

# VOLKSWAGEN

GROUP OF AMERICA

DEC 3 - 2012  
Rec'd to ODI

Frank S. Borris  
Director, Office of Defects Investigation Enforcement  
U.S. Department of Transportation  
National Highway Traffic Safety Administration  
1200 New Jersey Avenue S.E.  
Washington, DC 20590

Christopher T. Sandvig NAME  
GM - Compliance / TREAD Title  
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248-754-5000 Phone  
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November 30, 2012 Date

Subject: EA11-003 NVS-213hkb

Dear Mr. Borris:

VOLKSWAGEN GROUP OF AMERICA, INC.  
3800 HAMLIN ROAD  
AUBURN HILLS, MI 48326  
PHONE +1 248 754 5000

Please find attached Volkswagen's response to EA11-003, dated November 30, 2012 requesting update information concerning high-pressure fuel pump failures on certain MY 2009 through MY 2012 Volkswagen and Audi vehicles, equipped with TDI Clean Diesel engines.

Pursuant to the email request received from Mr. Jeff Quandt dated October 07, 2012, Volkswagen is providing records for the period October 08, 2011 through October 05, 2012, in response to Requests 1, 3-9, 12, 14, 15 and 25. Updates to Requests 18, 19, 21, 22 and 32 are also provided, where applicable.

Volkswagen is also providing information regarding the Customer Satisfaction campaign related to misfuel prevention.

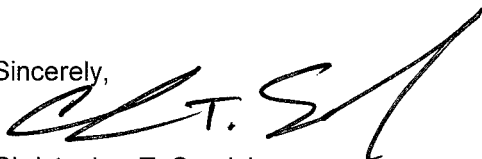
Thank you for your consideration in granting our requested extension and pursuant to the phone conversation with Mr. Jeff Quandt on November 8, 2012.

For your convenience, each request is restated verbatim and then followed by our response.

On a final note, be advised that Robert Bosch GmbH will provide documents under separate cover, in addition to submitting a request for confidentiality.

Please contact me if you have any questions regarding this response.

Sincerely,

  
Christopher T. Sandvig  
General Manager - Compliance/TREAD  
Attachments

1. State, by model and model year, the number of subject vehicles VW has manufactured for sale or lease in the United States. Separately, for each subject vehicle manufactured to date by VW, state the following:
  - a. Vehicle identification number (VIN);
  - b. Make;
  - c. Model;
  - d. Model Year;
  - e. Date of manufacture;
  - f. Date warranty coverage commenced;
  - g. The VW dealer code for the selling dealer; and
  - h. State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).

Provide the table in Microsoft Access 2000, or a compatible format, entitled "PRODUCTION DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

Response 1

In response to this inquiry, Volkswagen has identified the following number of MY 2009 through MY 2012 Volkswagen Jetta, Golf and Touareg and Audi A3 and Audi Q7 vehicles manufactured and sold to Volkswagen Group of America, Inc. for resale or lease in the United States, including "states" as defined in 49 U.S.C. 30102(a)(10), that were equipped with a TDI Clean Diesel engine:

Subject Vehicles	MY 2009	MY 2010	MY 2011	MY 2012
VW Jetta	37,889	53,088	42,477	51,538
VW Golf (A6)	-	4,446	9,068	11,231
VW Touareg	833	1,771	2,454	5,500
Audi A3	-	2,180	3,791	3,865
Audi Q7	1,121	2,459	4,152	3,416

Please reference the file entitled "PRODUCTION DATA.xlsx" for responses to subparagraphs a) through h), in the folder attached hereto as Exhibit to Request 1.

Source: Business Objects Vehicles Universe

Date Gathered: Through the date of the update request

Exhibit to Request 1

PRODUCTION DATA

Data is provided labeled as "PRODUCTION DATA.xlsx" in Microsoft Excel format in the Exhibit to Request 1 folder on the EA11-003 Data Collection Disc

3. State, by model and model year the number of each of the following received by VW or of which VW is otherwise aware, which relate to, or may relate to, instances of the alleged defect in the subject vehicles:
  - a. Consumer complaints, including those from fleet operators;
  - b. Field reports, including dealer field reports;
  - c. Reports involving a crash, injury, or fatality, based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports;
  - d. Property damage claims;
  - e. Third-party arbitration proceedings where VW is or was a party to the arbitration; and
  - f. Lawsuits, both pending and closed, in which VW is or was a defendant or codefendant.

For subparts "a" through "d" 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 VW's assessment of the problem, with a summary of the significant underlying facts and evidence. For items "e" and "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.

### Response 3

Volkswagen notes that the following responses to subparagraphs a) through f) includes multiple reporting about the same underlying incident; these counts (records/VINs) may not be added together because a false total count would result. Stated counts in each subparagraph are cumulative through October 05, 2012 and include counts previously provided. Records provided on November 30, 2012 are in addition to records previously provided in Volkswagen's response dated December 16, 2011 and March 30, 2012, respectively.

