CHRYSLER

December 13, 2012

Mr. Frank Borris, II Director
Vehicle Integrity Division (VID), NVS-212
U.S. Department of Transportation
National Highway Traffic Safety Administration (NHTSA)
Office of Defects Investigation (ODI)
Room W48-314
1200 New Jersey Avenue SE
Washington, D.C. 20590

Reference: NVS-212po; EA12-005

Dear Mr. Borris:

Attached is Chrysler Group LLC's response to EA12-005 information request. In performing the analysis and reaching conclusions, and by providing the information contained herein, Chrysler Group LLC is not waiving its claim to attorney work product and attorney-client privileged communications.

For reasons discussed more fully in the attached response, Chrysler Group LLC has concluded that the Subject Vehicles are neither defective nor do their fuel systems pose an unreasonable risk to motor vehicle safety in rear impact collisions. Chrysler Group LLC believes this investigation should be closed.

Sincerely,

Reginald Modlin

Attachment and Enclosures

cc: Scott Yon (all via email without Enclosures)
Peter Ong

1. State within the body of the response letter a summary table, by model and model year, the number of subject vehicles Chrysler has manufactured for sale or lease in the United States. Separately, for each subject vehicle manufactured to date by Chrysler, state the following:

a. Vehicle identification number (VIN);
b. Model;
c. Model year;
d. Date of manufacture (in "dd/mm/yyyy" date format);
e. Date warranty coverage commenced (in "dd/mm/yyyy" date format);
f. The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease);
g. The stowed location (e.g., in the rear cargo area, below the cargo area floor, or mounted on the exterior of the rear door) and the size (full or space-saver) of the OE supplied spare tire;
h. Whether the vehicle was manufactured with a brush guard, skid guard/plate, or other covering for the underside of the fuel tank (i.e., a protective guard);
i. Whether the vehicle was manufactured with a tow hitch or tow receiver, and if so the duty/class of the hitch or receiver, and
j. Whether the vehicle was manufactured with an electrical harness/connector for trailer lighting purposes.

Provide the table in Microsoft Access 2007, or a compatible format, entitled "SUBJECT VEHICLE PRODUCTION DATA."

A1. The detailed response listing the production data as requested in subparts (a) through (j) is provided in Enclosure 1 as a Microsoft Access 2007 table, titled "SUBJECT VEHICLE PRODUCTION DATA."

Below are explanatory notes on some of the subparts in this request. Moreover, for reasons discussed below, Chrysler Group is also providing additional data and information beyond the scope of what has been requested in Q1.

Inclusion of 1984 through 1992 Jeep Cherokee (XJ) Vehicle Information

Chrysler Group notes that one of the Subject Vehicles has been defined as the 1993 - 2001 Jeep Cherokee (XJ). This Subject Vehicle, however, was the continuation of a vehicle line – the XJ body – that originated in the 1984 model year and, through the 1987 model year, was designed and assembled by Jeep Corporation, a wholly owned subsidiary of American Motors Corporation ("AMC"). AMC merged into Chrysler Corporation in 1987 and the Jeep Cherokee (XJ) vehicle remained in production until it was discontinued at the end of the 2001 model year. Also, from the 1984 through 1990 model years, the XJ body vehicle shared two model designations – the Jeep Cherokee (XJ) and the Jeep Wagoneer (XJ) – and they differed only in non-functional trim levels.

After the 1990 model year, the Jeep Wagoneer (XJ) was discontinued and the XJ body continued to be produced through the 2001 model year, but only as a Jeep Cherokee (XJ). The 1993 - 2001 Jeep Cherokee (XJ) vehicles contained many of the same or substantially similar design attributes, parts and/or components with the prior 1984 - 1992 model year XJ vehicles, including the chassis, body and/or fuel system. Accordingly, Chrysler Group is providing the available data and information concerning the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles in response to this and other questions in this information request.

Chrysler Group also notes that the original design and development activities for the Jeep Cherokee/Wagoneer (XJ), including activities that relate specifically to the 1993 - 2001 Jeep Cherokee (XJ), date back to over 30 years ago. Certain data and information on the older Jeep Cherokee/Wagoneer (XJ) vehicles may be no longer available due to document retention requirements. Chrysler Group is continuing its efforts to locate this information and will supplement its responses accordingly.

Subparts A-F – Build/Sales Information by VIN

Certain build and sales information for the 1993 - 1998 Jeep Grand Cherokee (ZJ) vehicles and the 1999 - 2004 Jeep Grand Cherokee (WJ) vehicles was previously produced in Chrysler Group's October 15, 2010 submission to PE10-031, and then adjusted in the August 2, 2012 Supplemental Response to PE10-031. This data is being produced again in Enclosure 1, along with the 1993-2001 Jeep Cherokee (XJ) and 2002 - 2007 Jeep Liberty (KJ) information that has been requested.

Chrysler Group is also currently searching for the available VIN-based build and sales information for the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles. This information may have been stored on historical archive back-up media and efforts are underway to restore this data to a useable format if found. Chrysler Group will supplement this response and produce an additional Enclosure 1 Microsoft Access 2007 table to include the available VIN-based build and sales information for the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles.

Subpart G – Spare Tire Location and Size

The stowed location of the spare tire in the Subject Vehicles is as follows:

1993 - 1998 Jeep Grand Cherokee (ZJ): Upright in the left rear interior cargo area and affixed to the left quarter trim panel.

1999 - 2004 Jeep Grand Cherokee (WJ): Horizontal in the rear interior cargo area, below the rear floor pan.

2002 - 2007 Jeep Liberty (KJ): Vertically affixed to rear gate tire carrier.

1993 - 2001 Jeep Cherokee (XJ): Upright in the left rear interior cargo area and affixed to the left quarter trim panel

The stowed location of the spare tire in 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles was upright in the left rear interior cargo area and affixed to the left quarter trim panel. For the 1984 - 1996 Jeep Cherokee (XJ) vehicles, there was an optional rear gate tire carrier to store the spare in the vertical position outside the rear lift gate. Sales code TBR - Outside Tire Carrier designates the use of this option, by VIN, in Enclosure 1.

Enclosure 1 will indicate the spare tire size for each VIN by the designation "Full" or "Compact" in the data table.

Subpart H – Fuel Tank Guards

Chrysler Group notes that a fuel tank skid plate is an off-road driving accessory that is typically offered on sport utility vehicles. As the term implies, it is a plate that is positioned on the underside of the vehicle below the fuel tank. The primary purpose of the skid plate is to permit the vehicle to "skid" or slide over an obstacle to avoid abrading or damaging the fuel tank surface during low speed off-road excursions into uneven or unfamiliar environments. It allows the equipped vehicle to slide over brush, rocks, debris, and other similar obstacles.

Chrysler Group refers to its original and supplemental PE10-031 response to Q1 for the explanatory notes on the 1993 - 1998 Jeep Grand Cherokee (ZJ) and 1999 - 2004 Jeep Grand Cherokee (WJ) skid plate/brush guard availability. Optional skid plates for the 1993 - 1998 Jeep Grand Cherokee (ZJ) vehicles are identified in Enclosure 1 by the following sales codes:

ADL - Skid Plate Group (All Skid Plates)
AWN - Skid Plate /Tow Hook Group (All Skid Plates)
XEE - Fuel Tank Skid Plate (Fuel Tank Only Skid Plates)

The 1999 - 2004 Jeep Grand Cherokee (WJ) vehicles were originally equipped with a standard brush guard. Vehicles equipped with optional skid plates in Enclosure 1 are identified by the following optional sales codes:

ADL - Skid Plate Group (All Skid Plates)
XEE - Fuel Tank Skid Plate (Fuel Tank Only Skid Plates)

The 1984 - 1996 Jeep Cherokee (XJ) vehicles came equipped with a standard plastic stone shield covering the bottom of the steel fuel tank assembly. The purpose of a stone shield was to protect the fuel tank against low-speed abrasions during on-road or off-road driving as the vehicle travels over sand and gravel. Without the stone shield, stone

abrasion could damage the protective coating of the fuel tank, which could lead to corrosion. This plastic stone shield was eliminated beginning in the 1997 model year Jeep Cherokee (XJ) when the fuel tank composition changed from steel to HDPE.

Fuel tank skid plates were offered as optional equipment on both the 1993 - 2001 Jeep Cherokee (XJ) and as part of the Up Country Suspension Package and 2002 - 2007 Jeep Liberty (KJ) as part of the Off-Road Group. Optional skid plates for the 1993 - 2001 Jeep Cherokee (XJ) vehicles and 2002 - 2007 Jeep Liberty (KJ) vehicles are identified in Enclosure 1 by the following sales codes:

ADL[1] - Skid Plate Group, which includes skid plates for the front suspension, transfer case, and fuel tank.

XEE - Fuel Tank Skid Plate, which includes a skid plate for the fuel tank only.

Chrysler Group refers to its original PE10-031 response to Q9 for the skid plate/brush guard part numbers for the 1993 - 1998 Jeep Grand Cherokee (ZJ) and 1999 - 2004 Jeep Grand Cherokee (WJ) vehicles. The part numbers for the optional skid plates on the 1993 - 2001 Jeep Cherokee (XJ) and 2002 - 2007 Jeep Liberty (KJ) vehicles are identified in Chrysler Group's response to Q9, below.

Chrysler Group is also currently searching for the available sales code information for optional skid plate use on 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles. This information may have been stored on historical archive back-up media and efforts are underway to restore this data to a useable format, if found. Chrysler Group will supplement this response and produce an additional Enclosure 1 Microsoft Access 2000 table to include the available skid plate information for 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles.

Subparts I and J – Tow Hitches/Wiring Harnesses

The Subject Vehicles equipped with an optional trailer tow and/or wiring harness package are identified in Enclosure 1 by the following sales codes:

AHT: Trailer Tow Class IV
AHX: Trailer Tow Class IV
XFH: Trailer Tow Class IV
XFJ: Trailer Tow Class III
3YA: Trailer Tow Class IV
XFK: Wiring Harness – 7 Pin
XEY: Wiring Harness – Trailer Tow
AHC: Trailer Tow Prep

[1] The ADL sales code is packaged with the Up Country suspension AWE sales code on the Jeep Cherokee (XJ) and with the Off-Road Group AWL sales code on the Jeep Liberty (KJ).

Summary of Production Volumes

Chrysler Group notes that the production volumes for the 1993 - 1998 Jeep Grand Cherokee (ZJ) vehicles and the 1999 - 2004 Jeep Grand Cherokee (WJ) vehicles were previously indentified in Chrysler Group's October 15, 2010 submission to PE10-031, and then adjusted in the August 2, 2012 Supplemental Response to PE10-031 as follows:

Vehicle Type	MY Total
1993 - 1998 Jeep Grand Cherokee (ZJ)	1,506,288
1999 - 2004 Jeep Grand Cherokee (WJ)	1,462,619
Total Vehicle Volume = 2,968,907	

The production volumes for the 1993 - 2001 Jeep Cherokee (XJ) and 2002 - 2007 Jeep Liberty (KJ) vehicles that were manufactured for sale or lease in the United States are as follows:

Vehicle Type	MY Total
1993 - 2001 Jeep Cherokee (XJ)	1,218,349
2002 - 2007 Jeep Liberty (KJ)	973,111
Total Vehicle Volume = 2,191,460	

The production volume for the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles totaled 1,029,770.

2. State the number of each of the following, received by Chrysler, or of which Chrysler is otherwise aware, which relate to, or may relate to, the alleged defect in the subject vehicles:

a. Consumer complaints;
b. Field reports, including dealer field reports;
c. Reports involving a crash, fire, injury, or fatality, based on claims against the manufacturer involving a death or injury, and notices received by the manufacturer alleging that a death or injury was caused by a possible defect in a subject vehicle;
d. Property damage claims;

e. Third-party arbitration proceedings where Chrysler is or was a party to the arbitration; and
f. Lawsuits, both pending and closed, in which Chrysler is or was a defendant or codefendant.

For subparts "a" through "f" state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).

In addition, for items "c" through "f," provide a summary description of the alleged problem and causal and contributing factors and Chrysler's assessment of the problem, with a summary of the significant underlying facts and evidence including any and all photographic evidence, third-party post-crash/inspection reports, deposition materials, etc. For items "c" through "f" identify the parties to the action, as well as the caption, court, docket number, and date on which the complaint or other document initiating the action was filed, and details of the resolution of the matter.

Include reports in which the subject vehicle was struck in the rear by another vehicle, or the subject vehicle itself, through its own momentum or movement, struck another vehicle or object, such as a tree, pole, or bridge abutment. As used here, the term rear includes crashes in which the subject vehicle is struck by another vehicle, or strikes an object, at an angle that included the rear of the vehicle (i.e., clock points 5, 6, or 7), and is not limited to direct crashes to the rear of the subject vehicle. Fire reports where the ignition source was from other than the crash are responsive and are to be included in your response. Reports of fuel leaks or fires where no crash occurred, such as fuel leaks that occur in garages or from punctures from running over objects in the road (but unrelated to a crash), are not within the scope of this request. Also, reports in which the fuel leak or fire originated in the engine compartment area, or where the fire was caused by an electrical issue (e.g., dash wiring or seat heater) or from a non-vehicle related source (e.g., a lit cigarette, or a lit match), as opposed to a fuel leak, are also outside the scope of this request.

A2. The following summarizes the reports located by Chrysler Group that relate to, or may relate to, the alleged condition in the Subject Vehicles. Chrysler Group has conducted a reasonable and diligent search of records kept in the ordinary course of business for information responsive to this inquiry.

a. There are a total of 22 customer complaints (17 unique VINs).
b. There are 14 field reports.
c. There are 54 unique reports involving a fuel leak or fire.

d. There are no reports of alleged property damage.
e. There are no third-party arbitration proceedings.
f. There are 33 lawsuits (27 unique VINs) and 12 legal claims (5 unique VINs).

ODI sent Chrysler Group 15 VOQs[2] concerning the Subject Vehicles that it believes may be related to the inquiry. Fourteen of the VOQs reported that the vehicle was struck from the rear by another vehicle and a fuel leak or fire ensued. Chrysler Group notes that 9 of these 14 VOQs relate to lawsuits or customer complaints that are also included in the respective counts for those categories. The remaining VOQ provides insufficient information to discern whether it relates to the alleged defect as defined by NHTSA. Enclosure 3 includes Chrysler Group's summary and analysis of the VOQs.
The chart below summarizes the number of reports to Chrysler Group related to the Subject Vehicles, by category:

Subject Vehicles Population 5,160,367					
Category Description	**Customer Complaints (CAIRs)**	**Field Reports**	**Lawsuits and Claims**	**Notices**	**Total Unique VINs**
Fire After Vehicle is Struck from Rear by Another Vehicle	18	11	44	5	50
Fuel Leak After Vehicle is Struck from Rear by Another Vehicle With No Fire	4	3	1	0	4

One of the Subject Vehicles has been defined as the 1993 - 2001 Jeep Cherokee (XJ). As noted by Chrysler Group in its response to Q1, this Subject Vehicle was the continuation of a vehicle line that originated in the 1984 model year. The following summarizes the reports located by Chrysler Group that relate to, or may relate to, the alleged condition in the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ). Chrysler Group has conducted a reasonable and diligent search of records kept in the ordinary course of business for information responsive to this inquiry.

[2] As noted in the Opening Resumé, 2 of the 15 VOQs relate to the same incident.

a. There are a total of 3 customer complaints (1 unique VIN).[3]
b. There are no field reports.
c. There are 9 reports involving fuel leak or fire.
d. There are no reports of alleged property damage.
e. There are no third-party arbitrations.
f. There are 7 lawsuits (involving 7 unique VINs) and 1 legal claim.

