



A Galveston-Houston Company

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December 7, 1984

~~ACTION POST~~
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Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Mr. Richard De Young

Reference: Addendum to: 10CFR-21 Report No. CAR 0023
Advisory Notification

Mr. De Young:

There have been many questions with regard to items 3 and 4 page 2 of the above referenced report. This addendum is issued to provide a further explanation of the intention of these items.

Listed below are the customers which shall be notified by this office concerning the potential problem:

| | |
|-----------------------------|--------------------------------|
| Canadian Worcesters Control | Allis-Chalmers |
| Posi-Seal International | Duke Power |
| Ebasco Services | American Warming & Ventilating |
| Johnson Control | Iowa Electric Power & Light |
| Clow Corporation | B.I.F. |
| ITT Grinnell | Henry Pratt |
| Pacific Air Product | Jamesbury Corporation |
| Carolina Power & Light | Xomax |
| Duriron Company | Fisher Controls |
| Ruskin Manufacturing | American Air Filter Company |
| Atwood-Morrill Company | Bechtel Power |
| Buffalo Forge | CIAC |
| Cleveland Electric | Commonwealth Edison Company |
| Crosby Valve | Florida Power & Light |
| Hills McCanna | Jacoby-Tarbox |
| Keystone Valve | Mosser Industries |
| McNally Pittsburg | Quality Air Design |
| Rockwell International | |

Cordially,

GH Bettis Corporation

Robert R. Kane
Vice President of Engineering

RRK/bc
attachment



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Reference CAR Report No. 0023 Page 2

Stroking of actuators at frequent intervals appears to inhibit stroking time degradation. Therefore, "exercising" actuators at a minimum of 15 day intervals while monitoring initial stroking times will provide positive indication of actuator performance. This procedure has long been recommended by GH Bettis as a reliable method to minimize the effects of seal "set". Seal "set" or flattening at the contact surface can cause jerky operation and/or leakage.

Stroking actuators pneumatically at 15 day intervals while recording stroking time will indicate any trend in stroke time variation. Since the potential problem of stroke time degradation is related to seal swell a further explanation of this phenomenon is required.

Ethylene Propylene elastomers absorb hydrocarbon oils and increase their unrestrained volume just as a sponge does with water. The process is relatively fast and dependent on the availability of hydrocarbon oil. Since Mobile grease 28 contains (synthetic) hydrocarbon oil the seals tend to swell where the oil is available to be absorbed. All actuators are lubricated at assembly with no provision for relubrication without complete product disassembly. When the actuator is disassembled new seals must be installed. Basically there is a non renewable source for absorbable oil in the actuator. As the seals absorb what little oil is available from the grease in contact with them they swell increasing seal compression and the seals also become softer. Increased compression will increase seal friction however, the softer seal will reduce friction. Therefore, observable stroking speed reduction will be evident only when the seal compression becomes the dominant characteristic.

Considering the seal swell phenomenon as described, 15 day stroking intervals will provide an accurate measure of actuator condition when stroking times are compared. If stroking times remain constant the seal swelling characteristic has stabilized and no further stroking time degradation will be evident. If stroke times are satisfactory a return to monthly stroking would be appropriate, thereby maintaining seal condition.

Reference CAR Report No. 0023 page 2

Any installed actuator that fails to stroke within the time limit as originally specified must be serviced immediately with new seals and Dow Corning Molykote 44 lubricant.

Actuators currently in storage can also be stroke time tested as an alternate to seal replacement to determine performance. Seal stability will occur in 90 to 120 days depending upon storage temperature. If regular cycling during storage per GH Bettis recommendations has taken place and 120 days has elapsed since manufacture, stroke testing at two (2) 15 day intervals will be definitive. If the actuators have not been regularly stroked, a minimum of four (4), 15 day intervals will be required to eliminate the effects of seal set. Since all actuators built and shipped in 1984 were lubricated with Molykote 44 grease for seal swell, there is no requirement to stroke time test them. However, one month stroking intervals continues to be GH Bettis recommendation to maintain seal condition.

Cordially,

GH Bettis Corporation



Robert R. Kane
Vice President of Engineering

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