- a) In response to this inquiry, Volkswagen has identified 579 consumer complaints involving 532 unique VINs, which relate to, or may relate to, instances of the alleged defect in the subject vehicles. Volkswagen notes that this number is inclusive of consumer complaints that exhibit a misfuel or fuel quality concern.
- b) In response to this inquiry, Volkswagen has identified 5891 field reports involving 5208 unique VINs, involving a diesel HPFP related to the alleged defect in the subject vehicles. Volkswagen notes that this number is inclusive of field reports that exhibit a misfuel or fuel quality concern. Please note that the volume of field reports is a result of Volkswagen's policy for dealers to call prior to repairs to release an HPFP.
- c) In response to this inquiry, Volkswagen has not received any reports involving a crash, injury, or fatality, based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports related to the alleged defect in the subject vehicles.
- d) In response to this inquiry, Volkswagen has identified 5 property damage claims.
- e) In response to this inquiry, Volkswagen has identified 4 third-party arbitration proceedings where VW is or was a party to the arbitration. Volkswagen notes that this number is inclusive of property damage claims, as stated in subparagraph d) above.
- f) In response to this inquiry, Volkswagen has identified 4 lawsuits, in which VW is or was a defendant or codefendant.

Source: Business Objects: FRED, LISTEN, TACS      Date Gathered: Through the date of the update request  
Product Liaison, FTIS

4. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 3, state the following information:
  - a. VW file number or other identifier used;
  - b. The category of the item, as identified in Request No. 3 (i.e., consumer complaint, field report, etc.);
  - c. Vehicle owner or fleet name (and fleet contact person), address, and telephone number;
  - d. Vehicle's VIN;
  - e. Vehicle's model and model year;
  - f. Vehicle's mileage at time the alleged defect was observed or occurred (incident);
  - g. Incident date;
  - h. Report or claim date;
  - i. Whether failure or malfunction of the subject component is alleged;
  - j. Whether fuel quality concerns are cited as an actual or potential issue;
  - k. Whether an engine stall is alleged;
  - l. Whether a crash is alleged;
  - m. Whether property damage is alleged;
  - n. Number of alleged injuries, if any; and
  - o. Number of alleged fatalities, if any.

Provide this information in Microsoft Access 2007, or a compatible format, entitled "REQUEST NUMBER THREE DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

#### Response 4

Responses to subparagraphs a) through o) are provided in a file entitled, "REQUEST NUMBER THREE DATA.xlsx" in the folder attached hereto as Exhibit to Request 4. These cases are organized by category then by case number.

Source, Date Gathered: See Response 3

Exhibit to Request 4

REQUEST NUMBER THREE DATA

REQUEST NUMBER THREE DATA (HISTORICAL)

Data is provided in Microsoft Excel format in the Exhibit to Request 4 folder on the EA11-003 Data Collection Disc

5. Produce copies of all documents related to each item within the scope of Request No. 3. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method VW used for organizing the documents.

#### Response 5

In response to this inquiry, Volkswagen is providing copies of documents identified for each item in Response 4. The documents are provided in Adobe Acrobat format, entitled "REQUEST NUMBER FIVE DATA.pdf", in the folder attached hereto as Exhibit to Request 5. The cases are organized by category, then by case number.

Source, Date Gathered: See Response 4



Exhibit to Request 5

REQUEST NUMBER FIVE DATA

REQUEST NUMBER FIVE DATA (HISTORICAL)

Data is provided in Adobe Acrobat format in the Exhibit to Request 5 folder on the EA11-003  
Data Collection Disc

6. State, by subject vehicle model year, model, and engine the number of each of the following, received by VW, or of which VW is otherwise aware, **which relate to, or may relate to, acknowledged incidents of misfuelling** in the subject vehicles:
- a. Consumer reports, including those from fleet operators;
  - b. Field reports, including dealer field reports;
  - c. Reports involving a crash, injury, or fatality, based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports; and
  - d. Property damage claims.

For subparts “a” through “d” 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).

#### Response 6

Volkswagen notes that the following responses to subparagraphs a) through d) includes multiple reporting about the same underlying incident; these counts may not be added together because a false total count would result. Stated counts in each subparagraph are cumulative through October 05, 2012 and include counts previously provided. Records provided on November 30, 2012 are in addition to records previously provided in Volkswagen’s responses dated December 16, 2011 and March 30, 2012, respectively.

Instances referenced in response to question 6 have also been reported in responses to questions 3 through 5.

- a. In response to this inquiry, Volkswagen has identified 142 consumer complaints on 139 unique VINs which relate to, or may relate to, acknowledged incidents of misfuelling in the subject vehicles. 112 of the 142 consumer complaints also meet the alleged defect and are included in the response to request number 3.
- b. In response to this inquiry, Volkswagen has identified 2121 field reports on 1914 unique VINs, which relate to, or may relate to, acknowledged incidents of misfuelling in the subject vehicles. 1648 of the 2121 field reports also meet the alleged defect and are included in the response to request number 3.
- c. In response to this inquiry, Volkswagen has not received any reports involving a crash, injury, or fatality, based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports which relate to, or may relate to, acknowledged incidents of misfuelling in the subject vehicles.
- d. In response to this inquiry, Volkswagen has identified 1 property damage claim which relates to, or may relate to, acknowledged incidents of misfuelling in the subject vehicles. This claim was included in the response to request number 3.

7. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 6, state the following information:
- a. VW file number or other identifier used;
  - b. The category of the item, as identified in Request No. 6 (i.e., consumer complaint, field report, etc.);
  - c. Vehicle owner or fleet name (and fleet contact person), address, and telephone number;
  - d. Vehicle's VIN;
  - e. Vehicle's model and model year;
  - f. Vehicle's mileage at time of incident;
  - g. Misfuelling incident date;
  - h. Report or claim date;
  - i. Whether failure or malfunction of the subject component is alleged;
  - j. Whether an engine stall is alleged;
  - k. Whether a crash is alleged;
  - l. Whether property damage is alleged;
  - m. Number of alleged injuries, if any; and
  - n. Number of alleged fatalities, if any.