The chart below summarizes the number of reports related to the 1984 - 1992 Jeep Cherokee (XJ), by category:

1984-1992 Jeep Cherokee (XJ) Population 1,029,770					
Category Description	**Customer Complaints (CAIRs)**	**Field Reports**	**Lawsuits and Claims**	**Notices**	**Total Unique VINs**
Fire After Vehicle is Struck from Rear by Another Vehicle	3	0	8	0	9
Fuel Leak After Vehicle is Struck from Rear by Another Vehicle With No Fire	0	0	0	0	0

With respect to the incidents identified in subparts (a), (c), and (f) above that were not previously disclosed in connection with PE10-031, see Enclosure 3 for summary descriptions of the crashes involving both the Subject Vehicles and the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ). Supporting back-up materials related to the causal and contributing factors for these incidents are included in Enclosure 3 to this submission. With respect to incidents involving the 1993 - 2004 Jeep Grand Cherokee that were part of Chrysler Group's submissions of October 15, 2010 and August 2, 2012, supporting back-up documents related to the causal and contributing factors were included in Enclosure 3 to those submissions.

[3] The pre-1992 calendar year customer complaint legacy data is believed to be incomplete.

Chrysler Group notes that there are four new Jeep Grand Cherokee inputs (Ditlow, Hartsel, Sculfort, and Santor) that were not part of the submission or supplemental submission made to PE10-031. Summaries of those inputs and supporting back-up documents are included in Enclosure 3 to this submission. In addition, Chrysler Group has created revised summaries for three Jeep Grand Cherokee incidents (Diez, Landrum, and Wood) based on additional information received since August 2012 or on additional information requested in this information request that was not included in the initial summaries.

Among the lawsuits identified in the preceding paragraph is a class action that was filed against Chrysler Group on behalf of registered owners of 1993 - 2004 Jeep Grand Cherokee vehicles, alleging defects in the design of the vehicles' fuel systems. Plaintiffs seek a court order compelling Chrysler Group to recall the vehicles. See Enclosure 3 for the complaint related to the class action. In addition, Clarence Ditlow of the Center for Auto Safety has written four letters to Chrysler Group alleging fuel system defects in the 1993 - 2004 Jeep Grand Cherokee. Upon the receipt of the first letter, Chrysler Group created a CAIR, to which the first letter and all subsequent letters were attached. See Enclosure 3 for the CAIR and attachments, which include the letters from Clarence Ditlow, along with a responding letter from Chrysler Group. Neither the class action lawsuit nor the Ditlow letters identified incidents not already reported to Chrysler Group, nor did they provide any new or different information concerning the incidents known to Chrysler Group.[4]

3. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 2, state the following information:

- **a. Chrysler's file number or other identifier used;**
- **b. The category of the item, as identified in Request No. 2 (i.e., consumer complaint, field report, etc.);**
- **c. Cause: 1) Whether the alleged defect occurred due to the failure of or damage to a subject component or 2) Chrysler's assessment of the cause of the fire or fuel leak, or 3) whether the alleged defect occurred due to an unknown, undetermined, or ambiguous causation.**
- **d. Vehicle owner or fleet name (and fleet contact person), address, and telephone number;**
- **e. Vehicle's VIN;**
- **f. Vehicle's model;**
- **g. Vehicle's model year;**
- **h. Vehicle's mileage at time of incident;**
- **i. Chrysler's estimate of the impact speed of the striking vehicle or object that contacted the rear of the subject vehicle;**

[4] The CAIR and class lawsuit are included in the Enclosure 2 Microsoft Access 2007 table, but because these inputs are not associated with a specific event or VIN, Enclosure 2 does not contain specific vehicle information for these two inputs.

j. The basis and/or analysis that substantiates the estimate provided in item i;
k. Incident date;
l. Report or claim date;
m. Whether a fire is alleged;
n. Whether property damage is alleged;
o. Number of alleged injuries, if any; and
p. Number of alleged fatalities, if any.

Provide this information in Microsoft Access 2007, or a compatible format, entitled "REQUEST NUMBER TWO DATA."

A3. The information requested in items (a) through (p) is provided in the detailed response to Q2, Enclosure 2, as part of a Microsoft Access 2007 table, and titled "REQUEST NUMBER TWO DATA." In addition, Chrysler Group is providing the information in items (a) through (p) for the 1984 - 1992 Jeep Cherokee (XJ) as part of a Microsoft Access 2007 table titled "1984-1992 DATA."

As noted above, in response to Q2 Chrysler Group is providing summary descriptions of additional incidents and available supporting back-up materials in Enclosure 3 to this submission. Enclosure 3 also includes the following:

- Summary of Q2 Inputs Related to EA12-005 Subject Vehicles; and
- Summary of Inputs Related to 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) Vehicles.

4. Produce copies of all documents related to each item within the scope of Request No. 2. The documents requested specifically include, but are not limited to, the following:

a. Any police reports relating to, or that may relate to, the crash, fuel leak or fire;
b. Any and all accident reconstruction reports and documents prepared by or for Chrysler or by or for any other party;
c. Any and all reports and exhibits related to the alleged defect prepared by expert witnesses in support of a claim against Chrysler or in anticipation of testimony in any state or federal proceeding in which Chrysler was a party;
d. Transcripts and/or video recordings and exhibits of any and all depositions of persons designated as experts in any state or Federal proceeding related the alleged defect in which Chrysler was a party;
e. Transcripts and/or video recordings of any and all depositions of Chrysler employees in any state or Federal proceeding relating to the alleged defect in which Chrysler was a party; and,

f. Any and all documents consulted, created, or relied upon by Chrysler supporting its characterization or conclusions related to the causation of any fuel related leak and/or fire related to the alleged defect.

Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method Chrysler used for organizing the documents.

A4. To the extent Chrysler Group's response to Q2 relates to 1993 - 2004 Jeep Grand Cherokee incidents that were reported in its initial and supplemental submissions to PE10-031, Chrysler Group refers to Enclosure 3 to those submissions for available documents responsive to subparts (a), (b), and (c) of this request. With respect to the previously-identified incidents, see Enclosure 3 for available documents responsive to subparts (d), (e), and (f). With respect to new incidents disclosed in response to Q2, see Enclosure 3 for available documents responsive to subparts (a) through (f). All documents are arranged in folders by the claimant name. Some of the deposition exhibits in Enclosure 3 have been submitted under separate cover to NHTSA's Chief Counsel with a request for confidential treatment.

5. Describe all assessments, analyses, tests, test results, design studies, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions") that relate to, or may relate to, the alleged defect in the subject vehicles, and including all development tests and all testing to Federal Motor Vehicle Safety Standard (FMVSS) No. 301, that have been conducted, are being conducted, are planned, or are being planned by, or for, Chrysler. For each such action, provide the following information:

a. Action title or identifier;
b. The actual or planned start date;
c. The actual or expected end date;
d. Brief summary of the subject and objective of the action;
e. Results and related documents for FMVSS 301 testing including video and photos;
f. Engineering group(s)/supplier(s) responsible for designing and for conducting the action; and
g. A brief summary of the findings and/or conclusions resulting from the action.

For each action identified, provide copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action.

A.5 Chrysler Group has searched for and reviewed the available historical design and development records for the Subject Vehicles in order to respond to this request. Some of the information sought by this request dates back to activities that occurred over 25 years ago, and many records are no longer available due to applicable document retention

requirements. Chrysler Group has also interviewed its current employees who have knowledge about the information sought in this request.

The following documents and information were determined to be responsive to this request:

A. Rear Impact 301 Testing

Chrysler Group adopts by reference its original and supplemental submissions to PE10-031 with regard to full-vehicle dynamic rear impact testing that was used to evaluate the fuel system integrity for the 1993 - 2004 Jeep Grand Cherokee vehicles, as well as the applicable FMVSS 301 compliance documentation.

Chrysler Group has also searched the available historical records and identified what is believed to be a complete collection of full-vehicle dynamic rear impact testing that was used to evaluate the fuel system integrity for the 1993 - 2001 Jeep Cherokee (XJ) and 2002 - 2007 Jeep Liberty (KJ) vehicles. For reasons stated elsewhere in this response, Chrysler Group believes it is necessary to also provide information relating to the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles. Also included in this collection is the applicable FMVSS 301 compliance documentation for these vehicles. The crash test documentation relating to the FMVSS 301 compliance is included in Enclosure 6A – 301 Compliance Crash Tests. The crash test documentation that was relied upon during the development of the fuel system is included in Enclosure 6B – 301 Developmental Crash Tests Conf Bus Info, which has been submitted under separate cover to NHTSA's Chief Counsel with a request for confidential treatment, and Enclosure 6B – 301 Developmental Crash Tests Public.

Chrysler Group has also created a chart that summarizes the available information on these vehicle crash tests, which is included as Enclosure 6C – Summary of 301 Crash Tests Conf Bus Info and Public. The information contained in this chart derives from the crash test documentation provided in Enclosures 6A and 6B, the available information about the test vehicle builds, and employee interviews. The FMVSS 301 compliance documentation is included in Enclosure 6D – 301 Compliance Documents. It should be noted that the compliance documentation references many, but not all, design changes that occurred from model year to model year. See Enclosure 7B for a more complete list of the design changes.

Chrysler Group has reviewed the historical collection of rear impact FMVSS 301 developmental and compliance testing that was conducted on the 1993 - 2001 Jeep Cherokee (XJ), 2002 - 2007 Jeep Liberty (KJ) and 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles. Upon review of the available test documentation and based upon employee interviews, Chrysler Group has confirmed that these vehicle exceeded the agency's performance requirements set forth in FMVSS 301. While FMVSS 301 allows for some measure of post-impact fuel leakage, it should be noted that the FMVSS 301

compliance crash test results in Enclosure 6A revealed that an internal performance objective of no leakage was achieved during the FMVSS 301 compliance testing.

B. Field Performance

Chrysler Group has located a FARS and state data study of the crash performance, including rear impact collisions resulting in fire, of the 1984-2001 Jeep Cherokee (XJ) that was prepared for a lawsuit (*Belli v. DaimlerChrysler Corporation*), which was previously identified in Chrysler Group's response to Q2 and Q3.[5] This study is included in Enclosure 6G – Wecker Report. The sworn testimony of the author of this report is contained in Enclosure 3.

Chrysler Group adopts by reference its original and supplemental submissions to PE10-031 with regard to several FARS studies and a state data analysis for the 1993 - 2004 Jeep Grand Cherokee vehicles. Also, in response to EA12-005, Chrysler Group has continued its efforts to study the publically available crash information to determine if the Subject Vehicles are more likely to experience a fire or fuel leak during a rear impact collision than peer vehicles. These studies include an analysis of FARS and NASS GES/CDS data (through 2010), which includes all three Subject Vehicles, the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles and a variety of light-duty passenger vehicles dating back to the 1984 model year. These studies are included in Enclosure 6F – FARS and NASS Analyses, which has been submitted under separate cover to NHTSA's Chief Counsel with a request for confidential treatment.

Also included in Enclosure 6F is a document entitled "Enclosure 6F - Fuel Tank Location Information – NHTSA 12-10-12 CONF BUS INFO.pdf, which has been submitted under separate cover to NHTSA's Chief Counsel with a request for confidential treatment. This document contains a listing of light-duty vehicles by make, model and model year and identifies, among other things, the fuel tank location and material composition for various light-duty vehicles dating back to the 1984 model year. This document updates and expands a similar listing that was previously submitted to the agency on October 1, 2012, entitled "Fuel Tank Location Information – NHTSA 9-21-12 CONF BUS INFO," which was submitted under separate cover to NHTSA's Chief Counsel with a request for confidential treatment.

Furthermore, Chrysler Group is currently conducting a field survey of certain light-duty vehicles that were equipped with fuel tanks located aft of the rear axle. The survey includes the collection of the same measurements sought in Q8, subparts (m) through (p), for the Subject Vehicles. This survey of other light-duty, aft axle fuel tank vehicles is ongoing, but the preliminary results of this survey are contained in Enclosure 6I – Peer Vehicle Measurement Study. The final results of this survey will be furnished to the agency upon completion.

[5] Chrysler Group notes that *Belli* involves a 1991 Jeep Cherokee (XJ).

The significance of the FARS and NASS studies, as well as the preliminary results of the fuel tank measurement field survey, will be discussed more fully in response to Q10.

C. Other Studies or Evaluations

Chrysler Group has located a fuel tank location survey that was prepared for a lawsuit (*Belli v. DaimlerChrysler Corporation*), which was previously identified in Chrysler Group's response to Q2 and Q3. This study is included in Enclosure 6H – Guenther Survey. The survey photographed and gathered information on 43 vans and sport-utility vehicles, including the side of the gas filler, the fuel tank location, whether the vehicle was 2WD or 4WD, and the measurements (in inches) of the rear axle to the rear face of the vehicle, the gas filler to the rear face of the vehicle, the bumper thickness, the rear face of the gas tank to the rear face of the vehicle, and the side of the gas tank to the side of the vehicle. The sworn testimony of the author of this report is contained in Enclosure 3.

6. Describe all modifications or changes made by, or on behalf of, Chrysler in the design, material composition, location, routing, manufacture, quality control, supply, or installation of the subject components and other components in close proximity ("close proximity" is defined as within a 6 inch radius from the external surface of any part of the subject components), from the start of production of the subject vehicles to date, which relate to, or may relate to, the alleged defect in the subject vehicles. Include all versions, routings, placements and designs of fuel filler hoses and associated components and brackets. Also include all changes in the location, orientation or material of the fuel tank. Also include non-subject components located near the subject components which have been or could be sources of impingement, piercing, puncturing or disconnection of the subject components in a rear impact crash (including, but not limited to the chassis or frame components, suspension components such as sway bars and track bars, differentials, tow hitch components, and all associated hardware, such as bolts and brackets). For each such modification or change, provide the following information:

- **a. The date or approximate date on which the modification or change was incorporated into vehicle production;**
- **b. A detailed description of the modification or change;**
- **c. The reason(s) for the modification or change;**
- **d. The part numbers (service and engineering) of the original component;**
- **e. The part number (service and engineering) of the modified component;**
- **f. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;**
- **g. When the modified component was made available as a service component;**
- **h. Whether the modified component can be interchanged with earlier production components;**
- **i. The supplier of each modified component; and,**

j. The models and model years of vehicles affected by the modification.

A6. Chrysler Group adopts by reference its original and supplemental submissions to PE10-031 with regard to the information sought by this request for the 1993 - 2004 Jeep Grand Cherokee vehicles.

Chrysler Group has searched for and reviewed the available historical design records for the 1993 - 2001 Jeep Cherokee (XJ) and 2002 - 2007 Jeep Liberty (KJ) vehicles. For reasons stated elsewhere in this response, Chrysler Group has included responsive information relating to the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles. Some of the information sought by this request dates back to activities that occurred over 25 years ago. Records that memorialize the design changes and modifications for the subject components (and other components within close proximity) are incomplete due to the applicable document retention requirements. Nevertheless, Chrysler Group has conducted a diligent search of the available historical records and has also interviewed current Chrysler Group employees who have knowledge about the information sought in this request.

Detailed change history information was no longer available for the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles; however, the overall design attributes of the fuel system are depicted in the materials produced in response to Q8, subpart (d), and are discussed in response to Q10.

Chrysler Group has created Enclosure 7B -- Subject Component Design History Conf Bus Info for the available engineering changes that occurred during production of the 1993 - 2001 Jeep Cherokee (XJ) and 2002 - 2007 Jeep Liberty (KJ) vehicles, which has been submitted under separate cover to NHTSA's Chief Counsel with a request for confidential treatment.

