PART 21 IDENTIFICATION NO. 81-359-000 COMPANY NAME Rotork Controls, Inc

DATE OF LETTER 1/30/81 DOCKET NO. —

DATE DISTRIBUTED 2/9/81 a.m. ORIGINAL REPORT [X] SUPPLEMENTARY [ ]

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RECEIVED FEB 13 1981 U.S. NUCLEAR REGULATORY COMMISSION

ACTION:

PRELIMINARY EVALUATION OF THE ATTACHED REPORT INDICATES LEAD RESPONSIBILITY FOR FOLLOWUP AS SHOWN BELOW:

IE [X] NRR [ ] NMSS [ ] OTHER [ ]

EES

8102270 563

REV. 8/1/80
9/17/80
12/2/80

NRC Part 21 ID # 81-359-000

Rotork Sealed Valve Actuators

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telex 978-290
cables Rotork Rochester

cc: William H. whiteley, Pres./Rotork Controls
Robert Arnold, Chief Engineer/Rotork
Chris Allen/Rotork
Ernie Day

C

rotork

your reference | our reference | date

January 30, 1981

Director for Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: REPORT ON APPARENT INSULATION FAILURE OF ROCKBESTOS FIREWALL III CONTROL CABLE

Gentlemen:

This letter is to further inform you of the specifics that we have found during our extensive investigation of Rockbestos Firewall III Control Cable. As you are probably aware by now, the way we found this defect was by our testing Firewall III in our electric valve actuator for possible future usage. It was determined that in both of our test failures of our units, the control cable's failure was the reason for our unit failure.

One of the unit failures occured at the 32nd day mark, when the insulation on the conductor failed and went to ground. The second failure occured at the 30th day mark with very similar circumstances. Both failures were the result of submitting our equipment to thermal aging tests. In light of this, we opted to look more closely at the conductor itself. We felt extremely confident that Rockbestos knew the application which we were subjecting their product to. There were numerous telephone conversations between our Engineering Department and Rockbestos' Engineering Department discussing all of the different aspects of our usage, as well as the type of environment their product would be subjected to. It was Rockbestos contention that their wire would function well in our application.

On our first test, we had one of our stators equipped with Firewall III leads. The stator was completely built into a motor and all functioned correctly. The completed motor was then subjected to the thermal aging chamber where all ran satisfactorily until day 32, when upon command the actuator failed. Supposedly a motor shorted. Upon closer examination, it was determined that somehow the motor lead connection may have been in error. We then went back and re-did the test again. All was the same as the first only this test ended on day thirty, with the same symptoms When we reviewed this stator though, the conductor was in deed at fault. It seems as though the conductor had exploded through the insulation, and that caused the short. After this incident, we called Rockbestos to inform them of what we had found.

Continuation - ROCKBESTOS FIREWALL III CONTROL CABLE

I believe that the insulation for Firewall III was not properly cured after initial extrusion process. When subjected to 302°F for a prolonged period of time, the cross-linked polyolefin looses a majority of strength properties, yeilding it almost valueless as in insulator under even minimum current. My feeling is that this material would not be considered dependable after a LOCA incident under any circumstance, and further more the workmanship we witnessed as far as concentricity of the conductor is concerned, could also contribute to an increased failure rate as well.

The concensus of opinion as a result of our meeting is that the defect would be reportable under part 21. requirements, and that under no circumstance would Firewall III material be suitable for any of our equipment. Should you have any further questions, please do not hesitate to contact me.

Sincerely,

R.T. Blythe

R. T. Blythe
Quality Assurance Manager

Enclosures: Letter 1/27/81 from JPC
10CFR21 Report - RHA 1/26/81
Copy of Firewall Qualification Report

RTB/mji

Rotork Sealed Valve Actuators

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cc: William H. Whiteley, Pres./Rotork Controls
Robert Arnold, Chief Engineer/Rotork
Ray Blythe/Rotork
Chris Allen/Rotork
Ernie Day

rotork

your reference | our reference | date

January 27, 1981

Director for Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: 10CFR21 Report on Rockbestos Wire
Apparent Insulation Failure - Rockbestos Wire

Gentlemen:

It has been brought to my attention that during the course of evaluating alternate wire manufacturers for our valve actuator product line, samples of Class IE electric cable submitted to us by the Rockbestos Company, apparently failed during the course of the test.

As of this date we have not received a satisfactory reply from the Rockbestos Company or their representatives. I am enclosing a copy of our preliminary 10CFR21 report for your file. I would like to advise you that Mr. Ray Blythe, our manager of quality assurance, will be following up with a more detailed report on the problems that we encountered. I am enclosing along with two copies of our preliminary report, two copies of the qualification documentation that was submitted to us by the Rockbestos Company.

At this point, I would like to advise you that we have not utilized this wire in any actuators that we have manufactured or shipped for service in nuclear power plants; and that the testing we have done was for qualification of an alternate supplier.

Should you have any question concerning our test findings or follow up to our 10CFR21 report, I would request that you contact either Mr. Robert Arnold or Mr. Ray Blythe of Rotork Controls, Inc.

Regards,

John P. Coll
Vice-Presid

JPC/mji

Enclosures