Provide this information in Microsoft Access 2007, or a compatible format, entitled "MISFUELLING DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

#### Response 7

Responses to subparagraphs a) through n) are provided in a file entitled "MISFUELLING DATA.xlsx" in the folder attached hereto as Exhibit to Request 7. These cases are organized by category then by case number.

Source, Date Gathered: See Response 6

Exhibit to Request 7

MISFUELLING DATA

MISFUELLING DATA (HISTORICAL)

Data is provided in Microsoft Excel format in the Exhibit to Request 7 folder on the EA11-003 Data Collection Disc

8. Produce copies of all documents related to each item within the scope of Request No. 6. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method VW used for organizing the documents.

### Response 8

In response to this inquiry, Volkswagen is providing copies of documents identified for each item in Response 7. The documents are provided in Adobe Acrobat format, entitled "REQUEST NUMBER EIGHT DATA.pdf", in the folder attached hereto as Exhibit to Request 8. The cases are organized by category, then by case number.

Source, Date Gathered: See Response 7

Exhibit to Request 8

REQUEST NUMBER EIGHT DATA

REQUEST NUMBER EIGHT DATA (HISTORICAL)

Data is provided in Adobe Acrobat format in the Exhibit to Request 8 folder on the EA11-003  
Data Collection Disc

9. State, by model, engine and model year the number of the following categories of claims, collectively, that have been paid in whole or in part by VW to date which relate to repair or replacement of the subject component in the subject vehicles: warranty claims; extended warranty claims; claims for good will services that were provided; field, zone, or similar adjustments and reimbursements; and warranty claims or repairs made in accordance with a procedure specified in a technical service bulletin or customer satisfaction campaign.

Separately, for each such claim, state the following information:

- a. VW claim number;
- b. Vehicle owner or fleet name (and fleet contact person) and telephone number;
- c. VIN;
- d. Repair date;
- e. Vehicle mileage at time of repair;
- f. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
- g. Labor operation number;
- h. Problem code;
- i. Replacement part number(s) and description(s);
- j. Concern stated by customer;
- k. Cause and correction of concern;
- l. Comment, if any, by dealer/technician relating to claim and/or repair;
- m. Whether there is a claim for towing expenses associated with the repair (i.e., filed within 5 days before or after the claim repair date); and
- n. VW's assessment of whether the incident involved an engine stall while driving using the following three categories: (1) stall while driving = "yes;" (2) stall while driving = no; and (3) stall while driving = "unknown."

Provide this information in Microsoft Access 2007, or a compatible format, entitled "WARRANTY DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

### Response 9

Stated counts are cumulative through October 05, 2012 and include counts previously provided. Records provided on November 30, 2012 are in addition to records previously provided in Volkswagen's response dated December 16, 2011 and March 30, 2012, respectively.

In response to this inquiry, Volkswagen has identified 4672 warranty claims on 4456 unique VINs which relate to repair or replacement, although not necessarily a failure, of the subject component in the subject vehicles. Furthermore, Volkswagen dealers have been instructed to replace the HPFP in case a misfuel has occurred and the vehicle's engine has been run, as a precautionary measure.

Information for these claims is provided in a file entitled "WARRANTY DATA.xlsx", in the folder attached hereto as Exhibit to Request 9. The claims are organized by claim number.

Exhibit to Request 9

WARRANTY DATA

Data is provided labeled as "WARRANTY DATA.xlsx" in Microsoft Excel format in the Exhibit to Request 9 folder on the EA11-003 Data Collection Disc



12. Provide the following information regarding analyses that have been conducted by or for VW on subject components that have been returned from the field (“warranty return analysis”):
  - a. State the number of subject components that have been returned from the field for analysis;
  - b. Describe VW’s process for selecting and/or accepting subject components to submit for warranty return analysis, including how the criteria for selecting which parts to return has changed over time and plans for continuing the process;
  - c. Describe how the return part selection criteria was communicated to VW field offices and/or dealerships and provide copies of all related communications;
  - d. Describe, and provide copies of all documents related to, all communications between VW and the supplier(s) of the high-pressure fuel pumps regarding the analysis of returned high-pressure fuel pumps;
  - e. Describe the procedures used to analyze returned high-pressure fuel pumps, including all related flow charts and technologies used;
  - f. Provide a summary spreadsheet of all warranty return analyses with the following information:
    - 1) Vehicle identification number;
    - 2) Field report number;
    - 3) Warranty claim number;
    - 4) 8D report reference number;
    - 5) Date of 8D report;
    - 6) VW part number;
    - 7) Part manufacturing date;
    - 8) Problem description, customer complaint;
    - 9) Problem description, Bosch description;
    - 10) Failure date;
    - 11) Mileage;
    - 12) Defect location (e.g., roller surface);
    - 13) Defect type (e.g., ground up);
    - 14) Root cause analysis; and
    - 15) VW assessment of whether results indicate that fuel caused or contributed to pump failure.
  - g. Provide copies of all warranty return analysis 8D reports and photographs of drive train components (cam shaft, roller, roller shoe), organized by model and date of complaint;
  - h. Describe all analyses performed by, or for, VW on the return part analysis results and provide copies of all documents related to such analyses, including reports, presentations and internal communications discussing test results and/or analyses; and
  - i. Provide VW’s assessment of the significant observations and conclusions from the returned part analyses and how they relate to the alleged defect in the subject vehicles.

