

BERGEN POWER PIPE SUPPORTS

P.O. Box 461
Donora, PA 15033

(724) 379-5212
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January 15, 2007

Document Control Desk
US Nuclear Regulatory Agency
11555 Rockville Pike
Rockville, MD 20852-2746

Subject: 10 CFR 21 Notification
Identification of Defect
NRC Event No. 43071

Enclosed is a copy of a 10CFR21 Notification that Bergen Power has received from Fronex A/DE concerning Hydraulic Snubbers filled with GE SF1154 Silicone fluid, Batch AD965. We have determined that units were shipped to four customers. These customers are TVA, Entergy, Eletrobras, and Ergytech. Enclosed are copies of the notifications that have been sent to our customers.

If we can be of further assistance, please contact us.



Thomas P. Haynes
QA Manager

e-mail: tom_haynes@bergenpower.com

cc: James M. Bonetti
President

IE19

Fronek A/DE, Inc.

86 Doris Ray Court
Laconia, NH 03246
Tel: (603) 528-1931
Fax: (603) 528-6381

A Wholly Owned Subsidiary
by Piping Technology & Products
PO Box 34506
Houston, Texas 77234-4506

Bergen Power Pipe Supports
PO Box 461 (alt. 484 Galiffa Drive)
Donora, PA 15033

January 12, 2007

Attention: Tom Haynes
Quality Assurance Mgr.

Subject: 10 CFR 21 Notification,
Identification of Defect,
NRC Event No. 43071

Pursuant to 10 CFR 21.21 notification requirements, Fronek Anchor Darling Enterprises, Inc (Fronek) hereby informs Bergen Power that we have provided you with Hydraulic Snubbers filled with GE SF1154 Silicone Hydraulic Fluid, Batch AD965 which has been identified as containing a defect as described in NRC Event No. 43071, as filed with the NRC by FPL Duane Arnold Energy Center(DAEC), Palo, IA. The attached document lists the applicable Bergen Power Purchase Orders, Descriptions of the Snubbers and their applicable Fronek assigned Serial Numbers.

To fulfill its obligations under 10 CFR 21.21 (c)(1), Fronek is in the process of completing its evaluation on the effects of snubber performance while using the defective batch of GE SF1154. The gallon sample of fluid we are using in our evaluation testing was returned to us by DAEC (it is one of the two gallons identified in their notice to the NRC). We are very early into our investigation, but in order to facilitate the most rapid circulation of information with regard to the Subject event, we have completed a sufficient number of tests to report the following initial findings.

To reiterate, DAEC, in its initial notification to the NRC, has postulated that the foreign material in the defective fluid could restrict flow through the bleed orifices in a snubber, potentially reducing the flow through the snubber control valve to zero. This may cause the snubber to remain locked following activation. The resulting locked snubber would prevent the function of allowing for some piping movement associated with normal system movement.

In our preliminary snubber performance evaluation, we have witnessed the behavior described in DAEC's postulation above, but its likely possibility seems to be limited to loads applied in extension to our smallest size snubber (an 1-1/2" Bore with a 3 Kip Load Rating). Thus far, we have conducted Performance (Lock-Up & Bleed) Testing on our two smallest size snubbers (the aforementioned 3 Kip and the 2-1/2" bore 10 Kip) where the control valve bleed orifices are among the smallest (approximately 24 and 16 tests, each in both directions, on the 3 and 10 Kip, respectively). Only the 3 Kip snubber loaded in the extension direction has sporadically (twice) demonstrated the behavior described above (i.e., zero bleed rate) and only if the load remains continuously applied in that direction. After the 3 Kip has become locked in the extension direction, any load reversal, no matter how slight, returns the control valve to its normally open state in the extension direction.

In addition, of the behavior that we have observed thus far, the results are consistent with the fact that Fronek's 3 Kip Extension bleed orifice also happens to be its smallest, having a nominal cross section dimension of 0.005". By comparison, the dimensions of the orifices in the 3 Kip Compression, 10 Kip Extension and 10 Kip Compression directions are 0.007", 0.006" and 0.009", respectively. We have witnessed only occasional partial blockages in the larger orifices and that the apparent likelihood of those partial blockages becomes even more infrequent as the orifice size increases. One can reasonably expect that the orifices in the larger bore snubbers, which are incrementally larger with increasing bore size, will exhibit further diminished probability of becoming partially blocked from the effects of the defective fluid.

