

Part 21 (PAR)

Event # 51788

Rep Org: ANVIL ENGINEERING PIPE SUPPORT	Notification Date / Time: 03/14/2016 14:07 (EDT)
Supplier: ANVIL ENGINEERING PIPE SUPPORT	Event Date / Time: 10/01/2015 (EDT)
	Last Modification: 03/14/2016
Region: 1	Docket #:
City: NORTH KINGSTOWN	Agreement State: Yes
County:	License #:
State: RI	
NRC Notified by: MARK R. WARD	Notifications: JAMES NOGGLE R1DO
HQ Ops Officer: DONG HWA PARK	PART 21/50.55 REACTORS EMAIL
Emergency Class: NON EMERGENCY	
10 CFR Section:	
21.21(a)(2) INTERIM EVAL OF DEVIATION	

PART 21 - HYDRAULIC SNUBBER SEAL MATERIAL DEVIATION INTERIM REPORT

"Anvil Engineered Pipe Supports (EPS) supplied 14 Fig. 200N Configuration 'A' style hydraulic snubbers to the Exelon owned and operated Peach Bottom Atomic Power Station (PBAPS) in 2013. During the course of routine refueling outage activities in October 2015, it was discovered that 9 of these 14 snubbers had no hydraulic fluid in the reservoir. The cause of the hydraulic fluid loss was premature aging of the reservoir piston seal due to vibration induced frictional heat. Subsequent laboratory testing of both replacement and degraded seal material by Exelon Power Labs suggested that a material substitution had been made from the Anvil approved Ethylene Propylene (EP) compound to a different grade of EP rubber.

"On February 17, 2016, Anvil determined that a material substitution was made by the seal vendor. A machined seal that was fabricated by the manufacturer was substituted for a seal molded with the approved Anvil compound. Prior to its installation in Fig. 200N/201N Configuration 'A' hydraulic snubbers, the machined seal compound was not tested to establish a service life for the compound.

"Anvil has bounded the extent of condition to 4 specific seal batches of 4" and 5" Fig. 200N/201N Configuration 'A' reservoir piston seals provided after January 1, 2013. Based on its Part 21 investigation, Anvil has yet to determine that a specific defect exists, based on the demonstrated operability of the snubbers at PBAPS despite severe service conditions beyond their published operational limits, and the compatibility of the EP base polymer with Anvil hydraulic fluids.

"Anvil is conducting a test campaign to approve and establish a service life for the machined seal compound. This testing will either qualify the machined compound for use at currently published Anvil service conditions (157 degrees F for 25 years with a total lifetime dose not to exceed 2e8 rads), or establish a reduced service life for the snubbers in which a material substitution was made. This testing is being conducted on an assembled reservoir

IE19
NRR

with the substitute machined compound. It will include irradiation of the reservoir to 6.4e7 rads, accelerated temperature aging, and a final radiation exposure to bring the cumulative dose to 2e8 rads. As of 3/14/16, the reservoir specimen had been irradiated to 6.4e7 rads with no effect on the seal.

"Anvil expects to have this testing complete by May 1, 2016, with a formal evaluation to follow. PBAPS has been notified of the material substitution, and a full accounting of the affected snubbers by serial number, PO number, site, and utility is being assembled. Anvil will notify affected sites when the testing and equivalency evaluation is complete.

"Please feel free to contact me if you have any questions or require any additional information.

"Sincerely,
Mark R Ward
Operations Manager
Anvil Engineered Pipe Supports
160 Frenchtown Road
North Kingstown, RI, 02852"

Fax Cover Sheet

To:

NRC Operations Center

Fax 301-816-5151

From:

Anvil Engineered Pipe Supports

401-886-3000

Pages: 2



ANVIL EPS
ENGINEERED PIPE SUPPORTS

EPS Manufacturing Plant
Precision Park
160 Frenchtown Road
North Kingstown, RI-USA 02852
Voice: (401) 886-3000
Fax: (401) 886-3010

March 14, 2016

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

Subject: Anvil Fig. 200N/201N Configuration "A" Size 4" and 5" Hydraulic
Snubber Seal Material Deviation Interim Report

This is to notify the US Nuclear Regulatory Commission that, in accordance with the provisions of 10CFR Part 21, we have identified a potential issue and are submitting an interim report of our evaluation of the event.

Description and information regarding facility, supplied component, defect or failure to comply being evaluated

Anvil Engineered Pipe Supports (EPS) supplied 14 Fig. 200N Configuration "A" style hydraulic snubbers to the Exelon owned and operated Peach Bottom Atomic Power Station (PBAPS) in 2013. During the course of routine refueling outage activities in October 2015, it was discovered that 9 of these 14 snubbers had no hydraulic fluid in the reservoir. The cause of the hydraulic fluid loss was premature aging of the reservoir piston seal due to vibration induced frictional heat. Subsequent laboratory testing of both replacement and degraded seal material by Exelon Power Labs suggested that a material substitution had been made from the Anvil approved Ethylene Propylene (EP) compound to a different grade of EP rubber.

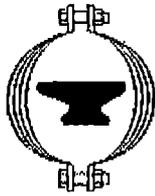
On February 17, 2016, Anvil determined that a material substitution was made by the seal vendor. A machined seal that was fabricated by the manufacturer was substituted for a seal molded with the approved Anvil compound. Prior to its installation in Fig. 200N/201N Configuration "A" hydraulic snubbers, the machined seal compound was not tested to establish a service life for the compound.

Anvil has bounded the extent of condition to 4 specific seal batches of 4" and 5" Fig. 200N/201N Configuration "A" reservoir piston seals provided after January 1st of 2013. Based on its Part 21 Investigation, Anvil has yet to determine that a specific defect exists, based on the demonstrated operability of the snubbers at PBAPS despite severe service conditions beyond their published operational limits, and the compatibility of the EP base polymer with Anvil hydraulic fluids.

Anvil is conducting a test campaign to approve and establish a service life for the machined seal compound. This testing will either qualify the machined compound for use at currently published Anvil

BUILDING CONNECTIONS THAT LAST





ANVIL EPS
ENGINEERED PIPE SUPPORTS

EPS Manufacturing Plant
Preclston Park
160 Frenchtown Road
North Kingstown, RI-USA 02852
Voice: (401) 886-3000
Fax: (401) 886-3010

service conditions (157° F for 25 years with a total lifetime dose not to exceed 2e8 rads), or establish a reduced service life for the snubbers in which a material substitution was made. This testing is being conducted on an assembled reservoir with the substitute machined compound. It will include irradiation of the reservoir to 6.4e7 rads, accelerated temperature aging, and a final radiation exposure to bring the cumulative dose to 2e8 rads. As of 3/14/16, the reservoir specimen had been irradiated to 6.4e7 rads with no effect on the seal.

Anvil expects to have this testing complete by May 1st, 2016, with a formal evaluation to follow. PBAPS has been notified of the material substitution, and a full accounting of the affected snubbers by serial number, PO number, site, and utility is being assembled. Anvil will notify affected sites when the testing and equivalency evaluation is complete.

Please feel free to contact me if you have any questions or require any additional information.

Sincerely,

Mark R Ward
Operations Manager
Anvil Engineered Pipe Supports
160 Frenchtown Road
North Kingstown, RI, 02852

BUILDING CONNECTIONS THAT LAST