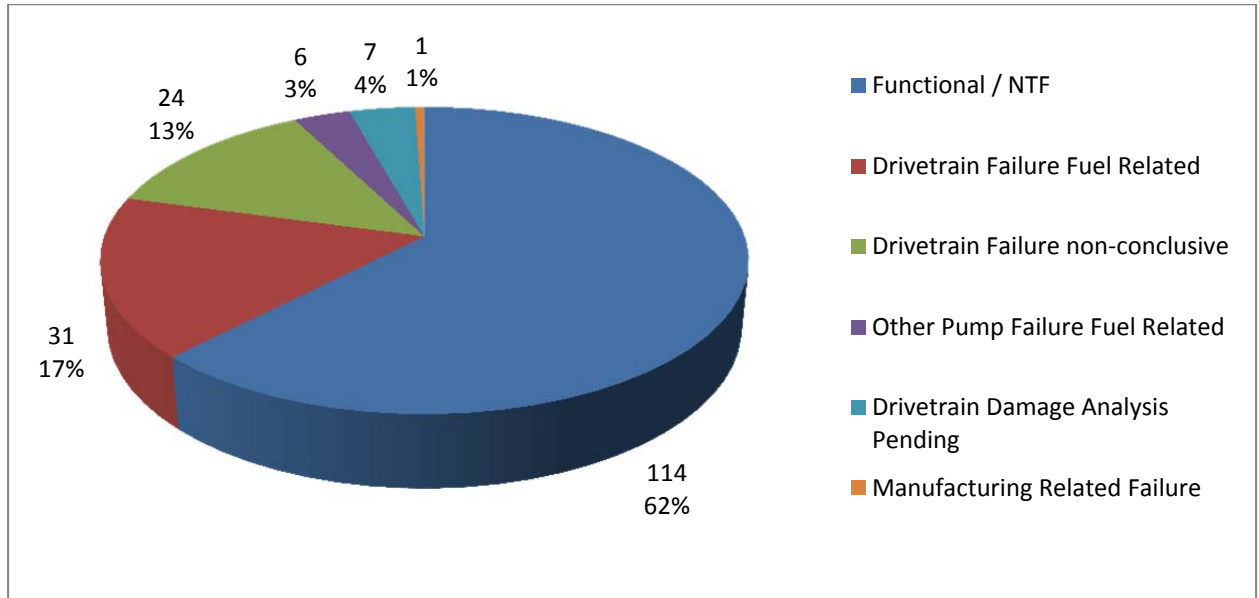
## Response 12

- a. Volkswagen identified 106 8D reports for evaluation in response to the request for update to Request 12. Robert Bosch GmbH will provide these 8D documents under separate cover, in addition to submitting a request for confidentiality. The 8D reports will be in addition to the reports previously provided in Volkswagen's response dated December 16, 2011 and March 30, 2012, respectively.
- b. No additional information to Volkswagen's response dated March 30, 2012.
- c. No additional information to Volkswagen's response dated March 30, 2012.
- d. No additional information to Volkswagen's response dated March 30, 2012.
- e. No additional information to Volkswagen's response dated March 30, 2012.
- f. Information related to returned HPFP's is provided in the file entitled "WARRANTY RETURN ANALYSIS.xlsx" attached hereto as Exhibit to Request 12. The data is organized by warranty claim number.

The table provided has been updated to incorporate additional information and replaces the previously provided table, dated March 30, 2012.

g. Volkswagen provides the following supplement to its previous responses;

Based on the file provided under subparagraph f., analysis of 183 (RP1 and later build HPFP) 8D reports provides the following distribution:



**Table 1**

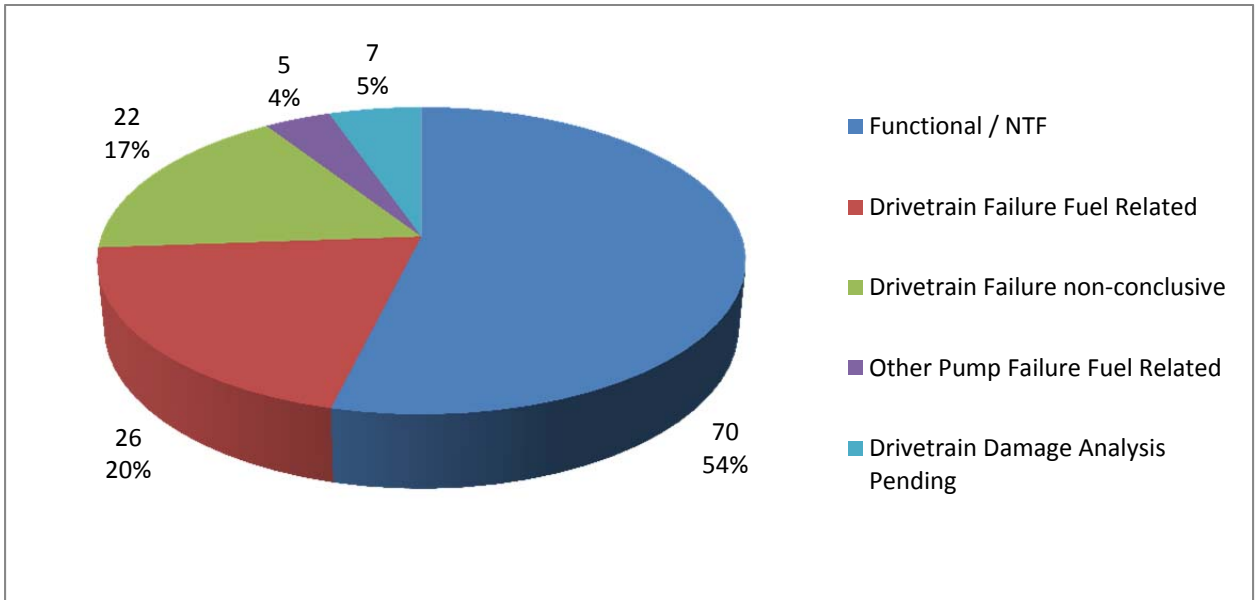
Volkswagen determined that the majority (62%) of the returned HPFP's indicate NTF (no trouble found) result, where the HPFP was operating to specification; yet nearly 70% of the NTF reports (77 of 114) are connected to a misfuel incident. This also relates to the instruction to Volkswagen dealers to replace an HPFP in case a misfuel has occurred and the vehicle's engine has been run, as a precautionary measure.

