NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Davis-Besse Unit 1	0 5 0 0 0 3 4 6	1 OF 0 3

TITLE (4)

Follow-up to the Torrey Pines Limitorque Procedure Part 21 Report

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)
0 7	2 4	8 5	8 5	—	0 1 5	— 0 0	0 8	2 3	8 5		0 5 0 0 0
											0 5 0 0 0

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)	0 9 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	X 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)	Part 21 Followup
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Jan C. Stotz	4 1 1 9 2 4 9 - 5 0 0 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)

This is a follow-up report to the 10CFR Part 21 report made on July 29, 1985. It reported a defect in a procedure for setting Limitorque valve operators provided by Torrey Pines Technology. This defect was incorporated into a Station maintenance procedure which was then used to set the Limitorque valve operators including those on safety related systems. The only valves that have demonstrated their inoperability so far have been the Auxiliary Feedwater isolation valves, which failed to reopen once they closed during the June 9, 1985 event (LER 85-013). The defect in the procedure caused the bypass limit switch to be set too low which resulted in the valve operator torquing out before the valve moved off its seat.

Toledo Edison has corrected its procedure and has started to reset and test its nuclear safety related valves. A MOVATS system is being used to do the testing. The nuclear safety related valves will be tested before restart from the present outage.

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

Description of Occurrence: This is a follow-up report to the 10CFR Part 21 report made on July 29, 1985, which reported a defect in a Limitorque setting procedure prepared by Torrey Pines Technology for Davis-Besse. The defect was then incorporated into a Station maintenance procedure and used to set the bypass limit switch for many safety related valves. During the June 9, 1985 loss of feedwater event (LER 85-013), this defect was a major contributor to the failure of the Auxiliary Feedwater isolation valves to reopen. The defect was that the procedure was not specific enough in its instructions for setting the bypass limit switch. This allowed the torque switch (a motor protection circuit) to deenergize the valve operator motor before the valve moved off its seat. Although the Station does not know at this time of other failures due to this problem, there is a potential for this defect to affect the operability of other valves in the Station.

This follow-up report is intended to explain Toledo Edison's efforts to resolve the potential operability problems with other motor operated valves in the Station.

The inoperability of the Auxiliary Feedwater isolation valves was previously reported in LER 85-013.

Designation of Apparent Cause of Occurrence: The cause of the incorrect setting of the bypass limit switch was an error in the Torrey Pines Technology procedure. The procedure says to start with the valve and limit switch closed; then rotate the operator handwheel in the open direction until the coast and backlash is taken up, and continue opening until the valve is 0.5% of full stroke open. For gate valves smaller than 4 inches, continue opening the valve until it is 2.5% ± 0.25% of full stroke open from the full close position. For gate valves 4 inches or larger, continue opening the valve until it is 5.0% ± 0.25% of full stroke open from the full close position. For globe valves, continue opening the valve until it is 1.0% ± 0.25% of full stroke open from the full close position. Torrey Pines says that they intended this to be an additional amount to be added after the coast and backlash was taken out and not the total position open.

The effect of this procedural defect is that the torque switch close-to-open bypass switch can open prior to the actual unseating of the valve. This places the torque switch back in the circuit during a period when the torque generated by the actuator could be higher than the torque switch setpoint, causing the valve actuator to deenergize prior to the valve unseating.

For the case of the Auxiliary Feedwater valves, there were other factors that contributed to failure to reopen. These will be explained in the revision to LER 85-013.

Analysis of Occurrence: The extent of the impact of this bypass limit switch setting error on safety systems is still being determined. Although no failures of other safety system valves that had been set using the same procedure occurred, it is understood that not all postulated accident conditions were experienced. The differential pressure across the valve will significantly increase the torque required to open the valve. This could cause an improperly set valve operator to

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

torque out too soon and leave the valve closed. If test conditions used to set the valve torque didn't recognize this, then the inadequate setting would not be detected using previous procedures.

Corrective Action: Toledo Edison has generated a new series of detailed procedures for the setting and testing of Limitorques. The Station has begun checking and resetting all of the nuclear safety related valves per the new procedures. The Station is checking these Limitorque valve operators using MOVATS (Motor Operated Valve Analysis and Test System) which provides detailed information for coordinating valve movement, limit switch actuation points, and the torque value required to open under all design conditions. Toledo Edison has identified a total of 166 nuclear safety related motor operated valves which must be tested prior to return to power operation.

Failure Data: This is the first reported failure of valves to operate properly due to improperly set bypass limit switches.

Report No: NP-33-85-21 DVR No(s): 85-110

TOLEDO EDISON

August 23, 1985

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(NP-33-85-21)
Docket No. 50-346
License No. NPF-3

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

Gentlemen:

LER No. 85-015
Davis-Besse Nuclear Power Station Unit 1
Date of Occurrence: July 24, 1985

Enclosed is Licensee Event Report 85-015 which is being submitted in accordance with 10CFR50.73, to provide 30 day written notification of the subject occurrence.

Yours truly,

Louis F. Storz

Louis F. Storz
Plant Manager
Davis-Besse Nuclear Power Station

LFS/ljk

Enclosure

cc: Mr. James G. Keppler,
Regional Administrator,
USNRC Region III

Mr. Walt Rogers
DB-1 NRC Resident Inspector

JCS/001

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