7. Produce copies of all documents that relate to, or may relate to, the alleged defect in the subject vehicles, that Chrysler has issued to any dealers, regional or zone offices, field offices, fleet purchasers, or other entities. This includes, but is not limited to, bulletins, advisories, informational documents, training documents, or other documents or communications, with the exception of standard shop manuals. Also include the latest draft copy of any communication that Chrysler is planning to issue within the next 120 business days.

A7. Chrysler Group adopts by reference its original and supplemental submissions to PE10-031 with regard to the information sought by this request for the 1993 - 2004 Jeep Grand Cherokee vehicles.

Chrysler Group did not issue to any dealer, regional office, field offices, fleet purchases, or other entities any documents that relate to or may relate to the alleged defect in the 1993 - 2001 Jeep Cherokee (XJ) and 2002 - 2007 Jeep Liberty (KJ) vehicles. Chrysler Group does not plan to release any such documents within the

next 120 days for any of the three Subject Vehicles or the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles.

Chrysler Group is producing information relating to Jeep Liberty (KJ) Safety Recall L27, which was initially issued in March 2012 and expanded in June 2012 to address approximately 346,900 2004-2007 Jeep Liberty (KJ) vehicles sold or registered in states where salt is used for snow removal. Some of the vehicles in the recall population may have been equipped with lower control arms that can experience a fracture due to excessive corrosion from exposure to road salts during winter weather conditions. A fracture of the rear lower control arm while driving may result in loss of vehicle control and lead to a crash. While Chrysler Group believes this condition is not related to the alleged defect, it is disclosing the recall because, in theory, a lower control arm could fracture before or during a rear collision and possibly damage fuel system components. Chrysler Group notes, however, that it is not aware of any instance where a corroded lower control arm fractured during a rear impact crash event and caused a fire or fuel leak.

Enclosure 5 -- Recall L27 contains a copy of the Safety Recall L27 dealer service bulletin.

8. For each subject vehicle model and model year, provide the following:

a. Model, model year, and platform designation (e.g., ZJ, WJ, etc.);
b. Type of material the fuel tank is composed of (e.g., HDPE plastic);
c. Side, rear, and top view drawings showing the placement of the subject components and related components that secure them in the vehicle;
d. A bottom view drawing or photograph showing the full vehicle undercarriage in the fully built configuration including the locations of the subject components.
e. Overall length of vehicle (in/cm);
f. Wheel base (in/cm);
g. Track width (in/cm);
h. Curb weight (lb/kg);
i. Gross vehicle weight rating (lb/kg);
j. Front gross axle weight rating (lb/kg);
k. Rear gross axle weight rating (lb/kg);
l. Interior volume (passenger and storage area);
m. Horizontal distance (in/cm) from aft most point of the rear axle to forward most point of the fuel tank;
n. Horizontal distance (in/cm) from aft most point of the fuel tank to the aft most point of the vehicle's rear bumper;
o. Vertical distance (in/cm) from bottom/lower most surface of the fuel tank to bottom/lower most surface of vehicle's rear bumper at center line position (positive value indicates the tank surface is above bumper, negative value below the bumper);

p. Vertical distance (in/cm) from the ground/road surface to the bottom/lower surface of i) the vehicle's rear bumper at center line position, and ii) the vehicle's tow hitch at center line position (when equipped with a tow hitch);

q. If not originally equipped with, whether or not a protective guard for the fuel tank was optionally available, and if so, the part number of the optionally available protective guard; and

r. Whether the vehicle was equipped with an ORVR/Onboard Refueling Vapor Recovery system.

Where a significant production change has occurred within a model year (e.g., a change in fuel tank material) provide additional detail to describe the change and when (production date and VIN range) it was implemented. Where a response is applicable to multiple models or model years (e.g., photos or drawings of subject components) provide a single response and refer to it as required. If a response involves multiple or varying values (e.g., curb weights, GVWR, GAWR), provide minimum and maximum values and/or a range of expected values. Also provide expected tolerances (e.g., dimensional, weight, etc.) if applicable. Lastly, provide Chrysler's assessment of makes and models that were direct market competitors (or peers) to each model and model year subject vehicle (i.e., provide the competitor make and model names), and explain Chrysler's rationale for identifying these vehicles as competitors.

A8. Chrysler Group has searched for and reviewed the available historical design records for the Subject Vehicles. Some of the information sought by this request dates back to activities that occurred nearly 25 years ago. Records that memorialize each design variation of the Subject Vehicles are incomplete due to the applicable document retention requirements. Nevertheless, Chrysler Group has conducted a diligent search of the available historical records and has also interviewed current Chrysler Group employees who have knowledge about the information sought in this request.

Chrysler Group adopts by reference its original and supplemental submissions to PE10-031 with regard to the information sought by this request for the 1993 - 2004 Jeep Grand Cherokee vehicles.

Subparts A-D:

With respect to the fuel tank material composition, the following summarizes the materials used for the 1993 - 2001 Jeep Cherokee (XJ) and 2002 - 2007 Jeep Liberty (KJ) Subject Vehicles:

- 1993 - 1996 Jeep Cherokee (XJ): Stamped steel fuel tank
- 1997 Jeep Cherokee (XJ): Monolayer High Density Polyethylene (HDPE)
- 1998 - 2001 Jeep Cherokee (XJ): Coextruded High Density Polyethylene (HDPE)

- 2002 - 2007 Jeep Liberty (KJ): Coextruded High Density Polyethylene (HDPE)

Vehicles with Coextruded High Density Polyethylene (HDPE) fuel tanks were constructed as follows:

Layer 1: (Inner layer): HDPE
Layer 2: Polyethylene adhesive
Layer 3: Ethylene Vinyl Alcohol (EVOH) barrier layer
Layer 4: Polyethylene adhesive
Layer 5: HDPE Regrind
Layer 6: (outside layer): HDPE

For reasons stated elsewhere in this response, Chrysler Group has included responsive information relating to the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles, as follows:

1984 - 1992 Jeep Cherokee (XJ): Stamped steel fuel tank

The following is also being provided for the 1993 - 2001 Jeep Cherokee (XJ) and 2002 - 2007 Jeep Liberty (KJ) vehicles:

- Enclosure 8B – Subject Vehicle Graphics Conf Bus Info, which has been submitted under separate cover to NHTSA's Chief Counsel with a request for confidential treatment. The graphics in this enclosure depict the fuel system components in relation to each other as well as their placement.

- Enclosure 8C – Underbody Photographs contains photographs of the undercarriage for each model year that are representative of the Subject Components' design and packaging (e.g., the 2007 Jeep Liberty (KJ) is represented by photographs of the 2006 model year). For reasons stated elsewhere in this response, Chrysler Group has included responsive information relating to the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles.

Subparts E-L:

The dimensional, weight and axle weight rating information sought in these subparts for all Subject Vehicles is contained in Enclosure 8A - Subject Vehicle Weights and Measurements. For reasons stated elsewhere in this response, Chrysler Group has included responsive information relating to the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles, which is also included in Enclosure 8A. The information contained in Enclosure 8A was obtained from the available sales and other vehicle build literature that was published by the manufacturers.

Subparts M-P:

The measurement information sought in these subparts for all Subject Vehicles is contained in Enclosure 8D - Subject Vehicle Component Proximity Measurements. For reasons stated elsewhere in this response, Chrysler Group has included responsive information relating to the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles, which is also included in Enclosure 8D. The measurements in Enclosure 8D were obtained by actually measuring representative exemplar vehicles.

Subpart Q:

The information sought in this subpart is contained in Enclosure - 4 Subject Vehicle Skid Plate Summary, as well as in response to Q1, subpart (h), above. For reasons stated elsewhere in this response, Chrysler Group has included responsive information relating to the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles, which is also included in Enclosure 4 and in response to Q1, subpart (h), above.

Subpart R:

The 1993 - 2001 Jeep Cherokee (XJ) vehicles were not equipped with an ORVR (Onboard Refueling Vapor Recovery) system. The remaining Subject Vehicles were equipped with ORVR systems, as follows:

- 2002 - 2004 Jeep Grand Cherokee (WJ)
- 2002 - 2007 Jeep Liberty (KJ)

For reasons stated elsewhere in this response, Chrysler Group has included responsive information relating to the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles. These vehicles were not equipped with an ORVR system.

Subject Vehicle Market Competitors

The agency has requested that Chrysler Group identify what the company believes to be “direct market competitors (or peers)” for each of the 27 make, model and model year Subject Vehicles. Chrysler Group assumes the agency is seeking this information to help it identify the make, model and model year vehicles that can reasonably be considered “peer vehicles” for purposes of evaluating, among other things, whether or not the Subject Vehicles contain a performance-related defect. Chrysler Group believes, however, that “direct market competitors” and “peer” vehicles have distinctly different meanings for purposes of this investigation.

Chrysler Group did not market or sell any of the Subject Vehicles. However, it understands that defining “direct market competitors” in any given model year can result from the combination of many different *subjective* variables that appeal to buyers, and then identifying other vehicles that match these subjective variables to

arrive at a list of "market competitors." These subjective variables include, among other things, pricing, buyer demographics and vehicle attributes that are completely unrelated to crashworthiness (e.g., fuel economy, load carrying, seating and towing capacities, trim levels, etc.). More importantly, these subjective market variables have absolutely *nothing* to do with similarities in design that can affect the performance of the fuel system in a rear impact crash. Moreover, these subjective market variables can produce a list of "direct market competitors" that include completely different vehicle types. For example, Chrysler Group has reviewed a small sample of the available 1990's marketing literature for Jeep Grand Cherokee (ZJ) vehicles, which listed "Imported and Domestic Luxury Cars" among other sport utility vehicles as the "Competition." For similar era Jeep Cherokee (XJ) vehicles, the literature also identified "Midsize Pick-up Trucks" and "Imported and Domestic Passenger Cars" among the "Competition."

Chrysler Group believes that the identification of "direct market competitor" vehicles will not serve to identify an appropriate group of "peer" vehicles in this investigation from which fuel system design or performance comparisons can be made. Rather, Chrysler Group believes that an appropriate performance comparison can only be made by identifying an appropriate set of *objective variables* that relate *specifically* to fuel system performance in a rear crash. Chrysler Group believes the appropriate *objective variables* needed to define the peer vehicles in this investigation should include: 1) model years; 2) vehicle type; and 3) fuel tank location.

As will be discussed more thoroughly in response to Q10, Chrysler Group has studied the field data for fuel system integrity performance in a rear impact on a wide range of vehicle model years (as far back as the 1984 model year), vehicle types (light-duty passenger vehicles and SUVs) and fuel tank locations (mid-ship and aft axle). From this study it is apparent that fuel system integrity performance in a rear impact differs depending upon these objective variables. It is also apparent that the Subject Vehicles' fuel system integrity performance is no different in a rear impact than peer vehicles of a similar model year range, type and fuel tank location. These peer vehicles are all light-duty vehicles equipped with aft axle tanks and in production from the 1984 model year forward. These peer vehicles are identified in Enclosure 6F in a file called "Fuel Tank Location Information – NHTSA 12-10-12 CONF BUS INFO." These peer vehicles are also included in the analysis of FARS and NASS GES/CDS data, which is included in Enclosure 6F – FARS and NASS Analyses.

9. Provide information on each unique version of skid guard, brush guard, or other protective guard manufactured, marketed, or sold by Chrysler intended for use with the subject vehicle fuel tank and installed either as original equipment, or available as optional equipment. For each unique version of guard, provide the following information:

a. The part number (both service and engineering) of the guard;
b. Whether it was offered as original equipment, optional equipment, or both;
c. A drawing or photograph of the guard;
d. If an optional guard, the date or approximate date on which it was offered for sale;
e. If an optional guard, the model year(s) of vehicles on which it could be installed;
f. If an optional guard, the total number of guards sold, by part number and month of sale;
g. Whether the guard was withdrawn from production and/or sale, and if so, when;
h. Whether the guard can be interchanged with other versions, and if so, the part numbers of the interchangeable guard; and
i. The name and address of the supplier of the guard;

Also, provide the above information for any new or modified version of the guard that Chrysler is aware of which may be offered for sale within the next 120 days.

A9. Chrysler Group adopts by reference its original and supplemental submissions to PE10-031 with regard to the information sought by this request for the 1993 - 2004 Jeep Grand Cherokee vehicles.

The below subpart responses apply to the 1993 - 2001 Jeep Cherokee (XJ) and 2002 - 2007 Jeep Liberty (KJ) vehicles. The below subpart responses also apply to 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles.

Subpart A:

Enclosure 4 -- Subject Skid Plate Summary Public contains a summary of skid plate part numbers.

Subpart B:

Information responsive to this subpart is contained in the production data provided in Enclosure 1 as a Microsoft Access 2007 table, titled “SUBJECT VEHICLE PRODUCTION DATA.” Enclosure 1 contains the information sought by this subpart.

Subpart C:

Enclosure - 4 Subject Vehicle Skid Plate Summary Conf Bus Info contains a copy of the available skid plate assembly drawings, which has been sent to the NHTSA Chief Counsel’s Office with a request for confidential treatment.

Subparts D-E:

The information sought in these subparts is contained in Enclosure - 4 Subject Vehicle Skid Plate Summary Public, as well as in response to Q1, subpart (h), above.

Subpart F:

Enclosure 4 – Skid Plate Assembly Monthly Part Sales contains the available information sought by this request. Due to record retention requirements, part sales data is no longer available after five calendar years from the month of sale.

Subparts G-H:

Enclosure - 4 Subject Vehicle Skid Plate Summary Public contains a summary of the skid plate part numbers and the availability by model and model year.

Subpart I:

The suppliers for the optional skid plates are as follows:

- 1993 – 2001 Jeep Cherokee (XJ) skid plate supplier:

  Flexible Metal, Inc.
  7495 East M36
  Hamburg, MI 48139

- 2002 – 2007 Jeep Liberty (KJ) skid plate supplier:

  SKD Company
  1450 W. Long Lake Road, Suite 210 Bldg. 4
  Troy, MI 48098

Records no longer exist to enable Chrysler Group to identify the skid plate supplier for the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles. It is likely, however, that the skid plate supplier was Flexible Metal, Inc.

Chrysler Group has no plans within the next 120 days to make available for sale any new or modified version of a skid plate, brush guard or other protective guard for the Subject Vehicles or the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles.

10. Furnish Chrysler's assessment of the alleged defect in the subject vehicles, including:

a. The causal or contributory factor(s);
b. The failure mechanism(s);
c. The failure mode(s);
d. The risks to motor vehicle safety that it poses; and
e. The reports included with this inquiry.

A10. Chrysler Group adopts by reference its original and supplemental submissions to PE10-031 in response to this request. As noted in response to Q2 through Q4 above, with respect to the Jeep Grand Cherokee Subject Vehicles, Chrysler Group has provided updated information about the previously known reports of rear impact fuel leak and fire, as well as reports received following its August 2, 2012 supplemental response to PE10-031. No additional design and development information has been identified relating to the Subject Components in the Jeep Grand Cherokee.

Chrysler Group has also provided the available information requested for two additional Subject Vehicles, 1993 - 2001 Jeep Cherokee (XJ) and 2002 - 2007 Jeep Liberty (KJ). For reasons stated elsewhere in this response, Chrysler Group has included responsive information relating to the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles.