Volkswagen also noted that the majority (about 82%) of the analysis results are either NTF or definitely fuel related, while 4% of the reports have not yet been finalized.

A subset of 13% of the 8Ds do not allow for a conclusive determination. At the time of the analysis no proof for misfuel or another fuel related influence could be established, but may have taken place earlier in vehicle life as discussed in Volkswagen's previous responses to this inquiry.

Only 1 incident (less than 1%) was determined to be manufacturing related and resulted from a fractured return spring. As this is the only known spring failure, this is considered to be a single occurrence.

Volkswagen also evaluated 130 (RP1 or later build HPFP) 8D reports to assess an alleged HPFP failure with respect to a “stall while driving” event:



**Table 2**

The results of the “stall while driving” evaluation display a distribution pattern that is similar to the evaluation results displayed in Table 1, on Page 20. This is evident, as an interrupted diesel combustion process could lead to the engine stalling, as diesel engines are not designed to run on gasoline; the product is not designed for this type of misapplication or misuse.

In most of these incidents the HPFP did not experience damage (NTF = 54%). Depending on several variables, actual gasoline content, exposure time, load condition, temperatures, etc. a drivetrain failure may also be induced (fuel related / other failure = 37%).

Volkswagen considers such incidents, caused by misfuelling or improper fuel, to be “outside influence” which cannot be seen as a failure originating in the HPFP.

Volkswagen emphasizes, that a “stall while driving” event commonly relates to a current or previous misfuelling incident.

Exhibit to Request 12

WARRANTY RETURN ANALYSIS

Data is provided labeled as "WARRANTY RETURN ANALYSIS.xlsx" in Microsoft Excel format in the Exhibit to Request 12 folder on the EA11-003 Data Collection Disc

14. Describe all modifications or changes made by, or on behalf of, VW in the design, material composition, manufacture, quality control, supply, or installation of the subject component, from the start of production of subject vehicles to date, which relate to, or may relate to HPFP drive train durability and performance with low lubricity fuels. 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 number(s) (service and engineering) of the original component;
  - e. The part number(s) (service and engineering) of the modified component;
  - f. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when; and
  - g. When the modified component was made available as a service component.

Also, provide the above information for any modification or change that VW is aware of which may be incorporated into vehicle production within the next 120 days.

#### Response 14

Please reference the file entitled "Modification History.pdf" for responses to subparagraphs a) through g), in the folder attached hereto as Exhibit to Request 14.

Exhibit to Request 14

MODIFICATION HISTORY

Data is provided labeled as "Modification History.pdf" in Microsoft Excel format in the Exhibit to Request 14 folder on the EA11-003 Data Collection Disc

15. For each month in which VW has sold the following components, state the number of the following components that VW has sold by component name, part number (both service and engineering/production), model and model year of the vehicle(s) in which it may be used and month/year of sale of the component (including the cut-off date for sales, if applicable):

- a. Subject component;
- b. HPFP pipe to fuel rail;
- c. Fuel rail;
- d. Transfer pump;
- e. Auxiliary pump; and
- f. Fuel tank.

For each component part number, state the supplier's name, address, and appropriate point of contact (name, title, and telephone number). Also identify by make, model and model year, any other vehicles (that is, other than subject vehicles) of which VW is aware that contain the identical component, whether installed in production or in service, and state the applicable dates of production or service usage.

#### Response 15

In response to this inquiry, Volkswagen is providing:

- a table identifying each item in subparagraphs a) through f) by vehicle application
- monthly sales data for each item in subparagraphs a) through f) by 2.0L application
- monthly sales data for each item in subparagraphs a) through f) by 3.0L application

Part sales data contained within Volkswagen's previous response, dated March 30, 2012, is replaced with the updated cumulative parts sales data from 2008-2012 provided in this response.

The file is provided in an Adobe Acrobat format, entitled "PART SALES DATA.pdf" in the folder attached hereto as Exhibit to Request 15.

Per confirmation via phone conversation with Mr. Jeff Quandt on November 28, 2011, it was confirmed that parts sales data would be sufficient for Request 15 and supplier data for each item in subparagraphs a) through f) was not required.



Exhibit to Request 15

PART SALES DATA

Data is provided labeled as "PART SALES DATA.pdf" in Adobe Acrobat format in the Exhibit to Request 15 folder on the EA11-003 Data Collection Disc

18. Describe in detail what types of contamination (e.g., gasoline contamination, water contamination, aged biodiesel) and at what level (e.g., concentration) VW considers to be related to the alleged defect.

