



Volvo Cars of North America, LLC

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February 19, 2007

Thomas Z. Cooper, Chief
Vehicle Integrity Division
Office of Defects Investigation
National Highway Traffic Safety Administration
Room 5326
400 Seventh Street, S.W.
Washington, D.C. 20590

NVS-212.PCO
PE06-053

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NHTSA
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Dear Mr. Cooper,

This letter and its enclosures comprise the Third part of Volvo's response to your request for information relating to Preliminary Evaluation PE06-053 received on November 28, 2006. An Extension to February 20th 2007 was granted via Telephone.

We have provided below and as separate enclosures (a combination of hardcopy and electronic documents), answers to question # 12 using the documentation and systems available to us that in the normal course of business contain the type of information that was requested from us.

As requested, Volvo's response follows a copy of the agency's questions and appears in *italic font*:

12. Furnish Volvo's assessment of the alleged defect in the subject vehicle, including:
- The causal or contributory factor(s);
 - The failure mechanism(s);
 - The failure mode(s);
 - The risk to motor vehicle safety that it poses;
 - What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring or subject component was malfunctioning; and
 - The reports included with this inquiry.

Volvo's Response to Question 12:

Volvo's analysis of flammability limits

Smell of fuel

The Material Analysis Centre at Volvo Car Corporation, Gothenburg Sweden has together with our environmental department come to the following conclusion regarding how much fuel could be detected by a human nose when smelling in a sealed area e.g. garage. The source is official published charts by Jon H. Ruth, Wausau Insurance Companies, 550 California, San Francisco (Published in American Industrial Hygiene Association Journal, Mars 1986).

As there is no air odor threshold values published for gasoline, the data of Benzene, Toluene and Xylene have been used.

The calculations in the charts are taken as an average from a study where people are confronted with a specific volume of fuel in a specific air volume. Assuming an average garage where the air volume is 2260 ft³ you don't need more than 0.16 fluid ounces before the average person senses the smell of fuel.

In order to understand when a customer complains about odor or fuel seepage we should be aware of that we talk about a very limited seepage when one can smell it.

Inflammable Air mix

In order to have an flammable air mix of air and fuel it is necessary to have a total volume of 0.9 gallon in an air volume of 2260 ft³. The air mix is not self igniting and there needs to be a spark in addition.

The space in the car is deliberately designed so that we don't have any high powered cable harnesses adjacent to the tank.

Volvos Assessment of this situation

We have the following 20 cases including the ones from NHTSA that may apply to this situation. A breakdown by root cause is included as an enclosure. Clearly this is a very low number of cases over the population of approximately 218,000 vehicles. This is less than 1 case per 10,000 vehicles over a 7 model year period. This can be looked at another way or about 1 case per approximately 70,000 vehicles per model year (.00143%). This % is a very low number.

The data shows that there have been no fires over the past 7 years. This is clearly not a safety issue. Our analysis of the flammability concentrations is in 100% agreement with the facts of this situation.

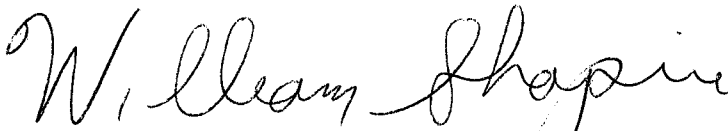
Upon further analysis of the data there are many unique issues. All do not fall under one root cause. So the very low numbers presented above are much lower when you look at any single issue.

In conclusion there are no safety issues over 8 Billion miles driven and the only scientific conclusion can be that there is not an unreasonable risk to safety.

If you have any questions, please do not hesitate to contact me, or Adam Kopstein of my Staff.

Sincerely yours,

VOLVO CARS OF NORTH AMERICA, LLC
Customer Service

A handwritten signature in cursive script that reads "William Shapiro".

William Shapiro, P.E.
Manager, Regulatory and Product Compliance

Enclosure

Root cause breakdown

- 9 are leakages from the fuel pump. (Case#: 1457836, 1496353, 3040406, 3076309, 3088026, 3092276, 1420637, 3043645, 3080072)
- 3 are reported leakages caused by faulty repairs. (Case#: 3054144, 3057698, 3059720)
- 1 is a leakage in the fuel line. (Case#: 30225014)
- 1 is a leakage from an o-ring seal in the steel fuel tank. (Case#: 51129050)
- 1 is a leakage from the o-ring seal around the LH-side fuel level sender. (Case#: 1440437)
- 1 is leakage from the fuel pump, diagnosed by an independent workshop. (Case#: 3092250)

Root cause breakdown (NHTSA cases)

- 4 are leakages from the fuel pump. (ODI#: 10169342, 10164185, 10164004, 10154579)