REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8011250293 DOC.DATE: 80/11/19 NOTARIZED: NO DOCKET #
FACIL:50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylva 05000387
50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylva 05000388
AUTH.NAME AUTHOR AFFILIATION
CURTIS,N.W. Pennsylvania Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
GRIEF,B.H. Region 1, Philadelphia, Office of the Director

mA/1

SUBJECT: Final deficiency rept re cracks in limitorque limit switch rotors originally reported 800923 per team mtg last wk. Caused by misalignment in holes in limit switch rotor & pinion shaft.Cracked rotors will be replaced.

DISTRIBUTION CODE: B019S COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 4
TITLE: Construction Deficiency Report (10CFR50.55E)

NOTES:Send I&E 3 copies FSAR & all amends. 05000387
Send I&E 3 copies FSAR & all amends. 05000388

	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL
ACTION:	A/D LICENSNG	04	1	1	YOUNGBLOOD,B	05	1	1
	RUSHBROOK,M.	06	1	1	STARK,R.	07	1	1
INTERNAL:	AD/RCI/IE	17	1	1	AEOD	18	1	1
	ASLBP/J.HARD		1	1	D/DIR HUM FAC	15	1	1
	EDO & STAFF	19	1	1	EQUIP QUALI BR	11	1	1
	HYD/GEO BR	22	1	1	I&E	09	4	4
	LIC QUALI BR	12	1	1	MPA	20	1	1
	NRC PDR	02	1	1	OELD	21	1	1
	PROC/TST REV	13	1	1	QA BR	14	1	1
	REG FILE	01	1	1	RUTHERFORD,W.IE		1	1
	STANDRDS DEV	21	1	1				
EXTERNAL:	ACRS	16	16	16	LPDR	03	1	1
	NSIC	08	1	1				

NOV 26 1980

TOTAL NUMBER OF COPIES REQUIRED: LTTR ~~39~~ 42 ENCL ~~39~~ 42

L.J.

PP&L

TWO NORTH NINTH STREET, ALLENTOWN, PA. 18101 PHONE: (215) 821-5151

NORMAN W. CURTIS
Vice President-Engineering & Construction-Nuclear
821-5381

November 19, 1980

Mr. Boyce H. Grier
Director, Region I
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

SUSQUEHANNA STEAM ELECTRIC STATION
FINAL REPORT OF A DEFICIENCY RELATING TO
LIMITORQUE LIMIT SWITCH ROTORS
ERs 100450/100508 FILES 840-4/900-10
PLA-575

Reference: PLA-547 dated September 23, 1980

Dear Mr. Grier:

This letter serves to provide the Commission with a final report of a deficiency relating to defective Limitorque limit switch rotors. The condition was originally reported in the above referenced letter. The information contained herein is submitted in compliance to the provisions of 10CFR50.55(e).

The attachment to this letter contains a description of the defect, its probable cause, safety impact and significance along with a corrective action plan. The condition is being controlled under Bechtel Nonconformance Report #6020 and action for Unit I is scheduled for completion by April, 1981.

We trust the Commission will find the information forwarded by this letter to be satisfactory.

Very truly yours,

N W Curtis

N. W. Curtis
Vice President-Engineering & Construction-Nuclear

Attachment
FLW:mcb

B019
S
1/1

8011250293

5

cc: Mr. Victor Stello (15)
Director-Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. G. McDonald, Director
Office of Management Information & Program Control
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. Robert M. Gallo
U. S. Nuclear Regulatory Commission
P. O. Box 52
Shickshinny, Pennsylvania 18655

SUBJECT

Limitorque Limit Switch Rotors

DESCRIPTION OF PROBLEM

The limit switches on the Limitorque Valve operators are valve position switches, which are used for the control of the valve operator and for indication of valve position. The limit switch assembly consists of two stationary fingers with a moving contact between the fingers. The moving contact is part of the limit switch rotor which is geared directly to the valve operator. The limit switch rotor is made of a phenolic material and is pinned to a metal pinion shaft. As the valve operates, the limit switch rotor turns, rotating the moving contact, thereby opening or closing the limit switch contact. During the preoperational checkout of the Limitorque Valve operators, cracks were found in the limit switch rotor where it is pinned to the pinion shaft.

CAUSE

Initially, it was believed that the rotor cracks were caused by a misalignment in the holes in the limit switch rotor and the pinion shaft. When the pin was inserted through the holes during manufacturing, it was postulated that the cracking could have occurred.

Limitorque was requested to review the rotor cracking problem and determine if it occurred during manufacturing. Limitorque responded stating that it was not possible for the cracking to have occurred via a misalignment in the holes. During manufacturing, the rotors were molded with a 3/32" diameter hole. The rotor was placed on an undrilled pinion shaft. A 1/8" diameter hole was drilled simultaneously through the rotor and pinion shaft, using the 3/32" holes as a guide. The pin was then inserted. Misalignment of the holes, which could cause the rotor cracking, has not been a problem under this manufacturing process.

The cracks were probably caused by construction personnel bumping the limit switch rotor, when the valve compartment cover was removed. A field inspection of sixty (60) Unit 2 valve operators has been performed. The Unit 2 valves were inspected since there is less construction activities associated with these valves. Of the sixty valves inspected, only one (1) broken rotor was observed. However, there have been numerous broken rotors identified on Unit 1 valves. This tends to confirm that the cracked rotors were caused by construction personnel.

ANALYSIS OF SAFETY IMPLICATIONS

The limit switches are used for the control of the valve operator and for indication as to valve position. A defective limit switch rotor would result in the failure of a valve to operate and/or incorrect indication of the valve position. PP&L Engineering has determined that the failure of a limit switch rotor is a reportable deficiency under the requirements of 10CFR 50.55(e). The affected Limitorque operators are used in many systems which are required for the safe shutdown of the plant.

CORRECTIVE ACTION

An inspection of all safety related valves on Unit 1 and 2 will be performed. The inspection of the Unit 2 valves will be done after all major construction activities associated with the valve operator is completed. Cracked rotors which are identified will be replaced, and tracked by Bechtel NCR 6020.

CONCLUSION

Once the inspection of the Limitorque operators is complete and all cracked rotors are replaced, failure of the limit switch rotor is not expected to occur nor will the Limotorque operator be prevented from performing its intended function.