Response 18

No additional information to Volkswagen's response dated March 30, 2012.

19. Provide VW's assessment of how engine performance varies with respect to the various types of contamination identified in your response to information request No. 19, including, but not limited to, the amounts of gasoline contamination required to produce the following effects on engine performance: (1) symptoms of impaired drivability during city driving (describe symptoms); (2) symptoms of impaired drivability during highway driving (describe symptoms); (3) engine stall; and (4) pump damage; and (5) sudden/catastrophic pump failure. In addition, provide VW's assessment of the effects of less severe gasoline contamination on engine performance and HPFP performance/durability (provide assessments for contaminations of less than 3 percent and less than 1 percent).

Response 19

No additional information to Volkswagen's response dated March 30, 2012.

21. Provide the following information regarding incidents/repairs in which misfuelling is not acknowledged by the owner but is suspected by VW in the subject vehicles (“suspected misfuelling”). (Note that the IR definitions for “misfuelling” and “fuel quality concern” do not apply to this request.) In addition, if VW’s procedures, practices, or policies with respect to the matters addressed below have changed over time, please explain how they have changed, including when the changes occurred and the reason for the change:
- a. Does VW distinguish problems from suspected misfuelling from problems involving poor fuel quality for the purposes of determining whether or not repairs to the subject component and/or vehicle are covered by warranty?
  - b. Describe how VW distinguishes incidents involving suspected misfuelling from incidents involving poor fuel quality in resolving questions about warrantable repairs (e.g., describe test methods, qualitative analyses, performance symptoms or diagnostic codes that would indicate or suggest misfuelling);
  - c. State how VW resolves disputes concerning warranty coverage related to suspected fuel quality concerns; and
  - d. Describe and provide copies of all guidance provided to dealers and/or zone offices related to diagnosing, documenting and repairing fuel system failures in which fuel quality is a suspected cause or contributor.

Response 21

- a. No additional information to Volkswagen’s response dated March 30, 2012.
- b. No additional information to Volkswagen’s response dated March 30, 2012.
- c. No additional information to Volkswagen’s response dated March 30, 2012.
- d. No additional information to Volkswagen’s response dated March 30, 2012.

22. Describe the following:

- a. The repair procedures for a subject vehicle that has been fueled with gasoline, for situations where (1) the engine was not started after a misfuel; and (2) the engine was started after a misfuel;
- b. The repair procedures for a subject vehicle that has experienced catastrophic HPFP drive train failure (i.e., metallic particles/debris in the fuel system); and
- c. All misfuel countermeasures that VW has implemented in the subject vehicles or is considering for future production light duty diesel vehicles in the United States market.

### Response 22

In response to subparagraphs a) and b) of this inquiry, please reference Volkswagen's response dated March 30, 2012.

In response to subparagraph c), Volkswagen initiated a customer satisfaction campaign (service action) in July 2012 for owners of subject vehicles that included additional information - owner manual insert, fuel filler neck rosette and/or a fuel door label, as a reminder to use the proper ULSD diesel fuel in their TDI Clean Diesel vehicle.

Additionally, Volkswagen incorporated a mechanical misfuel protection system in all TDI Clean Diesel vehicles for the US market beginning with the 2013 model year.

Volkswagen notes that a misfuel protection system may also create customer discomfort and complaints, as diesel fuel nozzle diameters in the U.S. are not regulated to a standard diameter:

- a non-high flow diesel nozzle measures 24.6mm in diameter
- an unleaded gasoline nozzle measures 21.0mm in diameter

Customers may not be able to fill their vehicles at fuel stations which may use an unleaded gasoline nozzle (21mm) for dispensing diesel fuel. Therefore, Volkswagen and aftermarket suppliers offer adapters to override the misfuel protection for fueling purposes.

Please reference the 3 Adobe Acrobat files provided in response to subparagraph c) in the folder attached hereto as Exhibit to Request 22.

Exhibit to Request 22

A3 AUDI CUSTOMER SATISFACTION CAMPAIGN LETTER  
Q7 AUDI CUSTOMER SATISFACTION CAMPAIGN LETTER  
VOLKSWAGEN CUSTOMER SATISFACTION CAMPAIGN LETTER

Data is provided in Adobe Acrobat format in the Exhibit to Request 22 folder on the EA11-003  
Data Collection Disc

25. Describe all efforts by VW from August 26, 2010 to date, to study the properties and/or quality of diesel fuel sampled from subject vehicles with symptoms that may be related to the alleged defect and provide the following information for all testing conducted by, or for, VW related to testing fuel samples collected from such vehicles. If VW's procedures, practices, or policies with respect to the issues identified below have changed over time (e.g., if VW switched from one test methodology to another), please explain how they have changed, including when the changes occurred and the reason for the change:
- a. Describe the test plan, including the number of samples, the geographic region(s), the criteria for selecting vehicles, the time(s) of year samples were collected, and what organization or entity was responsible for the test plan and for obtaining samples. Provide copies of all documents related to the test planning, objectives or procedures;
  - b. Describe how the test plan was communicated to VW field offices and/or dealerships and provide copies of all related communications, including criteria for selecting vehicles, and procedures for collecting samples;
  - c. Describe the test methodology, and what entity or organization did the testing;
  - d. Provide a spreadsheet in Microsoft Excel format summarizing the sample origins and test results, including the following information for each sample tested:
    - a. Test identification number;
    - b. Vehicle identification number;
    - c. Vehicle repair date;
    - d. Vehicle repair mileage;
    - e. Date sampled;
    - f. Date of testing of sample;
    - g. Test results; and
    - h. VW assessment of whether results indicate that fuel caused or contributed to pump failure.
  - e. Provide copies of all test report sheets;
  - f. Describe all analyses performed by, or for, VW on the test results and provide copies of all documents related to such analyses, including reports, presentations and internal communications discussing test results and/or analyses; and

## Response 25

In spring 2011, Volkswagen began collecting fuel samples from TDI vehicles at dealerships that were visiting for a fuel system related concern.