Chrysler Group has undertaken an extensive review of the design and development history of the fuel systems in the two additional Subject Vehicles. Like the Jeep Grand Cherokee, it is apparent that sound engineering judgment and due care were used in the design, development and manufacture of the fuel systems for the two additional Subject Vehicles. This due care is further evidenced by the Subject Vehicles' compliance with FMVSS 301, the standard by which fuel system integrity is measured before a new vehicle can be sold in the United States. In short, Chrysler Group has not identified evidence of a safety-related defect in the design or manufacture of any of the Subject Vehicles at the time they left the factory.

Definition of the Alleged Defect

In its Information Request, the agency has defined the alleged defect as follows:

> A fire or liquid fuel leak occurring during or after the subject vehicle experienced an impact to the rear of the vehicle, regardless of what the subject vehicle was struck by (e.g., another vehicle, a pole, tree, or bridge abutment, etc.).

Chrysler Group does not believe the agency intended to suggest by this definition that any vehicle experiencing a fuel leak or fire in a rear impact is defective or poses an unreasonable risk to motor vehicle safety. To the contrary, as Chrysler Group

noted in response to PE10-031, FMVSS 301 allows for some measure of post-impact fuel leakage, which is recognition that fuel leakage can occur, even during impact speeds required for compliance. Moreover, in its commentary in the opening resume for PE10-031, the agency acknowledged that the 10 Vehicle Owner Questionnaires (VOQs) it received regarding Jeep Grand Cherokee rear impact fires did not, alone, evidence a defect trend.[6] As the agency and the industry have long known, impact related fires and fuel leaks are an unfortunate, but rare circumstance that can occur during a collision.

In the absence of an identifiable design or manufacturing defect, as is the case with the Subject Vehicles, an analysis of the alleged defect turns not on whether post-collision fires have *occurred*; rather, under like circumstances, whether fires have occurred at disproportionate rates in the Subject Vehicles compared to its peers. For reasons discussed below, such an analysis by Chrysler Group has led to the conclusion that the Subject Vehicles are neither defective nor do their fuel systems pose an unreasonable risk to motor vehicle safety in rear impact collisions.

A. Subject Vehicles' Fuel System Designs

All three Subject Vehicles, as well as the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles, were light-duty vehicles manufactured with the fuel tank aft of the rear axle. The design of the fuel tanks, along with the vehicle structure surrounding the fuel tanks, including body cross members and frame rails, provide protection in collisions, including rear impact collisions.

As Chrysler Group stated in PE10-031 and bears repeating, the decision to locate the fuel tank behind the rear axle in light-duty vehicles has long been recognized by the agency and the industry to be a reasonable design choice based on a number of factors, including vehicle use, function and packaging. Short wheelbase vehicles, like the Subject Vehicles, often have less space between the front and rear axles for placing components such as the fuel tank. Furthermore, robust four-wheel drive vehicles require driveline components, such as front and rear propeller shafts and transfer cases, that compete for space between the front and rear axles. Off-road maneuverability, including "high centering," is an important design attribute when packaging the fuel system components for sport utility vehicles.

The design of the fuel tanks of the Subject Vehicles, along with the vehicle structure surrounding the fuel tanks, including body cross members and frame rails, provide protection in collisions, including rear impact collisions.

[6] "Of the 12 [VOQ] reports, 10 involved fires (two involved fuel leaks only) with 9 alleged injuries and 1 alleged fatality. The existence of these post-crash fires does not, by itself, establish a defect trend." Opening Resume PE10-031.

These and other factors make the decision to place the fuel tank behind the rear axle a reasonable design choice, a fact the agency acknowledged when it rejected calls during FMVSS 301 rulemaking to require manufacturers to place fuel tanks ahead of the rear axle:

> *We are not proposing to require manufacturers to place each vehicle's fuel tank forward of the rear axle as suggested by Advocates. We believe such a requirement is unnecessary and would be design restrictive. We note that the fuel tank of the 1996 Ford Mustang, which passed the proposed rear impact test requirement, is located behind the rear axle. We believe that this test demonstrates that structural and component design is a more critical factor than fuel tank location in maintaining fuel system integrity.*

65 Fed. Reg. 67693, 67701, Notice of Proposed Rulemaking - Fuel System Integrity, Docket NHTSA-00-8248 (November 13, 2000). Three years later, the agency issued a Final Rule upgrading the rear and side impact procedures of FMVSS 301 (68 Fed. Reg. 67068, December 1, 2003), and reiterated its conclusion that a requirement to place the fuel tank forward of the rear axle "would be unnecessary and too design restrictive." *Id.*, at 67071.

The fuel system design strategies applied in the Subject Vehicles were not developed in a vacuum; rather, it was the result of more than a 70 year history of designing automobiles with the fuel tank aft of the rear axle. Chrysler Group notes that the overall design strategy for providing impact-related fuel system integrity is fairly represented in the graphical and photo depictions of the Subject Vehicles, as well as the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles, in Enclosure 8B – Subject Vehicle Graphics Conf Bus Info and Enclosure 8C – Underbody Photographs.

The overall design strategy that was implemented in the Subject Vehicles to minimize fuel leakage and fire in a rear impact was validated in a series of FMVSS 301 compliance testing through the life of the Subject Vehicles (*see* Enclosure 6A – 301 Compliance Crash Tests). The agency established FMVSS 301 to define the performance requirements for fuel systems in various crash modes, including rear impacts. During relevant times, FMVSS 301 required that the vehicle's fuel system survive a 30 mph rear impact by a 4,000 LB moving barrier. Even to this day, FMVSS 301 allows for some measure of post-impact fuel leakage, which is recognition that fuel leakage can occur – *even during impact speeds required for compliance*. As noted in response to Q6, Chrysler Group has studied the manufacturers' historical record of FMVSS 301 rear impact tests and confirmed that the Subject Vehicles all exceeded the agency's rear impact performance requirements. The FMVSS 301 compliance crash test results in Enclosure 6A reveal that an internal performance objective of no leakage was *always* achieved during the manufacturers' compliance testing for all Subject Vehicles.

Below is a summary of the fuel system integrity design attributes for the Subject Vehicles.

1. 1993 - 2004 Jeep Grand Cherokee (ZJ, WJ)

Chrysler Group adopts by reference its original and supplemental submissions to PE10-031 in response to Q6, Q8 and Q10 regarding the design and development of the fuel system for the Jeep Grand Cherokee vehicles and no additional design and development information has been identified. Chrysler Group continues to believe that sound engineering judgment and due care were used in the design, development and manufacture of the fuel systems in these vehicles before they were sold to the public. Based upon a review of the historical design and development record, there is no evidence of a design or manufacturing defect in fuel systems of the 1993 - 2004 Jeep Grand Cherokee vehicles.

2. 1993 - 2001 Jeep Cherokee (XJ)

As discussed in response to Q1, the 1993 - 2001 Jeep Cherokee (XJ) was actually the continuation of a vehicle line – the XJ body – that originated in the 1984 model year and, through the 1987 model year, was designed and assembled by Jeep Corporation, a wholly owned subsidiary of American Motors Corporation ("AMC"). This vehicle remained in production until it was discontinued at the end of the 2001 model year. Also, from the 1984 - 1990 model years, the XJ body vehicle shared two model designations – the Jeep Cherokee (XJ) and the Jeep Wagoneer (XJ) – and they differed only in non-functional trim levels. After the 1990 model year, the Jeep Wagoneer (XJ) was discontinued and the XJ body continued to be produced through the 2001 model year, but only as a Jeep Cherokee (XJ).

The 1993 - 2001 Jeep Cherokee (XJ) vehicles contained many of the same or substantially similar design attributes, parts and/or components with the prior 1984 - 1992 model year XJ vehicles, including the chassis, body and/or fuel system, as is evidenced by the design and development materials produced in response Q5, Q6, Q8 and Q9. Many of the Subject Components – the fuel storage system, including the fuel tank, fuel filler hose, fuel filler neck, interconnecting devices, and related components – were the same or substantially similar from 1984 through 1996. According to available records, as well as inspection and measurement of exemplar vehicles, the XJ body vehicles were equipped with a welded two-piece steel tank for the 1984 through 1996 model years. The shell of the tank appears not to have changed its shape, location or material throughout those 13 model years.

For the 1997 model year through the end of production in the 2001 model year, the XJ body vehicles were equipped with a new fuel system that included a new 20 gallon HDPE tank, in order to meet EPA permeability and evaporative emissions requirements. The tank material construction was monolayer HDPE for the 1997

model year. To meet anticipated and more stringent emissions requirements, tank material construction changed to co-extruded HDPE for the 1998 through 2001 model years, but the tank shape, dimensions and location remained the same. Many of the chassis, body and powertrain components also carried over from the pre-1993 to post-1993 model year XJ body vehicles. Chrysler Group notes that the overall packaging and design strategy for providing impact-related fuel system integrity is fairly represented in the graphical and photo depictions of the XJ body vehicles in Enclosure 8B – Subject Vehicle Graphics Conf Bus Info and Enclosure 8C – Underbody Photographs.

Based upon a review of the historical design and development record, there is no evidence of a design or manufacturing defect in the fuel system of the 1993 - 2001 Jeep Cherokee (XJ) and the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles.

3. 2002 - 2007 Jeep Liberty (KJ)

The Jeep Liberty (KJ) vehicle was first introduced by DaimlerChrysler Corporation for the 2002 model year and was in production for five years. In order to meet the EPA permeability and evaporative emissions requirements, the Jeep Liberty (KJ) was always equipped with both a co-extruded HDPE plastic molded fuel tank and an Onboard Refueling Vapor Recovery System (ORVR).

Although the overall fuel tank mold dimensions and geometry remained the same throughout the life of the vehicle, the vapor space was optimimzed in 2004 to allow for greater fuel capacity (18.5 to 19.5 gallons). Beginning in 2005, a double banana shaped bump (into the tank) and two rectangular bumps (out of the tank) on the outboard side of the fuel tank straps allowed for 20.5 gallons of fuel capacity, improved fuel pump module robustness and a more precise low fuel light warning indication. A diesel fuel system was developed for the Jeep Libery (KJ) and offered for sale in the U.S. market only in the 2005 model year. The fuel tank is common between the 2005 model year gasoline and diesel engines.

Chrysler Group notes that the overall packaging and design strategy for providing impact-related fuel system integrity is fairly represented in the graphical and photo depictions of the 2002 - 2007 Jeep Liberty (KJ) vehicles in Enclosure 8B – Subject Vehicle Graphics Conf Bus Info and Enclosure 8C – Underbody Photographs. Enclosure 7B -- Subject Component Design History Conf Bus Info contains the engineering changes that occurred during production of the 2002 - 2007 Jeep Liberty (KJ) vehicles.

Based upon a review of the historical design and development record, there is no evidence of a design or manufacturing defect in fuel system of the 2002 - 2007 Jeep Liberty (KJ) vehicles.

4. Peer Vehicle Measurement Study

As noted in response to Q5, Chrysler Group is currently conducting a field survey of certain light-duty vehicles that were equipped with fuel tanks located aft of the rear axle. The survey includes the collection of the same measurements sought in Q8, subparts (m) through (p), for the Subject Vehicles. This survey of other light-duty, aft axle fuel tank vehicles is ongoing, but the preliminary results of this survey are contained in Enclosure 6I – Peer Vehicle Measurement Study. These preliminary results demonstrate that the fuel tank positioning in the Subject Vehicles – relative to surrounding components and bumper height – is comparable to other SUVs with aft axle fuel tanks. The final results of this survey will be furnished to the agency upon completion.

Based upon an extensive review of the manufacturers' available design and development history for all Subject Vehicles and the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles, Chrysler Group has concluded that:

1. All vehicles exceeded the requirements of FMVSS 301– Fuel System Integrity; and
2. There is no evidence of a design or manufacturing defect in the fuel systems of these vehicles.

B. Subject Vehicles' Field Performance

Chrysler Group has studied over two decades of internal and publically available crash information to determine if the Subject Vehicles are more likely to experience a fire or fuel leak during a rear impact collision than peer vehicles. Below is a brief review of the field performance analysis that was conducted in PE10-031 on the 1993-2004 Jeep Grand Cherokee vehicles. This is followed by an update on the internal data for the Jeep Grand Cherokee, a review of the Jeep Cherokee and Liberty internal data and new, more comprehensive FARS and NASS data analysis for all three EA12-005 Subject Vehicles.

1. PE10-031: Jeep Grand Cherokee Field Performance Studies

   a. Internal Data

In PE10-031, Chrysler Group identified 23 reported crashes from its internal records that may relate to the alleged defect. These reports were received over the past 18 years through legal claims, customer complaints, or other notices. Most of the vehicles were inspected and an investigation was conducted to determine whether the post-collision fire could be attributed to a design or manufacturing defect. In each such instance, no defect was identified. The details of each of these crashes were provided in Enclosure 3 to Chrysler Group's October 15, 2010 IR response. In short, the number of incidents of rear impact collisions of 1993-2004 Jeep Grand Cherokee vehicles resulting in fire is extremely small, especially when compared to

the Jeep Grand Cherokee vehicle population (23/2,968,914 or .0000077). All of the incidents that Chrysler Group had sufficient information to analyze were high energy rear end collisions involving severe crash forces that are substantially greater than the energy associated with the applicable FMVSS 301 standard. Of the incidents where Chrysler Group was able to inspect the Jeep Grand Cherokee after the accident, there was no evidence that the vehicle's fuel system did not perform as intended and there was no design or manufacturing defect. Because of the severe nature of crash forces, no fuel system design in any vehicle could reasonably be expected to guarantee against fuel leakage or fire.

b. State Data Analysis

During PE10-031, Chrysler Group also analyzed 21,322 crashes from three states where rear collision events resulted in a tow-away in 1993 - 2004 Jeep Grand Cherokee or certain peer vehicles. The 1993 - 2004 Jeep Grand Cherokee vehicles were involved in 4,752 of these crashes with only 9 reports of fire. The peer vehicles experienced similarly low rates of tow-away rear impact events involving a fire, as noted in the table below.

Vehicle Family	**Number of Rear Impact Tow-Away Impacts**	**Number Resulting in Fire**	**Percentage Resulting in Fire**
Chevy Blazer	5216	17	0.33%
Ford Explorer	5927	16	0.27%
Toyota 4Runner	1624	4	0.25%
Jeep Grand Cherokee	4752	9	0.19%

c. FARS Data Analysis

Chrysler Group also engaged in a 20 month comprehensive review of FARS data during PE10-031. As noted in its original and supplemental response to Q5, Chrysler Group studied over 16 years of FARS data, which was included in Enclosure 6F – FARS and State Crash Data Analysis. In its November 12, 2010 submission, Chrysler Group initially submitted a FARS analysis that was based upon the following criteria: 1) rear impact events (5, 6, or 7 o'clock positions; 2) where fire was the Most Harmful Event (MHE); and 3) where the fatality occurred in the subject vehicle. This analysis was conducted using the 2008 calendar year FARS data and compared the 1993 - 2004 Jeep Grand Cherokee to eight peer SUV vehicles. The data submitted in November of 2010 demonstrated that the rates of fatal rear impacts involving fires that were identified as the MHE in Jeep Grand Cherokee vehicles were comparable to its peers.

Following this November 12, 2010 submission, Chrysler Group continued its analysis of field data and conducted two additional FARS data analyses:

- A study that looked at FARS data through 2009 using an expanded search criteria, which was produced to ODI in May, 2011; and

- A study similar to the May, 2011 FARS study noted above, but updated with FARS data through 2010. This FARS study was discussed with the agency on February 3, 2012 and a copy was provided to the agency on February 14, 2012, which was entitled "1993-2004 MY Grand Cherokee Chrysler's Analysis of FARS Data (Updated with 2010 FARS Data)." Moreover, the underlying 2010 FARS data discussed in the analysis was provided in a spreadsheet entitled "FARS_92-10_Crash_data_Summary_and_Case_ Numbers QC2-10-201 – CBI.xlsx." These documents were submitted to the agency on February 14, 2012 under separate cover to NHTSA Chief Counsel's Office with a request for confidential treatment.