Fronek A/DE, Inc.

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We believe that our initial approach to the testing completed thus far has been very conservative, for three primary reasons:

- 1) The objective in this initial test phase was to overestimate the concentration of the particulate in the test units to obtain results which should reasonably exceed the expected probability of flow blockage in field installations. The difficulty in quantifying the initial amount of particulate and then measuring the amount introduced into the test units would have unnecessarily delayed this initial test phase. We chose a conservative visual means of introducing the amount of particulate into the test units which we believe to be no less than twice that amount observed in the original sample.
- 2) At various intervals in the testing sequence, we change the orientation (with respect to gravity) of the test unit. We do so because we have observed that the larger particulate settles to the lowest point in the fluid at a relatively rapid rate (all but the finest particles settle out in approximately 10 to 20 minutes). We flip the unit upside-down from its test orientation and stroke it several times in an effort to keep the majority of the particulate in suspension. We then flip it back and then immediately run the next series of tests.
- 3) We are also running the bleed portion of the test for a much longer duration (nearly full stroke) than a typical Snubber Performance Test (SPT). In a typical SPT, the bleed portion of the test (conducted post-activation while the snubber remains locked at rated load) requires approximately 5 to 10 seconds. This is normally a sufficient length of time for the bleed rate to reach a steady-state condition. That 5 to 10 seconds equates to moving the snubber through about 1 inch of its stroke. The test data thus far suggests that it would be highly unlikely to detect the presence of the defective fluid during a test having a bleed duration this short. All of the flow blockages observed thus far, either total blockages or partial ones, have not occurred until approximately 2 to 3 inches of stroke have been traversed while at rated load. The nature of these blockages does not provide sufficient evidence which can be used to unequivocally state that the presence of the particulate will never be detected during a typical SPT, but at this point in time, the data indicates that this is the most probable result.

Further, we have found that the fluid particulate, introduced into our test units in the way that it has, has no discernible effect on snubber Drag characteristics, nor has it impacted the snubber's Lock-Up characteristics. At this point in the evaluation, all of the observed behavior leads us to reasonably assert that Fronek snubbers which contain this fluid will remain unaffected with regard to their intended seismic function.

We trust that the above information serves to address the immediate concerns of Bergen Power with regard to snubbers which are filled with this particular batch of SF1154 and that we assume are installed in Nuclear Power Plants subject to the provisions of 10 CFR 21 Reporting. A formal evaluation report will be forthcoming and distributed to all parties involved in accordance with the provisions of 10 CFR 21.21(d)(4). It will present the above test results and the results from more of our future testing. However, we believe that the best impending test results, i.e., the results that will bear the best information with regard to snubber performance, will be obtained from units that were filled with this batch of fluid sometime ago. Toward that end, we intend to contact anyone who may be able to provide such units, or provide us with field test results obtained from such snubbers, in order for us to conduct the most thorough evaluation possible. If we can be of further assistance, please contact us.

Best Regards,

Walter Paszul, PE
General / Engineering Manager

c: Thom Wormhood, QA Mgr.
Attachment

Attachment to Bergen Power 10CFR21 Notification Letter, Dated January 12, 2007

Fronek S/O#	Qty	Description	Serial Nos.	BP PO No.	PO Line No.	BP Tag No	Ship Date
HUN3807	4	70 Kip x 6" Snubber	ADH-7003-162 thru -165	#11628	1	7755a	04/17/2002
	1	50 Kip x 6" Snubber	ADH-5003-475		2		
	1	20 Kip x 6" Snubber	ADH-2003-1560		3		
HUN3907	1	50 Kip x 6" Snubber	ADH-5001-476	#11659	1	7801a	06/20/2002
	4	10 Kip x 6" Snubber	ADH-1001-3275 thru -3278		2		
HUN3942	3	3 Kip x 6" Snubber	ADH-300-2634,-2635 & -2636	#11683	1	7831a	08/28/2002
HUN4144	1	30 Kip x 6" Snubber	ADH-3000-900	#11805	1	802dy	08/20/2003

