

Part 21 (PAR)

Event # 47635

Rep Org: ENGINE SYSTEMS, INC		Notification Date / Time: 02/03/2012 15:35 (EST)	
Supplier: ENGINE SYSTEMS, INC		Event Date / Time: 12/01/2011 (EST)	
Last Modification: 02/03/2012			
Region: 1	Docket #:		
City: ROCKY MOUNT	Agreement State: Yes		
County:	License #:		
State: NC			
NRC Notified by: TOM HORNER		Notifications: JONATHAN BARTLEY	R2DO
HQ Ops Officer: DONALD NORWOOD		JEFF CLARK	R4DO
Emergency Class: NON EMERGENCY		PART 21 GRP by Email	
10 CFR Section:			
21.21	UNSPECIFIED PARAGRAPH		

PART 21 REPORT - FOREIGN MATERIAL FOUND IN EMERGENCY DIESEL GENERATOR HIGH PRESSURE FUEL HOSE

Cooper Nuclear Station (CNS) returned one high pressure fuel hose to Engine Systems, Inc. (ESI) because CNS had found foreign material within the hose during receipt inspection. This fuel hose was one of four fuel hoses that had been supplied to CNS by ESI in October 2011. ESI performed an evaluation and found very small pieces of the elastomer tube internal to the hose. Apparently these pieces were introduced during assembly of the end fittings onto the hose during fabrication of the hose assembly.

When installed, this fuel hose would be located after the engine fuel filter and before the fuel injection pumps. Foreign material within this hose could migrate to the fuel injection pumps. The entrance of foreign material could impact operability of one or more fuel injection pumps and therefore affect fuel delivery to one or more engine cylinders. This could impact the load carrying capability of the diesel engine or possibly cause complete engine shutdown. Either scenario has the potential to prevent the emergency diesel generator from performing its safety related function.

These hoses were supplied only to CNS.

TE19
NRR

**ENGINE SYSTEMS, INC.**175 Freight Road
Rocky Mount, NC 27804Telephone: 252/977-2720
Fax: 252/446-1134**TELEFAX**

Date: February 3, 2012
Company: NRC Operations Center
Fax Number: 301/816-5151
Verification No.: 301/816-5100
Reference: Report No. 10CFR21-0104, Rev. 0
From: Tom Horner
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Dear Sir:

Following this cover is a copy of our report 10CFR21-0104, Rev.0, for a 10CFR21 reportable notification on a fuel hose for Nebraska Public Power District – Cooper Nuclear Station, P/N 2-01H-050-003.

A copy of this report will be mailed to the NRC Document Control Desk and to our affected nuclear customer.

Should you have questions, please let us know.

Sincerely,

ENGINE SYSTEMS, INC.

Tom Horner
Quality Assurance Manager



ENGINE SYSTEMS, INC.

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Report No. 10CFR21-0104

Rev. 0: 02/02/12

10CFR21 REPORTING OF DEFECTS AND NON-COMPLIANCE

COMPONENT: NPPD fuel hose 2-01H-050-003

SYSTEM: Emergency Diesel Generator

CONCLUSION: Reportable in Accordance With 10CFR21

Prepared By:

[Signature]
Engineering Manager

Date:

2/2/12

Reviewed By:

[Signature]
Quality Assurance Manager

Date:

2-2-12

Report No. 10CFR21-0104

Record of Revisions

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REV	DATE	PAGE	DESCRIPTION
0	02/02/12		Initial issue.

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COMPONENT:

Fuel hose for Nebraska Public Power District - Cooper Nuclear Station, P/N 2-01H-050-003.

SUMMARY:

Engine Systems Inc. (ESI) began a 10CFR21 evaluation on 12/01/11 upon review of a hose returned by Nebraska Public Power District (NPPD), Cooper Nuclear Station. NPPD returned one (1) high pressure fuel hose, P/N 2-01H-050-003 because they found foreign material within the hose during their receipt inspection process. This was one (1) of four (4) P/N 2-01H-050-003 hoses supplied by ESI on sales order 3008266. The evaluation was concluded on 01/30/12 and determined the occurrence of foreign material in the fuel hose to be a reportable defect as defined by 10CFR21.

The foreign material found during inspection of the returned hose assembly was determined to be very small pieces of the elastomer tube internal to the hose. It appears these pieces were introduced during assembly of the end fittings onto the hose during fabrication of the hose assembly.

The hose, P/N 2-01H-050-003, is located after the engine fuel filter and before the fuel injection pumps. Foreign material within this hose could migrate to the fuel injection pumps. The entrance of foreign material could impact operability of one or more fuel injection pumps and therefore affect fuel delivery to one or more engine cylinders. This could impact the load carrying capability of the diesel engine or possibly complete engine shutdown. Either scenario has the potential to prevent the emergency diesel generator from performing its safety related function.

DISCUSSION:

This hose is used in the fuel oil supply piping on the KSV diesel engine; it is located in the piping between the engine fuel filter and the fuel injector pumps (see Figure 1 and 2) and is unique to the NPPD-Cooper Station engines.