In its May, 2011 analysis, Chrysler Group expanded its FARS search criteria to also include: 1) fatal rollover events involving any fire (i.e., where fire was and was not identified as the Most Harmful Event) in the subject and peer vehicles; and 2) incremental fatal rear impact events involving any fire in the subject and peer vehicles where the fatality may have occurred in any other vehicle involved in the crash. This analysis was conducted using the 2009 calendar year FARS data and was submitted to ODI in May, 2011. Since then, Chrysler Group updated this FARS analysis to include the then recently released 2010 calendar year FARS data using the same search criteria. This updated analysis was discussed with the agency on February 3, 2012 and, as noted above, a copy was provided to the agency on February 14, 2012 (including the underlying FARS data).[7]

An analysis of each data source – whether internal data, FARS data or state data – revealed two common themes: 1) rear impact events that result in fires are extremely rare and almost always involve rear impacts so severe that no fuel system design in any vehicle could reasonably be expected to guarantee against fuel leakage or fire; and 2) that the 1993-2004 Jeep Grand Cherokee vehicles are no more likely to experience fire in a rear impact collision than the peer vehicles.

[7] At the time of Chrysler Group's November 12, 2010 submission, NHTSA's FARS database included 12 FARS cases that, as coded, met the criteria of ODI's definition of the alleged defect. Four of the 12 FARS cases appear to be unrelated to the alleged defect. Nevertheless, they were included in all of Chrysler Group's FARS statistical data analyses. Chrysler Group's analysis of these 4 FARS cases is contained in a document entitled "Analysis of FARS Cases.pdf," which was submitted on November 12, 2010 in a folder entitled "Enclosure 6F – FARS and State Crash Data Analysis" (Bates page numbers PE10-031-Chrysler-005501 through 005503).

2. EA12-005: Subject Vehicle Field Performance Studies

a. Internal Data

Jeep Grand Cherokee: Chrysler Group has provided an analysis of 23 incidents involving 1993 - 2004 Jeep Grand Cherokee (ZJ/WJ) vehicles in its November 12, 2010 IR response to PE10-031. Chrysler Group has updated its analysis of the incidents involving 1993 – 2004 Jeep Grand Cherokee (ZJ/WJ) vehicles for its EA12-005 IR response to include four additional incidents (now totaling 27) that have been identified since Chrysler Group's November 12, 2010 response or fit the expanded scope of the alleged defect contained in this information request. As part of this update, additional requested information has been provided, including Chrysler Group's estimate of the impact speed of the striking vehicle or object that is sought in Q3(i) and Q3(j). Of the 27 incidents, 22 had sufficient information to allow an identification of the striking vehicle and a determination of the impact speed of the striking vehicle or object. The table below depicts the distribution of the 22 incidents by vehicle type (mass) and the impact speed of the striking vehicle.

1993 – 2004 Jeep Grand Cherokee (ZJ/WJ)

Vehicle Type (Mass)	Impact Speed of Striking Vehicle (MPH)						
	0-30	>30-35	>35-40	>40-45	>45-50	>50-60	>60
Small						1[8]	1
Mid Sized						2	
Large Car					1	1	2
Minivan/SUV/Truck				1		4	5
HD Truck/Bus						2	2

As the table reflects, all of the incidents involved striking vehicle impact velocities above 40 mph and were extremely high energy rear impacts that resulted in severe crash forces that are substantially greater than the energy associated with the applicable FMVSS 301 requirements. Of the 22 incidents, 18 involved striking vehicles with relatively large masses, including tractor/trailers, busses, pickup trucks, SUVs, minivans and large cars, that likely increased the crash forces acting on the Jeep Grand Cherokee vehicles.

[8] This incident involved a unique set of focused crash forces when a motorcycle impacted a non-Mopar, aftermarket Class 1 Light-Duty trailer hitch on the Jeep Grand Cherokee that punctured the fuel tank.

Jeep Liberty: There were 18 incidents involving 2002 - 2007 Jeep Liberty (KJ) vehicles that may relate to the alleged defect. Of the 18, 10 have sufficient information to allow an identification of the striking vehicle and a determination of the impact speed of the striking vehicle. The relatively large number of incidents where it was not possible to identify a striking vehicle or a determination of the striking vehicle impact speed is because, in part, these incidents involved minor or no injuries and resulted in customer complaints with little or no investigation performed beyond a vehicle inspection. In a number of these incidents, police reports were unavailable.

The table below depicts the distribution of the 10 incidents by vehicle type (mass) and impact speed of the striking vehicle:

2002-2007 Jeep Liberty (KJ)							
Vehicle Type (Mass)	Impact Speed of Striking Vehicle (MPH)						
	0-30	>30-35	>35-40	>40-45	>45-50	>50-60	>60
Small			1				
Mid Sized			1				2
Large Car							
Minivan/SUV/Truck		1				1	1
HD Truck/Bus	1*					1	1

*See footnote 9, below.

As the table reflects, almost all of the incidents involved striking vehicle impact speeds above 35-40 mph and were high energy impacts that resulted in severe crash forces. As with the other Subject Vehicles, in a number of the incidents, as a result of the initial rear impact, the Jeep Liberty (KJ) was pushed into the rear of the vehicle in front of it while the striking vehicle was still in contact with the Jeep Liberty (KJ). This interposition of the Jeep Liberty (KJ) between the two vehicles increased the crash forces acting on the Jeep Liberty (KJ). One incident, at a lower relative impact velocity, involved a rear end collision by a dump truck that caused the Jeep Liberty (KJ) to ride up a concrete median barrier where the damage to the fuel system was a result of the undercarriage of the Jeep Liberty (KJ) sliding along the top of the median barrier.[9]

[9] Hampton – Chrysler Group concluded that fuel system damage occurred while the vehicle undercarriage slid along the concrete median barrier not during rear impact. See the Hampton incident summary in Enclosure 3.

1993 - 2001 Jeep Cherokee: There were nine incidents involving 1993 - 2001 Jeep Cherokee (XJ) vehicles that may relate to the alleged defect. Of the nine, eight had sufficient information to allow an identification of the striking vehicle and a determination of the impact speed of the striking vehicle. The table below depicts the distribution of the eight incidents by vehicle type and impact speed of the striking vehicle:

1993 – 2001 Jeep Cherokee (XJ)							
Vehicle Type (Mass)	Impact Speed of Striking Vehicle (MPH)						
	0-30	>30-35	>35-40	>40-45	>45-50	>50-60	>60
Small						1	
Mid Sized				1			
Large Car							
Minivan/SUV/Truck						3	3
HD Truck/Bus							

As the table reflects, all of the incidents involved striking vehicle impact speeds above 40 mph and all but one involved impact speeds above 50 mph. All were extremely high energy impacts that resulted in severe crash forces. Most of the incidents involved striking vehicles with relatively large masses, including pickup trucks and SUVs, that likely increased the crash forces acting on the Jeep Cherokee (XJ) vehicles.

1984 - 1992 Jeep Cherokee/Wagoneer: Chrysler Group has also analyzed incidents involving the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles that may relate to the alleged defect. Of the nine incidents, six have sufficient information to allow an identification of the striking vehicle and a determination of the impact speed of the striking vehicle. The table below depicts the distribution of the six incidents by vehicle type and impact speed of the striking vehicle.

1984 – 1992 Jeep Cherokee (XJ)							
Vehicle Type (Mass)	Impact Speed of Striking Vehicle (MPH)						
	0-30	>30-35	>35-40	>40-45	>45-50	>50-60	>60
Small		1			1		
Mid Sized						1	
Large Car							1
Minivan/SUV/Truck						1	
HD Truck/Bus		1					

As the above table illustrates, most of the incidents involved striking vehicle impact speeds above 45 mph and all of the incidents were high energy impacts that resulted in severe crash forces. One incident, involving a 30-35 mph striking vehicle impact speed, involved a garbage truck where it was reported by police and witnesses that the trash lifting forks on the front of the truck were in a lowered position and may have contributed to the fuel system damage.[10] In a number of the rear impacts, the Jeep Cherokee was pushed into the rear of another vehicle while the striking vehicle was still impacting the Jeep Cherokee from the rear. This interposition of the Jeep Cherokee between the two vehicles increased the crash forces acting on the Jeep Cherokee. Of the three incidents where there is insufficient information to determine the relative impact velocity, 2 were reported to the manufacturer before 1991 and Chrysler Group has found no additional useful information.

In summary, 54 rear impact collisions involving Subject Vehicle fuel leaks or fires were reported to either the vehicle manufacturers or Chrysler Group over a span of nearly three decades. These 54 crashes occurred in a population of over 5 *million vehicles* that were on the U.S. roads for over *50 million registered vehicle years* and driven over *500 billion miles*.[11] Of the 54 incidents, Chrysler Group has sufficient information to analyze the striking vehicle impact speed in 40 crash events, all of which involved high energy, rear impact collisions generally characterized by high striking vehicle impact speeds (greater than 30 mph) and/or relatively large mass striking vehicles. Almost all of these events (36 out of 40) involved striking vehicle impact velocities in excess of 40 mph, with some incidents as high as 70-80 mph. The only incident involving a striking vehicle impact speed below 30 mph can be distinguished from the other incidents.[12] Of the incidents where a vehicle inspection

[10] See the DeTuccio incident summary in Enclosure 3.

[11] The registered vehicle years for the Subject Vehicles were 50,541,172, according to RL Polk CY 1984-2011. Mileage calculation assumes the vehicle was driven an average of 10,000 miles per year, for a total estimated 505,411,720,000 miles driven.

[12] 'The Hampton incident involved a rear impact by a garbage truck did not cause the fuel system damage.

was possible, there was no evidence that the vehicle's fuel system was compromised because of a design or manufacturing defect.

b. FARS and NASS Data Analysis

1. The Value of FARS, NASS GES and NASS CDS Data

It is apparent that the performance of a vehicle's fuel system in any given crash mode can be influenced, among many other factors, by the location of the fuel tank location. Given the unpredictability, complexity and variety of real-world crash modes, it is essentially impossible to predict whether one fuel tank location will be better than another location in any given crash. However, when millions of vehicles are used for billions of trips, such as the Subject Vehicles, the study of real-world crash data can reveal *statistically significant differences* in vehicle performance. Conversely, the study of real-world crash data can also reveal that the performance of a group of vehicles is *statistically indistinguishable* from another group of vehicles with which they share similar design attributes and exposure in the field.

The Subject Vehicles have accumulated more than 50 million years in service and, during that time, have been involved in more than 600,000 tow-away crashes. This cumulative real-world exposure allows for an extensive and rigorous evaluation of the safety performance of the Subject Vehicles. If they have a safety-related fuel system performance defect, it can be detected by an analysis of systematically collected crash data. Conversely, if such an analysis reveals no such performance defect, then it does not exist.

Accordingly, Chrysler Group has analyzed the safety performance of the Subject Vehicles as reflected in the FARS, NASS GES, and NASS CDS databases, including the occurrence of fire in rear-impact crashes. The FARS data analyzed by Chrysler Group is a census of fatal accidents representing the performance of the Subject Vehicles and comparable vehicles in the most severe accidents. The NASS GES tow-away accident data analyzed by Chrysler Group represents the performance of these vehicle groups in a much broader universe of less severe, but still potentially serious accidents. Finally, the NASS CDS data allow Chrysler Group to focus its analysis on post-collision fires specifically identified as originating at the fuel tank. The crash information recorded in these databases reflects a complex interaction between vehicle design factors, driver factors, environmental factors, and pure chance. Thus, this information is not the product of vehicle design factors alone, and the results of analyzing them cannot be interpreted as reflecting vehicle design factors alone. In particular, these snapshots of crashes are, in part, the product of chance. Any apparent difference in the performance of vehicle groups being compared must be measured against the potential magnitude of differences caused by chance alone to avoid mistaking mere sampling "noise" for a signal of real differences. In its analysis, Chrysler Group consistently employed the standard statistical methods for calculating "95% confidence intervals" to represent the potential magnitude of differences caused by chance alone.

The two NASS databases add to this already complex mix of factors another probabilistic element; the accidents they record are a small random sample from a much larger universe of accidents potentially eligible to be included in the NASS data. Thus, any analysis of the NASS data must account for sampling error, i.e., for the degree of possible discrepancy between the result of analyzing the sampled data and the result that would have been obtained from analyzing a census of the source population of the sample, had it been available for analysis. Even a full accounting for this source of sampling error does not account for the full effect of chance on the NASS data; however, since the source population of crashes from which the NASS data are drawn is itself in part the product of chance (as is the population of crashes recorded in the FARS database). Accordingly, the "standard errors" provided to account for the sampling error built into the NASS samples do not fully account for the effect of chance on the NASS data. In fact, 95% confidence intervals encompassing the combination of sampling error and chance effects inherent in the underlying crash data would be even wider than those reported here for the analysis of NASS data, which represent sampling error alone. Chrysler Group's analysis of the NASS data is, therefore, *conservative*.

2. Selection of Peer Vehicles for Performance Comparisons

As discussed more thoroughly in response to Q8, Chrysler Group believes that the peer vehicles used for performance comparisons should be selected by the following objective criteria: 1) light-duty vehicles; 2) vehicles equipped with aft axle tanks; and 3) vehicles in production from the 1984 model year forward. Chrysler Group came to this conclusion after studying the FARS and NASS data for fuel system performance in a rear impact on a wide range of model year vehicles (1984 forward), vehicle types (light-duty passenger vehicles and SUVs) and fuel tank locations (mid-ship and aft axle). From this study it is apparent that fuel system performance in a rear impact can differ depending upon fuel tank location, regardless of whether the light-duty vehicle is a SUV or passenger car, and even though these vehicles presumably all passed the same rear impact requirements of FMVSS 301- Fuel System Integrity.

The light-duty, aft axle tank peer vehicles are listed in Enclosure 6F in a file called "Fuel Tank Location Information – NHTSA 12-10-12 CONF BUS INFO.pdf" and identified by a column called "Tank Location" with the value of "Aft axle."

3. Inclusion of the 1984-1992 Jeep Cherokee/Wagoneer (XJ)

The agency did not include the 1984-1992 Jeep Cherokee/Wagoneer (XJ) as Subject Vehicles in this investigation. Chrysler Group believes, however, it is necessary to include the 1984-1992 Jeep Cherokee/Wagoneer (XJ) vehicles as a Subject Vehicle in any statistical analysis of field data. As discussed in response to Q1, the Subject Vehicle 1993 - 2001 Jeep Cherokee (XJ) was actually the continuation of a vehicle line – the XJ body – that originated in the 1984 model year and, through the 1987 model year. From

the 1984 through 1990 model years, the XJ body vehicle shared two model designations – the Jeep Cherokee (XJ) and the Jeep Wagoneer (XJ) – and they differed only in non-functional trim levels. After the 1990 model year, the Jeep Wagoneer (XJ) was discontinued and the XJ body continued to be produced through the 2001 model year, but only as a Jeep Cherokee (XJ).

The 1993 - 2001 Jeep Cherokee (XJ) vehicles contained many of the same or substantially similar design attributes, parts and/or components with the prior 1984 - 1992 model year XJ vehicles; most importantly, the fuel storage system -- including the fuel tank, fuel filler hose, fuel filler neck, interconnecting devices, and related components. (See Enclosure 8B – Subject Vehicle Graphics Conf Bus Info and Enclosure 8C – Underbody Photographs.) For purposes of this fuel system integrity investigation, the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) and 1993 - 2001 Jeep Cherokee (XJ) are, in effect, the same or substantially similar vehicles.

