

MCAR G-1

FINAL REPORT

FOR

LIMITORQUE MOTOR OPERATOR

--

VALVE STEM LOCK NUT STAKING

SUSQUEHANNA STEAM ELECTRIC STATION

UNITS 1 & 2

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San Francisco, California

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FINAL REPORT FOR LIMITORQUE MOTOR OPERATED VALVE STEM LOCK NUT STAKING

I. INTRODUCTION

The Q. A. Flyer 78-F6 dated 7/6/78, outlined that a possible generic problem exists in regard to valve manufacturers failing to stake the stem lock nuts when installing Limitorque motor operators Model Nos. SMB & SMC on their valves. Engineering note: although the QA Flyer mentioned all Limitorque operators SMB & SMC having this problem, the staking is only involved in rising stem type valves. This does not pertain to the type of motor operators that are mounted on the valve shaft by means of bore and keyway on a splined adapter. Also, at this time we have not ordered SMC Models nor do we have any at the jobsite. As a result of this, Bechtel SFHO notified the jobsite (DC# 095528, EMC3865, dated 11/8/78) of the potential problem and recommended that all Limitorque operated valves be checked for properly staked lock nuts.

II. DESCRIPTION OF THE DEFICIENCY

During the assembly of the valve/operator, the lock nut (which locks the stem nut in position) must be staked. If this is not done, it is possible for the lock nut to back out of the threaded hole and allow the stem nut to move up the stem and render the valve inoperable.

III. ANALYSIS OF SAFETY IMPLICATIONS

At Bechtel SFHO request the jobsite inspected a sample of fifteen (15) rising stem Limitorque motor operated valves and submitted a list of the results. A review of this list indicated that several of these valves were required for safe shut-down of the plant. Therefore if staking is not done on these valves, that are required for safe shutdown of the plant, it is possible that these valves could become inoperable. Because of this fact, we informed PP&L that this was a reportable condition as described by 10CFR50.55(e) in our letter BLP-10634, dated March 20, 1979 (DC# 101548).

IV. CORRECTIVE ACTION TAKEN

The cause of this problem is that the valve suppliers either improperly staked the stem lock nuts during operator/valve assembly or that staking was not performed. The following corrective action steps have been taken:

- a. Bechtel SFHO has identified all suspect Limitorque motor operated rising stem valves using the Valve List Index Report for Susquehanna Stem Electric Station Units 1 and 2.
- b. Bechtel SFHO requested the jobsite to inspect/stake these valves. To date all Limitorque Motor Operated valves, designated for installation or installed in Units 1 and 2 of SSES have been inspected/staked (see Table 1), with the following exceptions:

1. A total of 33 "Q" listed motor operated valves remain to be inspected/staked (See Table II). This work is documented in NCR 3424 and will be completed prior to close-out of this NCR.
2. A total of 47 non-"Q" listed motor operated valves, designated for installation, remain to be inspected/staked. This work will be accomplished by the use of Condition Report No. P-960.
- c. In addition to the 80 valves that have not been inspected/staked to date, a total of 26 non-"Q" motor operated valves have been designated as spare valves. These valves will be added to the 47 non-"Q" motor operated valves specified in the Condition Report.

V. CONCLUSION

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As stated in this report, all suspect Limitorque motor operated valves, designated for installation or as spares, have been identified and measures have been taken to inspect/stake these valves. In addition, letters have been sent to the following valve suppliers informing them of the potential problem: Anchor Darling, Walworth, Henry Vogt, Yarway, N.V.D. and Pacific Valves. These letters were to assure that all Limitorque rising stem motor operated valves at the suppliers were staked as well as all future orders. Additionally, we requested that the Bechtel PSQR's were aware of the staking requirements and would inspect all rising stem motor operated valves for proper staking. Therefore, we feel that we have adequately addressed generic problem which will be finalized with the closeout of NCR 3424 and the Condition Report, P-960.

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TABLE I

Purchase Order	No. of Suspect M. O. Valves	No. of Valves Insp/Staked	No. of Valves Not inspected	Remarks Concerning Valves Not Inspected
P-10A	73	70	3	3 are "Q"
P-11A	4	4	0	-
P-12A	111	101	10	10 are "Q"
P-12B	8	7	1	1 is "Q"
P-14A	2	2	0	-
P-14B	2	2	0	-
P-15B	37	23	14	14 are "Q"
P-17A	16	14	2	2 are "Q"
P-21C	24	22	2	2 are non-"Q"
P-22A	142	126	16	16 are non-"Q"
P-22B	26	26	0	-
P-24A	55	38	17	17 are non-"Q"
*Spares	26	0	26	
Subtotal	526	435	91	30 are "Q" 35 are non-"Q" 26 are non-"Q" Spare Valves
M-001	16	13	3	3 are "Q"
M-002	34	22	12	12 are non-"Q"
Subtotal	50	35	15	-
TOTAL	576	470	106	33 are "Q" 47 are non-"Q" 26 are non-"Q" Spare Valves

*NOTE: The 26 Spare Valves are Non-"Q" and are not designated for installation in SSES.

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The following table lists the remaining 33 "Q" listed valves to be inspected/staked per the NCR 3424.

TABLE II

"Q" M.O. VALVES NOT INSPECTED/STAKED

P.O.	ITEM	VALVE IDENTIFICATION	SUS
P-10A	2.04	14"-DBB-GT-MO-2F006	252A
P-10A	7.12	24"-DBB-GB-MO-2F017B	249A
P-10A	17.02	4"-EBB-GT-MO-2F012	252A
P-12A	1.12	12"-GBB-GT-MO-2F021B	249E
"	2.02	24"-HBB-GT-MO-2F004A	249A
"	2.02	24"-HBB-GT-MO-2F004B	249A
"	2.02	24"-HBB-GT-MO-2F004C	249A
"	2.12	16"-HBB-GT-MO-2F042	252A
"	2.14	10"-HBB-GT-MO-2F059	250B
"	2.30	3"-HBB-GT-MO-2F075	252B
"	9.02	18"-GBB-GB-MO-2F024A	249A
"	9.12	24"-GBB-GBY-MO-2F048A	249A
P-12A	9.12	24"-GBB-GBY-MO-2F048B	249A
P-12B	1.28	6"-GBB-GT-MO-2F075B	216A
P-15B	35.21	2"-CBA-GT-MO-2F001B	283H
"	35.22	" " -2F001F	"
"	35.23	" " -2F001K	"
"	35.24	" " -2F001P	"
"	35.26	" " -2F002F	"
"	35.27	" " -2F002K	"
"	35.28	" " -2F002P	"
"	35.41	" " -2F003B	"
"	35.42	" " -2F003F	"
"	35.43	" " -2F003K	"
"	35.44	" " -2F003P	"
"	35.45	" " -2F0006	"
"	35.46	" " -2F007	"
P-15B	35.47	2"-CBA-GT-MO-2F009	283H
P-17A	1.02	24"-DCA-GT-MO-2F015A	249G
P-17A	3.02	6"-DCB-GB-MO-2F023	249D
M-001	-	3"-DBB-GT-MO-25012	250B
M-001	-	4"-DCA-GT-MO-2F032A	264B
M-001	-	4"-DCA-GT-MO 2F032B	264B

SUS = Start-Up System
M.O. = Motor Operated