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January 15, 2007

TVA Nuclear
Nuclear Assurance and Licensing
1101 Market Street
Chattanooga, TN 37402-2801

Attn: Manager, Operating Experience

Subject: 10 CFR 21 Notification
Identification of Defect
NRC Event no. 43071

Enclosed is a copy of a 10CFR21 Notification that Bergen Power has received from Fronek A/DE concerning Hydraulic Snubbers filled with GE SF1154 Silicone fluid, Batch AD965. One (1) 30 Kip Hydraulic Snubber, A/DE serial No. ADH-3000-900 containing this fluid was furnished to your facility on your PO No. 00001630 Release 00098, Item No. 1 in September, 2003

A copy of this notification has been forwarded to the US NRC

If we can be of further assistance, please contact us.



Thomas P. Haynes
QA Manager

e-mail: tom_haynes@bergenpower.com

cc: James M. Bonetti
President

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January 15, 2007

Entergy Nuclear Northeast
James A. Fitzpatrick NPP
268 Lake Road
Lycoming, NY 13093

Attn: Vice President Operations

Subject: 10 CFR 21 Notification
Identification of Defect
NRC Event no. 43071

Enclosed is a copy of a 10CFR21 Notification that Bergen Power has received from Fronek A/DE concerning Hydraulic Snubbers filled with GE SF1154 Silicone fluid, Batch AD965. Three (3) 3 Kip Hydraulic Snubbers, A/DE serial No. ADH-300-2634, -2635 & -2636 containing this fluid were furnished to your facility on your PO No. 4500514359, Item No. 1 in September , 2002

A copy of this notification has been forwarded to the US NRC

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QA Manager

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cc: James M. Bonetti
President

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January 15, 2007

Eletrobras Termonuclear S.A
Gerencia de Suprimentos -GSU A
Rua da Candelaria no. 65 -90 andar
CEP: 20091-020 Rio de Janeiro - RJ
Brasil

Subject: 10 CFR 21 Notification
Identification of Defect
NRC Event no. 43071

Enclosed is a copy of a 10CFR21 Notification that Bergen Power has received from Fronek A/DE concerning Hydraulic Snubbers filled with GE SF1154 Silicone fluid, Batch AD965. One (3) 50 Kip Hydraulic Snubber, A/DE serial No. ADH-5001-476, and four (4) 10 Kip Hydraulic Snubbers, A/DE serial No. ADH-1001-3275 thru -3278 containing this fluid were furnished to your facility on your PO No. 4500034326, Item No. 1 & 2 in June, 2002

In addition, Four (4) 70 Kip Hydraulic Snubbers, A/DE serial No. ADH-7003-162 thru -165, one (1) 50 Kip Hydraulic Snubber, A/DE serial No. ADH-5003-475, and one (1) 20 Kip Hydraulic Snubber, A/DE serial No. ADH-2003-1560 containing this fluid were furnished to your facility on your PO No. 4500030221, Item No. 1 thru 5 in April, 2002 by way of Ergytech, Inc. on their PO 45030221 to us.

A copy of this notification has been forwarded to the US NRC

If we can be of further assistance, please contact us.



Thomas P. Haynes
QA Manager

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cc: James M. Bonetti
President

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Ergytech, Inc.
2400 Augusta, Suite 310
Houston, TX 77057

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Enclosed is a copy of a 10CFR21 Notification that Bergen Power has received from Fronek A/DE concerning Hydraulic Snubbers filled with GE SF1154 Silicone fluid, Batch AD965. Four (4) 70 Kip Hydraulic Snubbers, A/DE serial No. ADH-7003-162 thru -165, one (1) 50 Kip Hydraulic Snubber, A/DE serial No. ADH-5003-475, and one (1) 20 Kip Hydraulic Snubber, A/DE serial No. ADH-2003-1560 containing this fluid were furnished to Eletrobras Termonuclear on your PO No. 45030221, Item No. 1 thru 5 in April, 2002.

A copy of this notification has been forwarded to the US NRC

If we can be of further assistance, please contact us.



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QA Manager

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cc: James M. Bonetti
President