



## ENGINE SYSTEMS, INC.

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February 3, 2012

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555-0001

Subject: 10CFR21 Reporting of Defects and Non-Compliance -  
Engine Systems, Inc. Report No. 10CFR21-0104, Rev. 0

NPPD Fuel Hose, P/N 2-01H-050-003

Dear Sir:

The enclosed report addresses a reportable notification on a fuel hose for Nebraska Public Power District – Cooper Nuclear Station, P/N 2-01H-050-003.

A copy of the report has been mailed to our affected nuclear customer.

Please sign below, acknowledging receipt of this report, and return a copy to the attention of Document Control at the address above (or, fax to number 252/446-1134) within 10 working days after receipt.

Yours very truly,

ENGINE SYSTEMS, INC.

Susan Woolard  
Document Control

**Please let us know if ANY of your mailing information changes - name of recipient, name of company/facility, address, etc. Mark the changes on this acknowledgment form and send to us by mail or FAX to the number above.**

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DATE: \_\_\_\_\_

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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:   
Engineering Manager

Date: 2/2/12

Reviewed By:   
Quality Assurance Manager

Date: 2-2-12

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

## **COMPONENT:**

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

## **SUMMARY:**

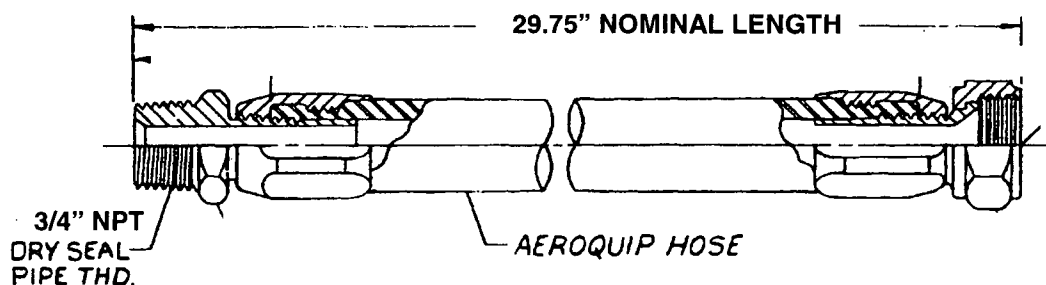
Engine Systems Inc. (ESI) began a 10CFR21 evaluation on 12/01/11 upon review of a hose returned by Nebraska Public Power District (NPPD), Cooper Nuclear Station. NPPD returned one (1) high pressure fuel hose, P/N 2-01H-050-003 because they found foreign material within the hose during their receipt inspection 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.

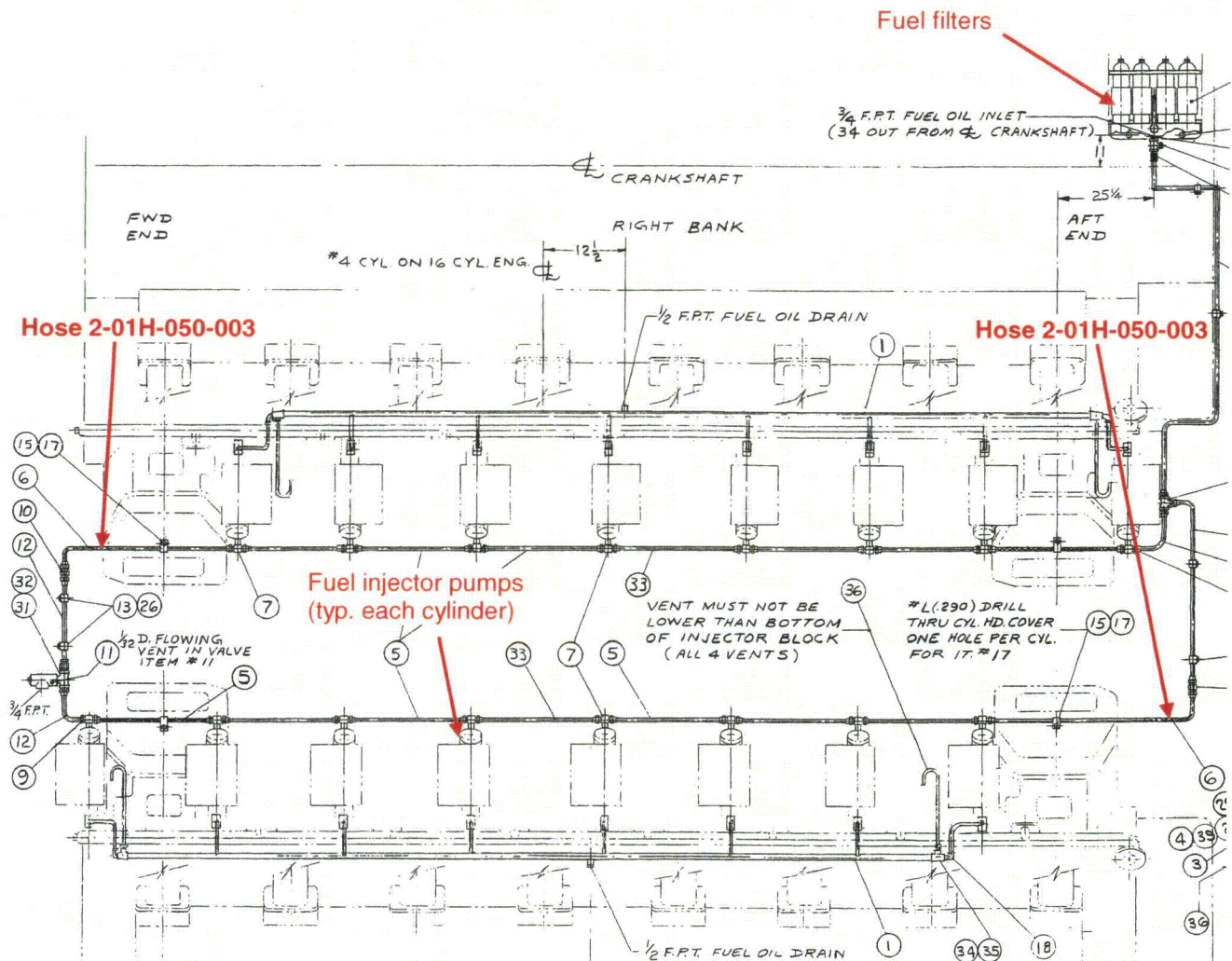
The hose, P/N 2-01H-050-003, is located after the engine fuel filter and before the fuel injection pumps. Foreign material within this hose could migrate to the fuel injection pumps. The entrance of foreign material could impact operability of one or more fuel injection pumps and therefore affect fuel 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**



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

**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.