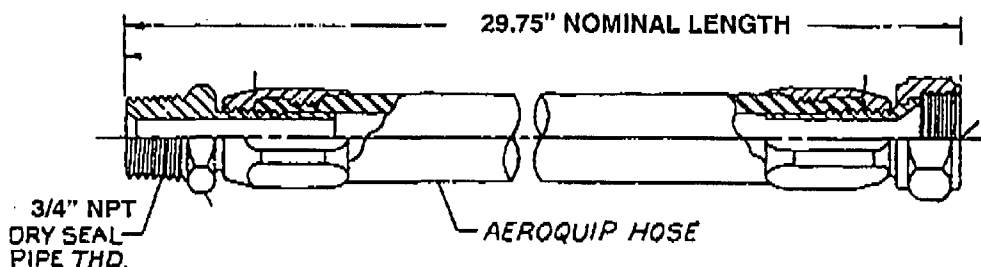


FIGURE 1
FUEL HOSE #2-01H-050-003

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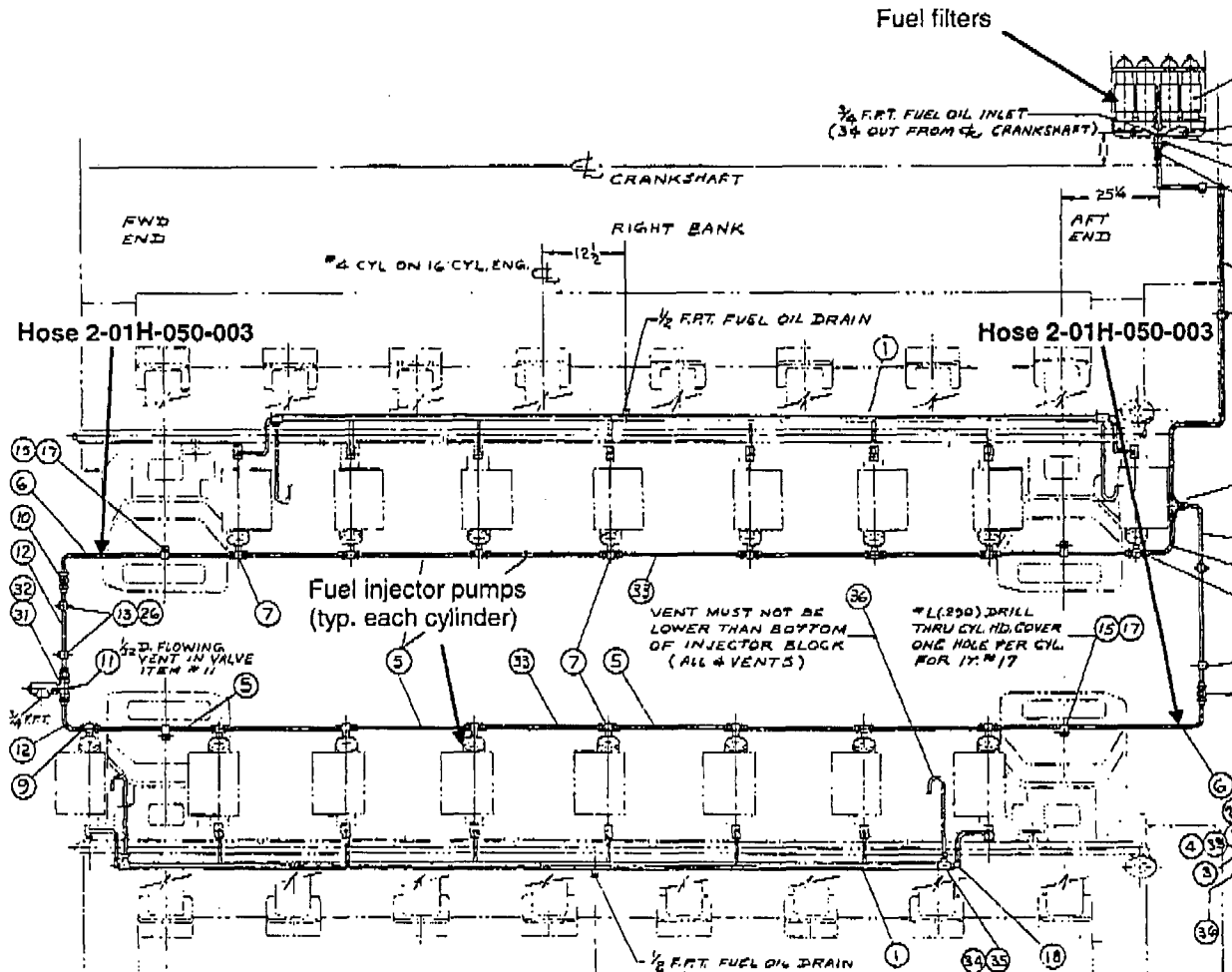


FIGURE 2
LOCATIONS OF FUEL HOSE #2-01H-050-003

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AFFECTED USERS AND SHIPMENTS:

Previous shipments of the hose, part number 2-01H-050-003, are identified below.

Affected shipments

Part Number	Customer	ESI S.O.	Cust. P.O.	Qty	Ship Date
2-01H-050-003	NPPD-Cooper	3008266	4500132314	4*	Oct. 2011
2-01H-050-003	NPPD-Cooper	3007377	4500121165	1	Feb. 2011
2-01H-050-003	NPPD-Cooper	112509	4500034077	3	Oct. 2003

*one of these returned for this evaluation

CORRECTIVE ACTIONS:

Hoses remaining in customer inventory should be inspected to verify they are free of foreign material prior to installation. Any hoses previously installed on the EDG are not suspect as operability has been confirmed via functional testing.

To prevent recurrence of this issue, the dedication report for the hose assembly has been revised to include a requirement to solvent flush each hose prior to shipment. Filtered solvent will be pumped through the hose for a minimum of 5 minutes. After flushing, nitrogen will be blown through the hose to remove excess flushing fluid and a detailed visual inspection will be performed to ensure there are no visible contaminants immediately prior to installation of the hose end caps. This flushing requirement was already included in the dedication reports for other critical application hose assemblies so this notification is being limited to this part number only.