For the reasons stated above, Chrysler Group believes the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles should be included with the Subject Vehicles for analytical purposes. Chrysler Group has, however, analyzed the FARS and NASS data both *with* and *without* these earlier model Jeep Cherokee/Wagoneer (XJ) vehicles in the Subject Vehicles category.[13]

4. FARS and NASS Data Analysis and Findings

Chrysler Group has continued to study the publically available crash information to determine if the Subject Vehicles are more likely to experience a fire or fuel leak during a rear impact collision than peer vehicles. These studies include an analysis of FARS and NASS GES and CDS data (through 2010), which includes all three Subject Vehicles, the 1984 - 1992 Jeep Cherokee/Wagoneer (XJ) vehicles and light-duty passenger vehicles dating back to the 1984 model year.

Chrysler Group's complete FARS and NASS data analysis studies are included in Enclosure 6F – FARS and NASS Analyses Conf Bus Info. Important sections of the studies and key findings are discussed below.

[13] As described in the footnotes to the FARS and NASS slides in Enclosure 6F, the "Subject SUVs" columns include only the Subject Vehicles in this investigation (i.e., the 1993-2004 Jeep Grand Cherokee, 2002-2007 Jeep Liberty, and 1993-2001 Jeep Cherokee vehicles). When the 1984-1992 Jeep Cherokee/Wagoneer (XJ) data is combined with the Subject Vehicles data, the column grouping is called "Subject SUV Design."

a. All Collisions with Fire (by Vehicle Groups and Tank Location)

Figure 1, below, is an overview of the FARS data rates for fatal collisions with fire, *regardless of impact location*, for vehicles grouped by type (cars and SUVs) and fuel tank location (aft axle or midship). The vertical bars represent the makes, models and model year vehicles (including sister vehicles) that share a similar platform and fuel tank location.[14]

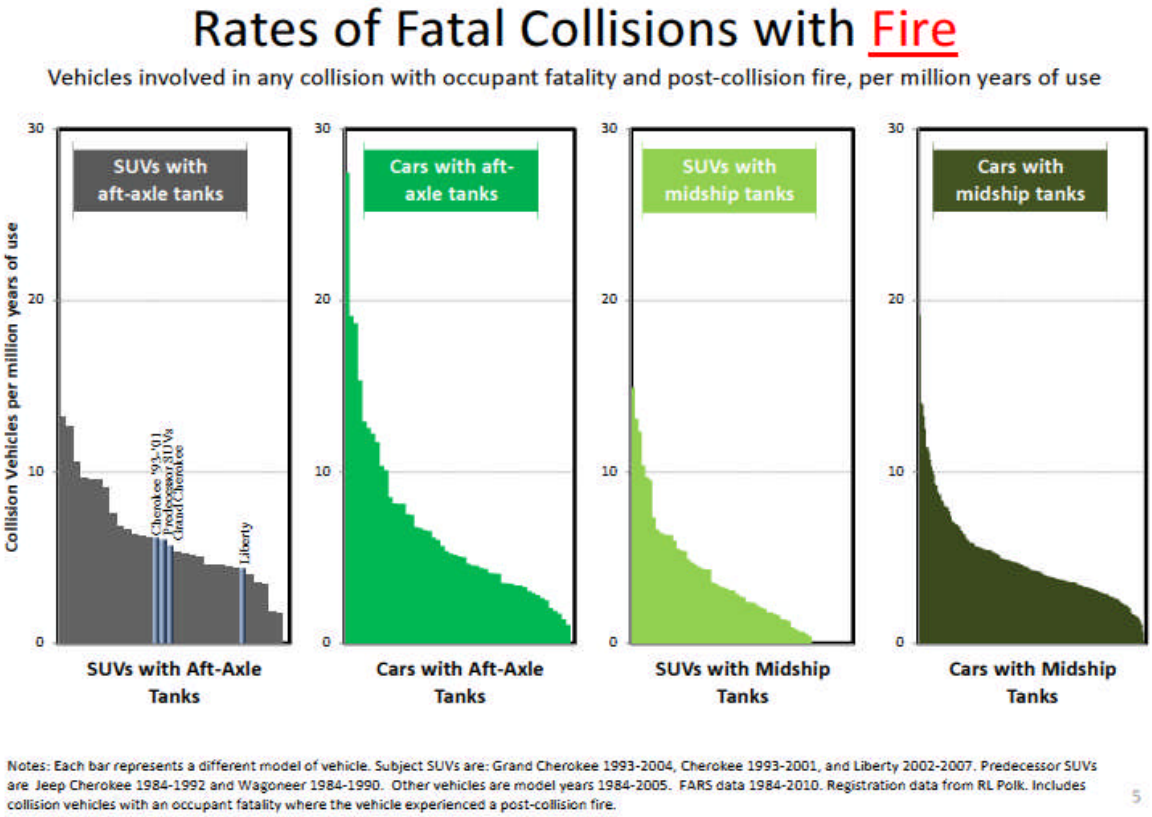


Figure 1 – FARS Fatal Collisions with Fire (Overview)

Figure 1 illustrates that the individual vehicle models have rates that vary *within* and *between* the four groupings, but the Subject Vehicles have rates that are neither the highest nor the lowest within their own group of "SUVs with Aft Axle Tanks" in the most severe (fatal) collisions. Moreover, the Subject Vehicles' rates are within the distribution range of the other light-duty vehicle groups.

[14] The term "Predecessor SUVs" in ***Figure 1*** and other slides refers to the 1984-1992 Jeep Cherokee/Wagoneer (XJ) vehicles.

Figure 2, below, includes the same vehicle type and tank location groupings that were depicted in ***Figure 1***, but presents the FARS data as a group *average* and applies 95% confidence bounds to each group.[15]

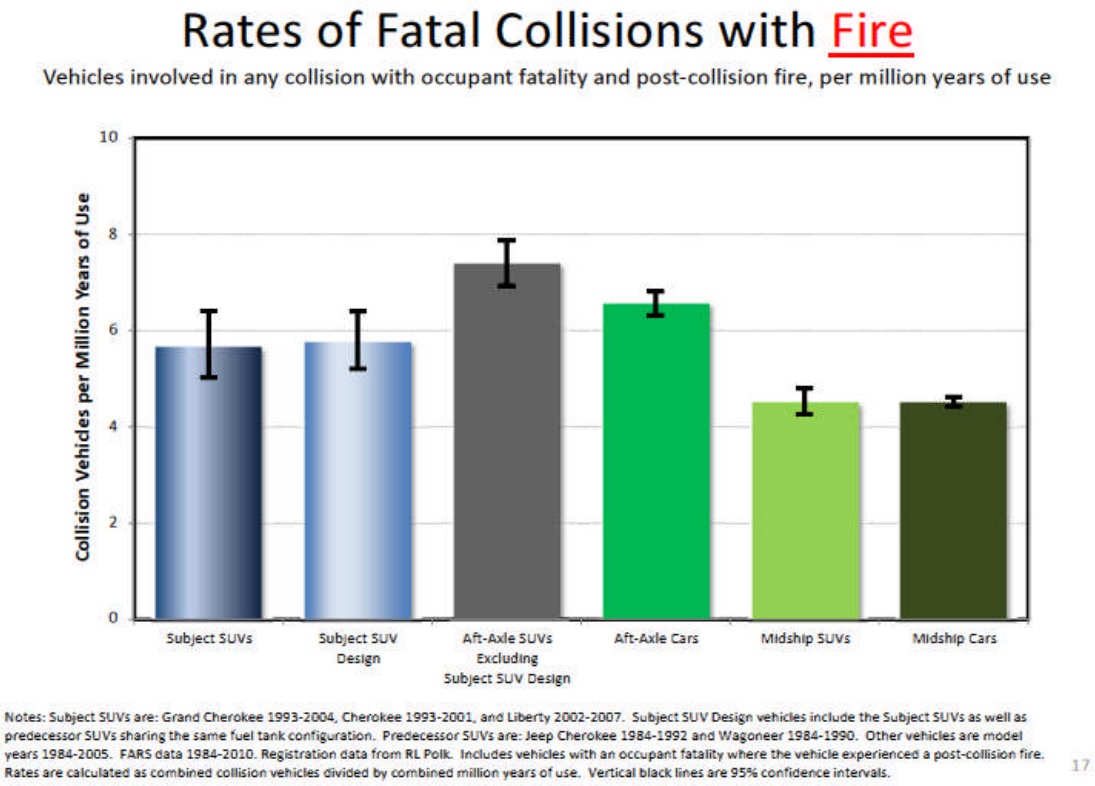


Figure 2 – FARS Fatal Collisions with Fire (Group Averages)

Figure 2 illustrates that, collectively and on average, the Subject Vehicles rate of fatal collisions with fire, *regardless of impact location*, are statistically significantly better than the average rates for the "Aft-Axle SUVs, Excluding the Subject SUVs" group.[16]

[15] As described in the footnotes to the FARS and NASS slides in Enclosure 6F, the "Subject SUVs" columns include only the Subject Vehicles in this investigation (i.e., the 1993-2004 Jeep Grand Cherokee, 2002-2007 Jeep Liberty, and 1993-2001 Jeep Cherokee vehicles). When the 1984-1992 Jeep Cherokee/Wagoneer (XJ) data is combined with the Subject Vehicles data, the column grouping is called "Subject SUV Design."

[16] Statistical significance between rates is calculated by comparing the 95% confidence intervals about those rates. If the 95% confidence intervals for two rates overlap, then the difference in these rates is statistically indistinguishable.

Figure 3, below, is an analysis similar to the FARS analysis in ***Figure 2,*** but instead uses NASS GES data and includes all fire-related collisions where the vehicle was *towed away* from the crash scene. 95% confidence bounds were also applied to each grouping.

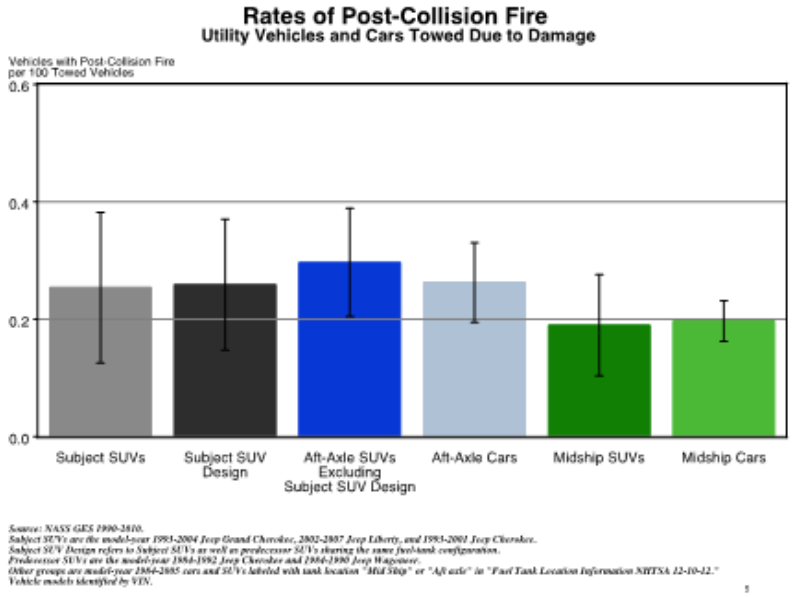


Figure 3 – NASS GES Tow Away Collisions with Fire

Figure 3 illustrates that the Subject Vehicles' rate of fatal collisions with fire, *regardless of impact location*, are statistically indistinguishable from the other groups of vehicles.

5. Rear Collisions with Fire (by Vehicle Group and Tank Location)

Figure 4, below, is an overview of the FARS data for rates of all *rear* fatal collisions with a fire, grouped by vehicle type (cars and SUVs) and fuel tank location (aft or midship). The vertical bars represent the makes, models and model year vehicles (including sister vehicles) that share a similar platform and fuel tank location.

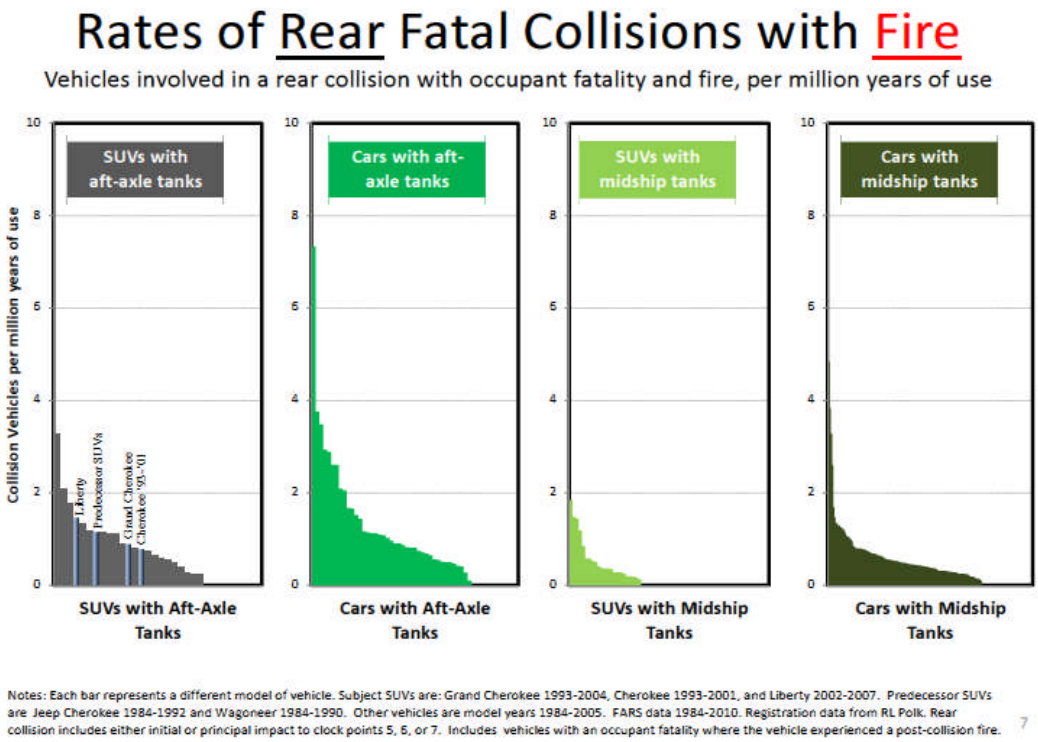


Figure 4 – FARS Fatal Rear Collisions with Fire (Overview)

Figure 4 illustrates that the individual vehicle models have rates that vary *within* and *between* the four groupings, but the Subject Vehicles have rates that are neither the highest nor the lowest within their own group of "SUVs with Aft Axle Tanks." Moreover, the Subject Vehicles' rates are within the distribution range of the other light-duty vehicle groups.

Figure 5, below, includes the same vehicle type and tank location groupings that were depicted in ***Figure 4***, but presents the FARS data as a group *average* and applies 95% confidence bounds to each group.