- a. No additional information to Volkswagen's response dated March 30, 2012.
- b. No additional information to Volkswagen's response dated March 30, 2012.
- c. No additional information to Volkswagen's response dated March 30, 2012.
- d. An Excel file entitled "FUEL SAMPLE ANALYSIS.xlsx" is attached hereto and summarizes the analysis results of all 827 samples from vehicles that exhibited a fuel system related complaint. The table provided has been updated to incorporate additional information and replaces the previously provided table, dated March 30, 2012.
- e. An Adobe Acrobat file entitled "RESPONSE 25 ANALYSIS REPORTS.pdf" is attached hereto and includes each fuel analysis report. The analysis reports are in addition to the reports previously provided in Volkswagen's response dated March 30, 2012.
- f. Volkswagen notes that the fuel analysis obtained from this study was directly caused by this inquiry. Beginning with the NHTSA meeting in May 2011, in which initial fuel analysis results were presented, Volkswagen has provided updated fuel analysis results in each of its subsequent responses, dated December 16, 2011 and March 30, 2012.

827 diesel fuel samples have been acquired throughout the continental U.S.

In respect to viscosity, 203 samples were out of ASTM specification (below 1.9 cSt), 186 of those were below the HPFP's nominal threshold of 1.5 cSt. Here the HPFP may not have been properly lubricated.

59 samples were detected with lower lubricity (greater HFRR/WSD value) than required. 22 of them exceeded the HPFP's nominal tolerance of 570µm and may have caused increased wear.

4 samples were found to contain increased amounts of water more than 1.5 % / 1.8% / 2.5 % and one sample exceeding 10% of water, which was not detected in the fuel station and random vehicle surveys. Viscosity and lubricity are within specification, but water could cause rust and corrosion in the HPFP and damage the pump.

79 samples contained more than 5% biodiesel, 20 of those exceeded 10%. Biodiesel itself does not damage the HPFP, however, collapsed/deteriorated/aged biodiesel can cause deposits inside the HPFP and clog filters, interrupting the lubrication and leading to failure.

252 samples showed a flashpoint below ASTM specification, but this has no direct impact to the HPFP's durability and may just be seen as an indicator for possible gasoline content.

Exhibit to Request 25

FUEL SAMPLE ANALYSIS  
RESPONSE 25 ANALYSIS REPORTS

Multiple data files are provided within the Exhibit to Request 25 folder on the EA11-003 Data Collection Disc



32. Provide VW's assessment of the subject component failure experience in the peer vehicles, including:
- a. The causal or contributory factors, including but not limited to misfuel and fuel quality concerns;
  - b. The approximate percentages of subject component failures associated with each of the causal/contributory factors identified in item "a;"
  - c. The failure mechanism for each causal condition identified;
  - d. The failure mode for each causal condition identified, including the effect on engine performance (e.g., drivability concern, engine stall);
  - e. Provide VW's assessment of the symptoms and warning available to the driver prior to an engine stall resulting from a sudden HPFP drive train failure and describe all data used by VW in making this assessment (e.g., testing, complaint analysis);
  - f. Provide VW's assessment of the exposure adjusted failure rates, expressed as incidents per thousand vehicle years, associated with each causal condition by model and model year – include a short description of the data and methods used for this analysis and provide VW's assessment of the effects of each design and manufacturing change on these failure rates;
  - g. Provide VW's assessment of the geographic influence on exposure adjusted failure rates (i.e., analysis by state);
  - h. Provide VW's assessment of the seasonal influence on exposure adjusted failure rates (i.e., analysis by calendar month); and
  - i. Provide comparisons, by model and model year, of the HPFP warranty claim rates and part sales rates in the subject vehicles and HPFP failure rates for same/similar vehicles in other worldwide markets (e.g., Germany, France, United Kingdom, Russia, China, India, Japan, Brazil, and Canada). Please note any differences between vehicle designs and market fuel distribution/quality that VW believes may affect this analysis.

## Response 32

Volkswagen understands these questions as being related to subject vehicles rather than peer vehicles, which are not defined in this inquiry.

In order to provide a thorough and complete evaluation of the field data of this inquiry, Volkswagen assembled all field data into one cross reference chart ("xChart").

The first chart provided contains a complete data overview for all records for the timeframe of the requested update, October 2011 – October 2012.

Please reference the file entitled "xCHART\_12 MONTH.xlsx", attached hereto as Exhibit to Request 32.

The second chart provides a complete data overview (historical) in one file and has been updated to incorporate the additional records related to this updated response. The new chart replaces the previously provided version with Volkswagen's response dated March 30, 2012.

Please reference the file entitled "xCHART\_HISTORICAL.xlsx", attached hereto as Exhibit to Request 32.

