352

Docket No. 50-397

September 30, 1988

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

Subject: NUCLEAR PLANT NO. 2
LICENSEE EVENT REPORT NO. 88-017-01

Dear Sir:

Transmitted herewith is Licensee Event Report No. 88-017-01 for the WNP-2 Plant. This report is submitted in response to the report requirements of 10CFR50.73 and 10CFR Part 21. The report discusses the items of reportability, corrective action taken, and action taken to preclude recurrence.

Very truly yours,

C.M. Powers (M/D 927M)
WNP-2 Plant Manager

CMP:lg

Enclosure:
Licensee Event Report No. 88-017-01

cc: Mr. John B. Martin, NRC - Region V
Mr. C.J. Bosted, NRC Site (M/D 901A)
INPO Records Center - Atlanta, GA
Ms. Dottie Sherman, ANI
Mr. D.L. Williams, BPA (M/D 399)

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