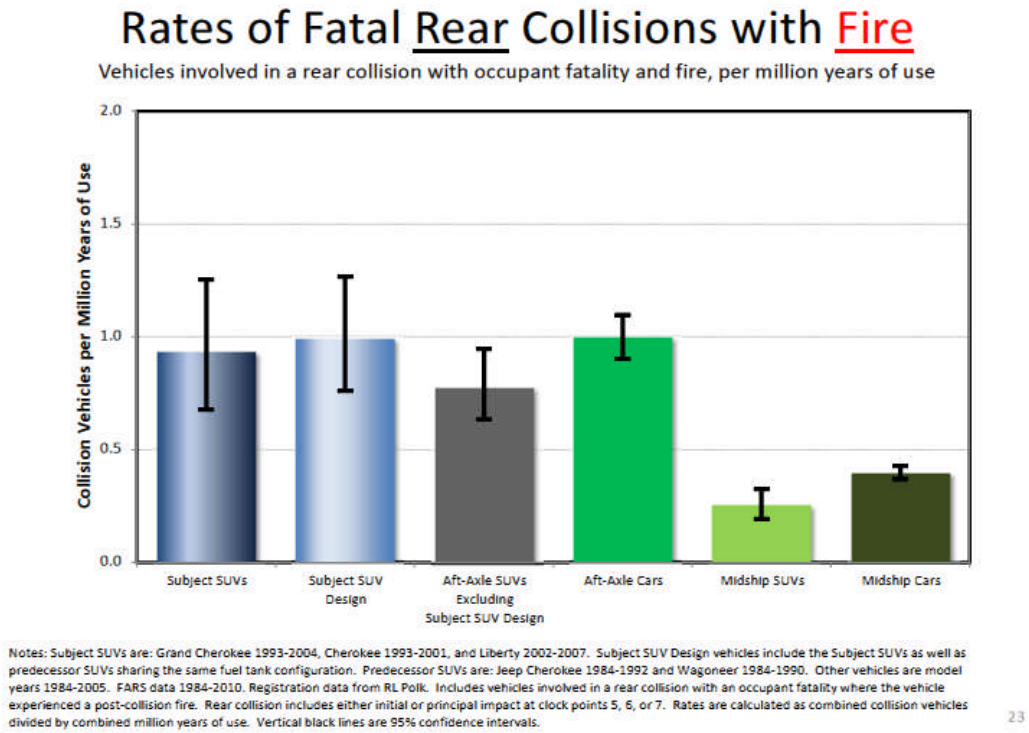


Figure 5 – FARS Fatal Rear Collisions with Fire (Group Averages)

Figure 5 illustrates that the Subject Vehicles have rates of fire-related rear collisions that are statistically indistinguishable from the average rates for SUVs with aft axle tanks or passenger cars with aft axle tanks.

Figures 6 and ***7***, below, used the same vehicle type and tank location groupings, but instead used NASS GES and NASS CDS as the data source and include all collisions where the vehicle was *towed away* from the crash scene (per Million Registered Vehicle Years). 95% confidence bounds are applied to each grouping.

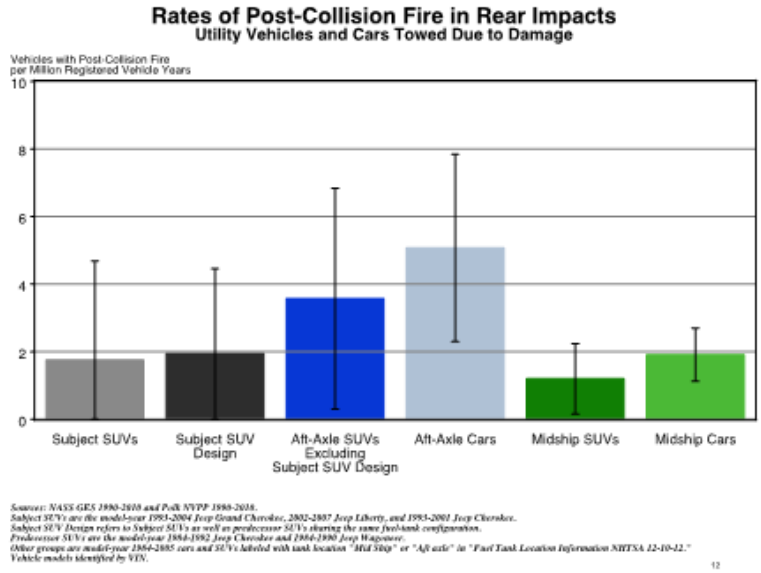


Figure 6 – NASS GES Tow Away Rear Collisions with Fire (by RVY)

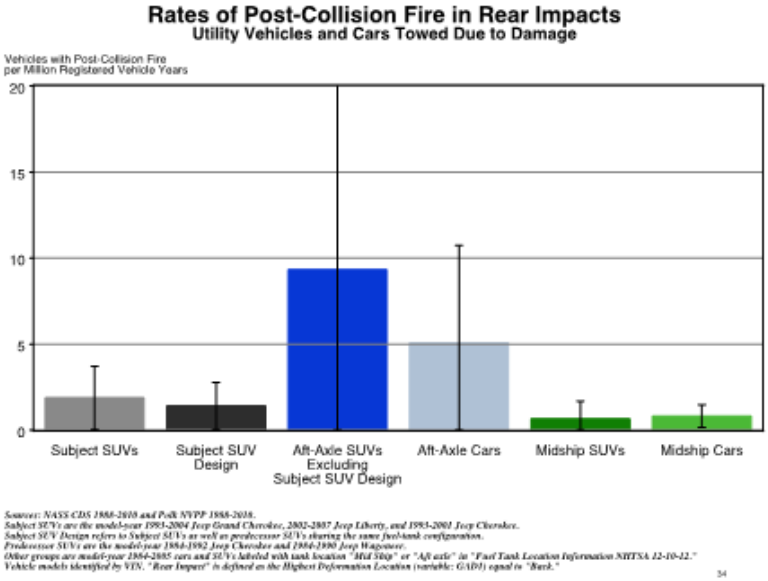


Figure 7 – NASS CDS Tow Away Rear Collisions with Fire (by RVY)

Figures 6 and 7, illustrate that the Million Registered Vehicle Year rates and prevalence of post-collision fire in rear impacts for the Subject Vehicles are comparable to or lower than those of other SUVs with aft axle tanks and statistically indistinguishable.

Figures 8 and **9**, below, uses the same vehicle type and tank location groupings, but instead uses NASS GES and NASS CDS as the data source and includes all collisions where the vehicle was *towed away* from the crash scene (per 100 Towed Vehicles). 95% confidence bounds are applied to each grouping.

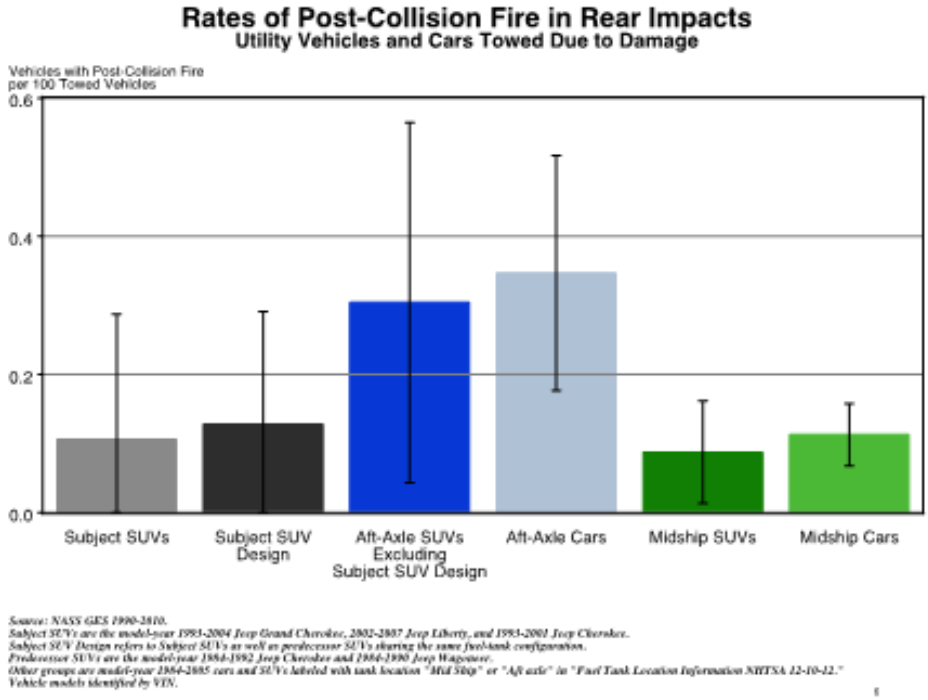


Figure 8 – NASS GES Tow Away Rear Collisions with Fire (per 100 Towed Vehicles)

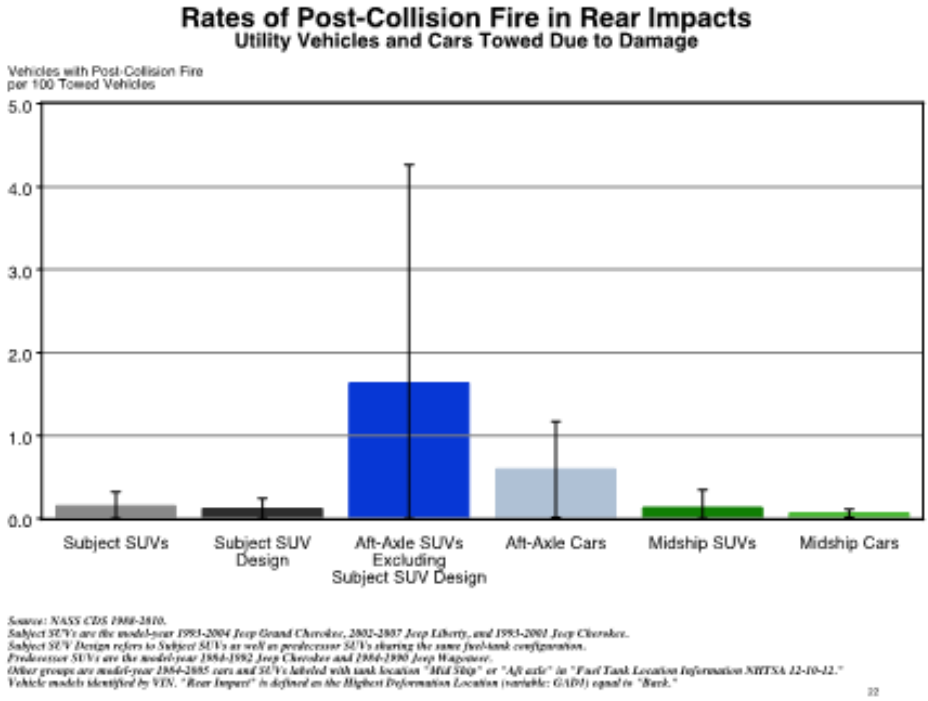


Figure 9 – NASS CDS Tow Away Rear Collisions with Fire (per 100 Towed Vehicles)

Figures 8 and **9**, illustrate that the per 100 Towed Vehicles rate and prevalence of post-collision fire in rear impacts for the Subject Vehicles are comparable to or lower than those of other SUVs with aft axle tanks and statistically indistinguishable.

6. Rear Collisions with Fire (by Vehicle Level and Tank Location)

Figure10, below, is an overview of the FARS data for rates of rear fatal collisions where there was a fire. This overview includes *all light-duty SUVs and passenger cars* with aft axle tanks. The vertical bars represent the makes, models and model year vehicles (including sister vehicles) that share a similar platform and fuel tank location. 95% confidence bounds are applied to each vehicle.

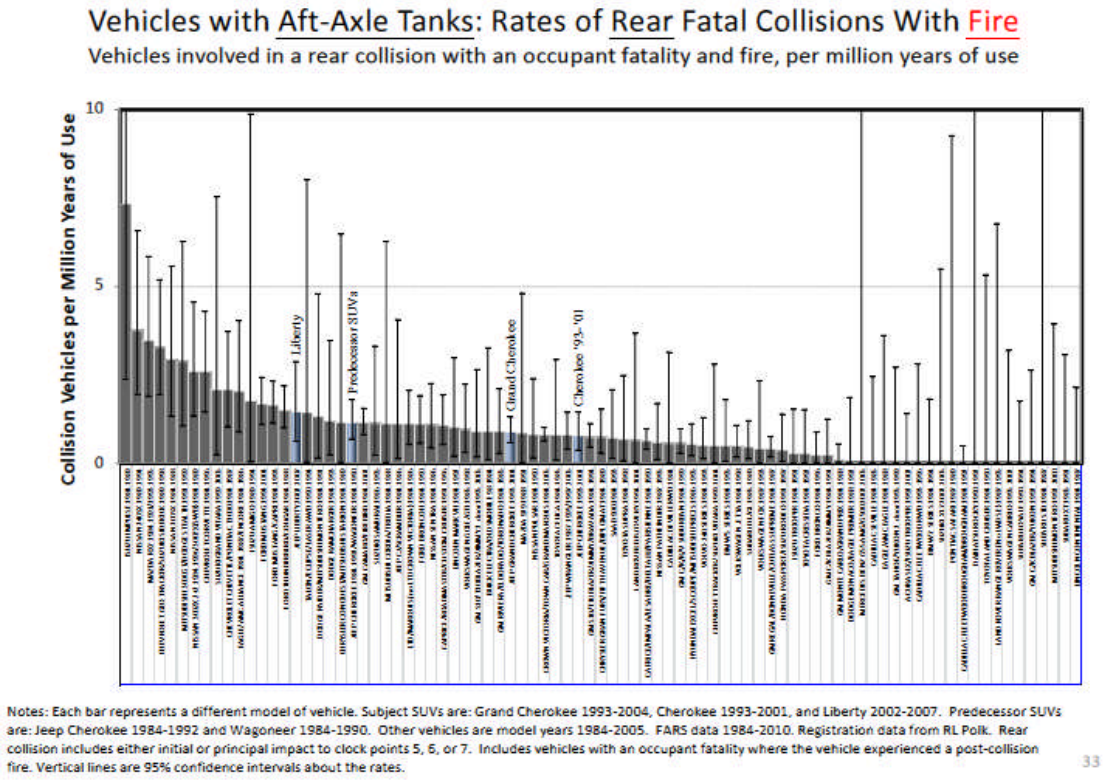


Figure 10 – FARS Fatal Collisions All Light-Duty Aft Axle Vehicles With 95% Confidence Bounds

Figure 10 illustrates that the Subject Vehicles have rates that are neither the highest nor the lowest among *all light-duty vehicles* with aft axle tanks. Moreover, the 95% confidence bounds demonstrate that Subject Vehicles' rates are statistically indistinguishable from the vast majority of all light-duty vehicles with aft axle tanks.

Figure 11, below, is an overview of the FARS data for rates of rear fatal collisions where there was a fire, but includes *only SUVs with aft axle tanks*. The vertical bars represent the makes, models and model year vehicles (including sister vehicles) that share a similar platform and fuel tank location. 95% confidence bounds are applied to each vehicle.