- a. No additional information to Volkswagen's response dated March 30, 2012.
- b. No additional information to Volkswagen's response dated March 30, 2012.
- c. No additional information to Volkswagen's response dated March 30, 2012.
- d. No additional information to Volkswagen's response dated March 30, 2012.
- e. No additional information to Volkswagen's response dated March 30, 2012.
- f. No additional information to Volkswagen's response dated March 30, 2012.
- g. No additional information to Volkswagen's response dated March 30, 2012.
- h. No additional information to Volkswagen's response dated March 30, 2012.
- i. No additional information to Volkswagen's response dated March 30, 2012.

## Conclusions, Summary and Assessment

Volkswagen's ongoing investigation and analysis of the alleged HPFP issues between August 2010 and October 2012 continues to support the assertion that the design and performance of the TDI Clean Diesel HPFP does not represent any material defect.

Over the course of the past 26 months, Volkswagen has engaged dealers, fleet accounts, auction centers and customers, to evaluate the circumstances necessitating HPFP replacements.

In order to support the inquiry, Volkswagen has:

- a) conducted blind market surveys, acquiring and analyzing over 1200 diesel fuel samples from diesel filling stations and customer vehicles at Audi and Volkswagen dealerships across the continental US, which were in for routine service unrelated to a fuel system concern, to better understand the potential impact that diesel fuel variance may have on HPFP performance
- b) acquired and analyzed over 800 diesel fuel samples and over 300 HPFP's from subject vehicles with alleged HPFP / fuel system concerns

Volkswagen performed the aforementioned activities to evaluate the 'typical' quality of diesel fuel generally available in the US market, as well as to provide insight into HPFP replacements. The surveys conclude that ASTM specification ULSD fuel is generally reflected in the US fuel supply.

Furthermore, Volkswagen continues the diesel fuel sample program from subject vehicles with alleged HPFP / fuel system concerns. Volkswagen continues to identify, acquire, evaluate and analyze replacement HPFP's from the subject vehicles.

As a result of independent laboratory analysis where the presence of gasoline is determined, Volkswagen remains confident in its assessment of misfuelling as the predominant reason for the performance related issues of the HPFP alleged in this inquiry.

Diesel engines are not designed to run on gasoline and a manufacturer cannot design a product for this type of misapplication or misuse. To help reduce misfuel incidents, Volkswagen initiated a customer satisfaction campaign (service action) in July 2012. Owners of subject vehicles were mailed a reminder letter that emphasized an operator must not introduce any gasoline into their vehicle, an owner's manual insert, and bright yellow warning labels that are to be placed on and around the fuel filler neck. In addition to the customer mailing, Volkswagen has assigned a campaign code to each subject vehicle, so that a dealer will ensure that the labels and owner's manual inserts are placed on and in the vehicle. To date, approximately 40% of the subject vehicles have been inspected by a dealer and where required, updated with labels.

Volkswagen notes that the EPA, when requiring greater ethanol content in gasoline, primarily addressed the misfuelling problem in July 2011 with a "Proposed Misfuelling Mitigation Measures Program." [See EPA, "Regulation To Mitigate the Misfuelling of Vehicles and Engines With Gasoline Containing Greater Than Ten Volume Percent Ethanol and Modifications to the Reformulated and Conventional Gasoline Programs," 76 F.R. 44406 (July 25, 2011) (Final Rule).

Specifically, EPA settled on adopting a program consisting of misfuelling prohibition, fuel pump labeling, "Product Transfer Documents" (PTDs) by fuel distributors and ongoing implementation surveys.

In an earlier Final Rule dealing with highway diesel fuel sulfur control requirements, dated January 18, 2001, EPA sought to minimize the possibility of misfuelling by adopting "labeling requirements that apply both to retail stations and vehicle manufacturers." Given adoption of its 2001 program, EPA believed that "intentional misfuelling will not be a serious problem." And, "because vehicle owners will likely void the manufacturer's warranty if they misfuel with 500 ppm sulfur fuel, they will have additional incentive not to misfuel." See EPA, "Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements; Final Rule," 66 FR at 5070-5071 (Jan. 18, 2001).

Volkswagen firmly believes that with its customer mailing it is in line with the EPA approach to misfuelling and its potential consequences, and has adequately reacted to the misfuelling incidents which led to this inquiry.

Going even beyond Volkswagen's customer information service action for MY 2009 to MY 2012 vehicles, Volkswagen incorporated a mechanical misfuel protection system in all TDI Clean Diesel vehicles for the US market beginning with the 2013 model year.

In response to the misfuelling situation, Volkswagen respectfully proposes a joint approach by the U.S. government respective to the agencies NHTSA and EPA, to regulate:

- diesel fuel quality up to the fuel nozzle at the fuel station similar to the existing regulations for gasoline
- nozzle diameters and gas stations requiring defined different diameters for gas nozzles and for diesel nozzles
- clear and standardized labels for the different fuels and their respective pumps at fuel stations

Incorporating the aforementioned actions will assist manufacturers to meet the federally mandated fuel economy and emissions regulations. This will also supplement the actions taken by Volkswagen and other OEMs to prevent misfuelling incidents.

Volkswagen is not aware of any crash, injury or fatality caused by the subject issue.

In light of the foregoing, Volkswagen submits that there is no defect related to motor vehicle safety with the subject HPFP.

Exhibit to Request 32

xCHART\_12 MONTH

xCHART\_HISTORICAL

Data is provided in Microsoft Excel format in the Exhibit to Request 32 folder on the EA11-003  
Data Collection Disc