

**To: US NRC Document Control Desk**

**(301) 816 - 5151**

**From: Crane Nuclear, Inc.**

**(770) 429-4602**

**4 pages to follow**



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CRANE NUCLEAR, INC. 860 REMINGTON BOULEVARD BOLINGBROOK, IL. 60440

(v) The date on which the information of such defect or failure to comply was obtained.

Date of Discovery of Defect: 6/5/2017-6/9/2017

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

Historical research of the XOMOX records is still in process at this time. However, we have currently identified seven (7) sites that have previously ordered these valves.

Xomox / Order No.	Tuflne	Customer Order No.	Customer	Valve Tag #	Order date or Assy dwg. date	Size, Pressure Class, Flg. #, Code Class
E-64021		73121	DeLaval	76001-135	11/15/1977	3" 150 psi Flg. 037A, Code Class 3
E-64021		73121	DeLaval	76001-134	11/11/1977	4" 150 psi Flg. 067EG, Code Class 3
		25336	Transamerica De Laval, Engine and Compressor div., Oakland, CA	76001-129	8/21/1989	6" 150 psi Flg. 037AX Tandem, Code Class 3
N2943 Item 2 & 2A		144954	Vokes Limited, Henley Park, Suffolk, England. Sizewell "B" Nuclear Power Station,	None	Oct. 31, 1990	6" 150 psi Flg. 037 Tandem, Code Class 3
QN3255		90N-LA-74720B	TVA Sequoyah	47W450-1003A, 47W450-1003C (6) YE0418-FD-4, (6) YE5418-FD-2, (6) YE6418-FD-4	9/7/1990	4" 150 psi flg, 067
NZX3271		7-20655-1	Pennsylvania Power & Light, Susquehanna	HBC-PL (Customer Item #'s 6.5 & 6.6)	10/10/1990	4" 150 psi flg, 067
NZX3676		P-93NLL-83390C-000	TVA Chattanooga	(6) YE0418-FD-4, (6) YE5418-FD-2, (6) YE6418-FD-4	6/4/1993	4" 150 psi flg, 067, Safety Related 10CFR21 Applies per TVA PD pg 1.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.

Notifications letters have been sent to the affected plants advising them of the condition, and recommending that the sleeve material be replaced with a lower friction Polytetrafluoroethylene (PTFE) material that would significantly reduce the required input operating torque, thereby reducing the risk of failure of the stem material.

XOMOX has been advised to modify design calculations to provide a larger margin for allowable yield strength of the stem material to ensure the stem is properly sized when Ultra High Molecular Weight Polyethylene (UHMWPE) sleeve material is used.



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(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

Not applicable.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

Not applicable.

**UPDATE 08/24/2017**

Crane Nuclear (CNI) has initiated the final phase of the Part 21 research and is currently reviewing over 15,000 microfiche records from the original XOMOX Canada historical archive to determine if any other Nuclear Sites were impacted by the Subject Part 21. The investigation encompasses sales orders spanning from 1970 to 1993 and 2001 to present. CNI expects to complete the review by 10/30/2017.

**UPDATE 10/31/2017**

Crane Nuclear (CNI) is has completed approximately 40% of the review of the historical archive and will not be able to complete the review by the previously requested 10/30/2017 deadline.

The historical review covers the following scope:

- XOMOX UK DEVON, ENGLAND -Safety Related and N-Stamped Valves/Parts issued between 1987 – 1993
- XOMOX Canada & XOMOX A&M – Safety Related Parts from 1979-1993
- XOMOX Cincinnati TUFFLINE – Safety Related and N-Stamped Valves and Parts issued between 1970-1993
- XOMOX Crane Nuclear – Safety Related and N-Stamped Valves and parts issued from 2001 until present.

Note: Parts and valves were no longer supplied by XOMOX as safety-related or nuclear after 1993 until Crane Nuclear acquired XOMOX in June 29, 2001.

The following sites in the table below were identified as safety related valves affected by this letter. All sites were supplied to customer "Delaval" which no longer exists. At the current pace of review, CNI expects to complete the review of the historical archive by 1/30/2018.

Quality Classification	Xomox / Customer	Date	Original Customer Name	Original Plant Name	Valve Tag #	Size, Fig. #, Pressure Class, Code Class, Valve Description	
Safety Related	63105	62669	25180	Delaval	TVA (Doesn't show which plant)	A.O. # 89868	6" 037AX EG
Code Class 3, 1977 Ed. / No Add.	E63220	67870	28222	Delaval	Comanche Peak Units 1 & 2	Serial # 89868-1, A.O. # 98368, Tag # 76001-129	6" 037AX 150
Code Class 3, 1974 Ed. / No Add.	A63249	62964	28258	Delaval	Columbia		6" 037AX 130
Code Class 3, 1971 Ed. With Add.	E-63389	62892	28549	Delaval	Cleveland Electric	1R470525A, B	6" 037 AXEG Tandem
Code Class 3, RAO Worked	E-63526	73123	28183	Delaval	Cleveland Electric	5/N 89910D-1 thru 4	(2) 6" Fig. 067 EG
Code Class 3, 1974 Ed. / Winter 1976 Add.	E-63527	73121	28183	Delaval	Comanche Peak Units 1 & 2	76001-185, 76001-135	(2) 6" Fig. 037 AX, (2) 4" Fig. 067 EG 150#
Code Class 3, 1974 Ed. / Summer 1976 Add.	E-63735	73181	28324	Delaval	Midland Nuclear Power Plant Units 1 & 2	5/N 89873D-4	(4) 6" Fig. 037 AXEG Tandem
Code Class 3, 1974 Ed. / Summer 1976 Add.	E-64021	73121	22994	Delaval	Comanche Peak Units 1 & 2	76001-185, 76001-135	(2) 6" 037 150#, (2) 4" 067 150#
Nuclear Class 3, 1977 Ed. / No Add.	64158	81535	28440	Delaval	TVA, Portsmouth and Phipps Bend Nuclear Plants. Both were cancelled before completion	77K61220006	(12) 6" Fig 037 AX Tandem



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**UPDATE 01/20/18**

The historical research is complete. Our review of the records from 1973 through 2001 identified 25 valves that were supplied with a stem-sleeve material combination that could exceed the upper limit of yield strength of the valve, which could result in fatigue/yielding of the stem, thus preventing the valve from opening and closing while in service. Those valves were supplied to:

Customer:	Site:
Northeast Utilities	Millstone
Houston Lighting & Power	South Texas Project
Niagara Mohawk	Nine Mile Point
Transamerican Delavel	Oakland
Power Systems	Rocky Mount
Bechtel Energy Corp.	5 Miles West Wadsworth
Pennsylvania Power & Light	Susquehanna
NY Power Authority	Fitzpatrick
TVA	Sequoyah
Omaha Public Power	Ft. Calhoun

Notification letters have been sent to some of the affected plants advising them of the condition, and recommending that the sleeve material be replaced with a lower friction Polytetrafluoroethylene (PTFE) material that would significantly reduce the required input operating torque, thereby reducing the risk of failure of the stem material. Crane will complete the notifications to the other sites no later than 2/9/18.

Should you have any questions regarding this matter, please contact me, Joyce Hamman, Director, Safety & Quality at (678) 451-2280, Burt Anderson, Site Leader, at (630) 226-4990, or Samson Kay, Engineering Manager at (630) 226-4983.

Regards,

Joyce Hamman