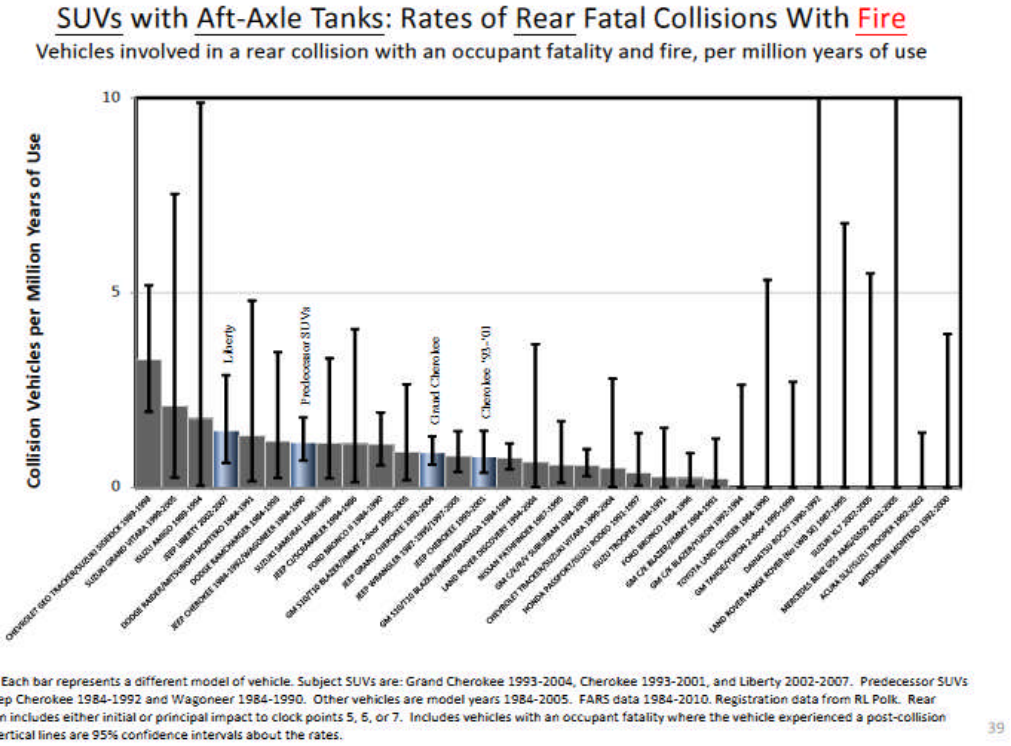
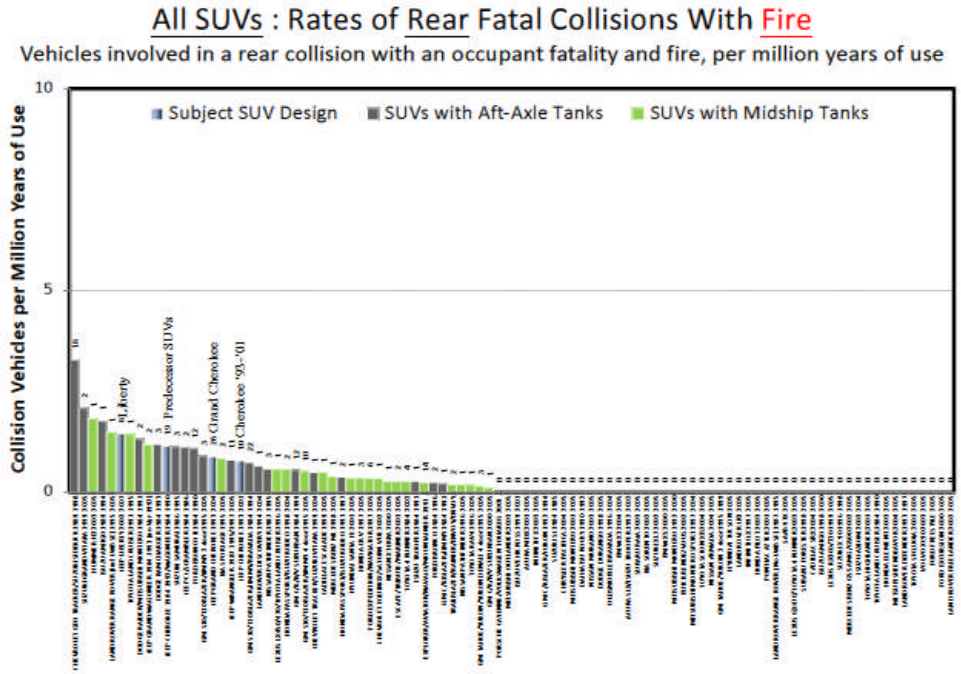


Figure 11 – FARS Fatal Collisions Aft Axle SUVs
With 95% Confidence Bounds

Figure 11 illustrates that the Subject Vehicles do not have the highest rates of rear collisions with occupant fatality accompanied by fire when compared with other SUVs with aft axle tanks. Moreover, the 95% confidence bounds demonstrate that Subject Vehicles rates are statistically indistinguishable from the other SUVs with aft axle tanks.

Figure 12, below, is an overview of the FARS data for rates of rear fatal collisions where there was a fire, but includes all *SUV, both with aft axle and midship tank locations*. The vertical bars represent the makes, models and model year vehicles (including sister vehicles) that share a similar platform and fuel tank location. ***Figure 13*** is the same overview with 95% confidence bounds applied to each vehicle.



Notes: Each bar represents a different model of vehicle. Subject SUVs are: Grand Cherokee 1993-2004, Cherokee 1993-2001, and Liberty 2002-2007. Subject SUV Design vehicles include the Subject SUVs as well as predecessor SUVs sharing the same fuel tank configuration. Predecessor SUVs are: Jeep Cherokee 1984-1992 and Wagoneer 1984-1990. Other vehicles are model years 1984-2005. FARS data 1984-2010. Registration data from RL Polk. Rear collision includes either initial or principal impact to clock points 5, 6, or 7. Includes vehicles with an occupant fatality where the vehicle experienced a post-collision fire. Numbers above bars are counts of fatal rear fires.

35

Figure12 – FARS Fatal Collisions ALL SUV Vehicles
Aft Axle and Midship Tank Location

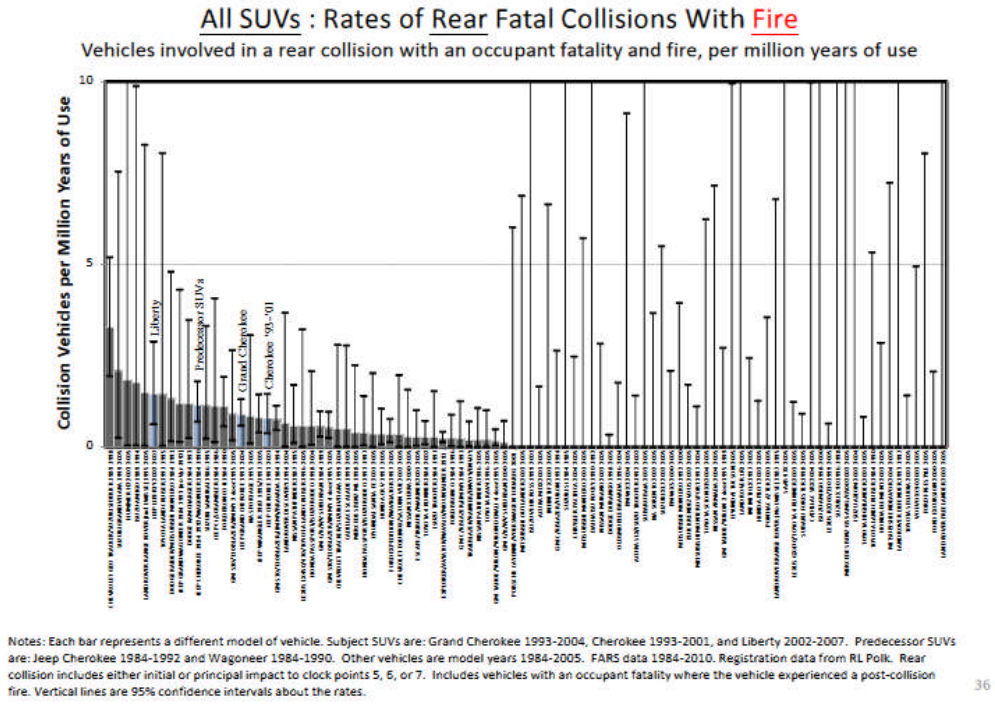


Figure 13 – FARS Fatal Collisions ALL SUV Vehicles
Aft Axle and Midship Tank Location
With 95% Confidence Bounds

Figures 12 and ***13*** illustrate that the Subject Vehicles have rates that are neither the highest nor the lowest among *all SUVs, regardless of tank location*. Moreover, the 95% confidence bounds demonstrate that Subject Vehicles rates are statistically indistinguishable from most other SUVs, regardless of tank location.

7. Rear Collisions with Fire - FARS 100 Light-Duty Vehicles

Figure 11, below, represents the 100 light-duty vehicles in FARS with the highest rates of rear collision with fire. The vertical bars represent the makes, models and model year vehicles (including sister vehicles) that share a similar platform and fuel tank location, which is color-coded by vehicle class and fuel tank location. ***Figure 12*** is the same overview with 95% confidence bounds applied to each vehicle.

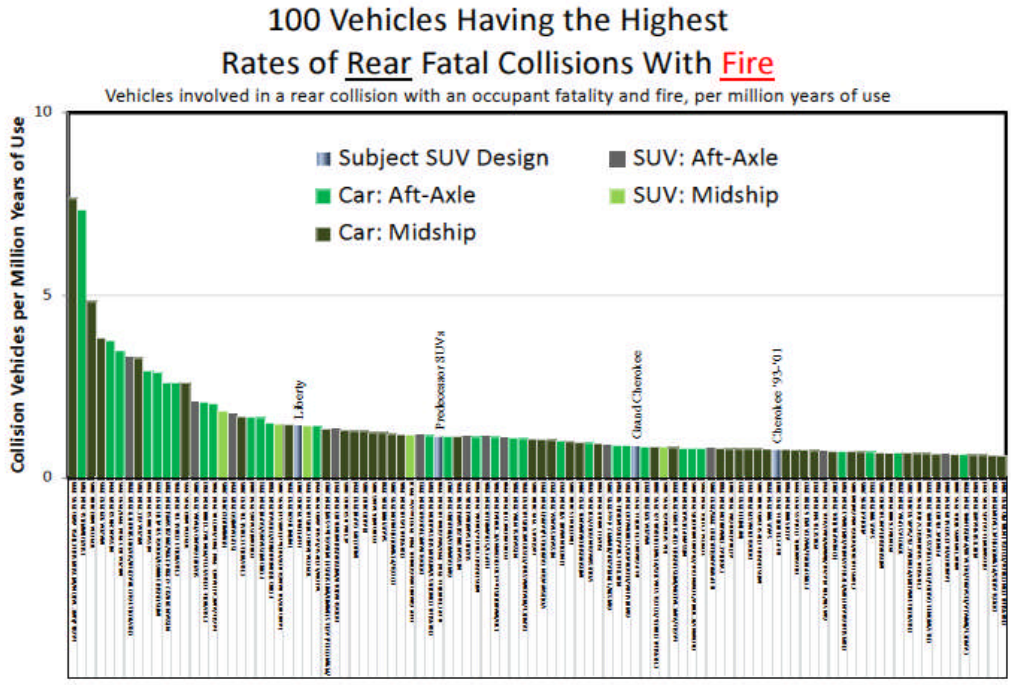


Figure 11 – Top 100 Light-Duty Vehicles in FARS
Rear Fatal Collisions with Fire

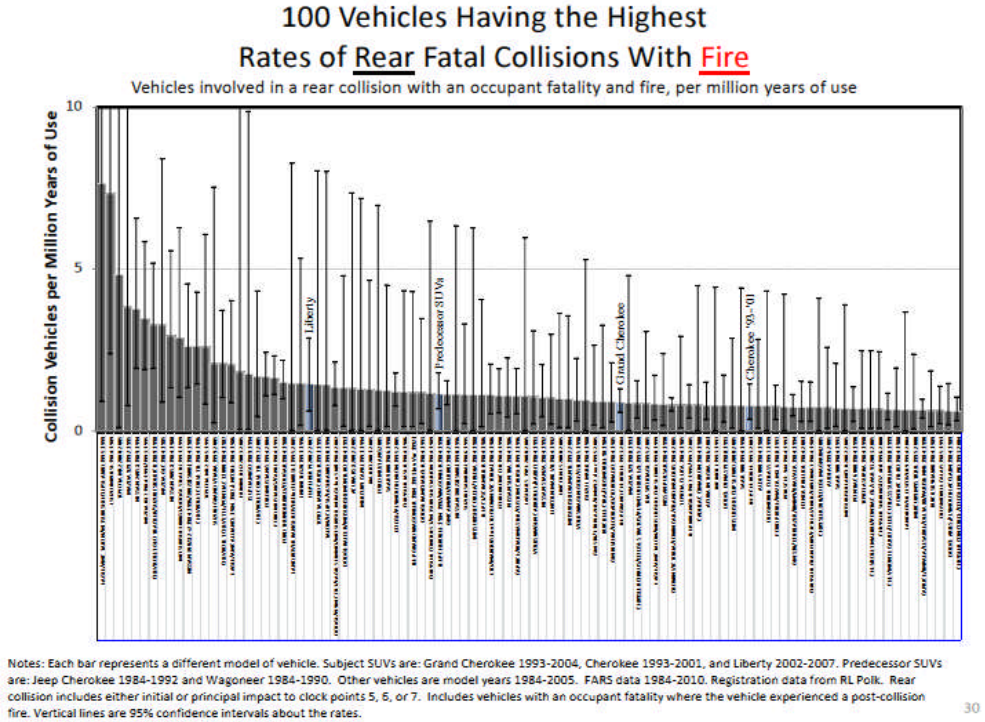


Figure 12 – Top 100 Light-Duty Vehicles in FARS
Rear Fatal Collisions with Fire
With 95% Confidence Bounds

Figures 11 and ***12*** illustrate that many SUVs and passenger cars with aft axle tanks, as well as SUVs and passenger cars with midship tanks, have rates that are higher than the Subject Vehicles. Moreover, the 95% confidence bounds demonstrate that the Subject Vehicles have rates that are statistically indistinguishable from the other 96 models on the list.

8. FARS and NASS Analysis Conclusions

For more than three decades, it has been well-settled NHTSA precedent that a defect cannot be established on the basis of performance that is shared by numerous other makes and models of motor vehicles. Literally, tens of millions of SUVs have been built with aft axle tanks. As the NHTSA Administrator stated in the final decision dismissing a defect investigation and initial determination against General Motors for issues related to the performance of its brake check valve:

> *Therefore, to single out any segment of this vast vehicle population for an enforcement recall appears to me to be unfair and to recall the entire population appears to be an effort not contemplated by the statute.*

Administrator's Decision in NHTSA Case ODI #161, GM Check Valves, January 27, 1977, at pages 3-4.

In this case, the evidence strongly shows that the rates of post-collision fires in rear impacts for SUVs built with aft axle fuel tanks are statistically indistinguishable from the rates of post-collision fires in rear impacts involving the Subject Vehicles. Moreover, it is clear from the information presented with this response that the selection of an aft axle location for SUV fuel tanks was widespread in the mid-1980s, when the Subject Vehicles' design was first marketed, and SUVs and other vehicles with aft axle tanks continued to be used well after the 2000 model year.

Conclusion

After an exhaustive engineering analysis, Chrysler Group has found no evidence that the fuel systems in the Subject Vehicles are defective in either their design or manufacture. All of these vehicles exceeded the stringent requirements of the applicable FMVSS 301, *the standard* by which a fuel system design is evaluated in the United States. Moreover, a review of almost 30 years of internal field data revealed an extremely low number of rear impact crashes with fire or fuel leak that occurred in a fleet of over 5 *million* Subject Vehicles that have travelled over *500 billion miles* over *50 million* r*egistered vehicle years.* Finally, after studying a vast, 30 year collection of publicly available crash data, Chrysler Group has concluded that the rate of rear impact fires in the Subject Vehicles is statistically indistinguishable from comparable SUVs and other light-duty vehicles of a similar design.

For these reasons, Chrysler Group believes that the Subject Vehicles are neither defective nor does the performance of their fuel systems in a rear impact pose an unreasonable risk to motor vehicle safety.