3/2/06

James P. Vondale, Director
Automotive Safety Office
Environmental & Safety Engineering

Fairlane Plaza South
330 Town Center Drive
Dearborn, MI 48126-2738 USA

February 17, 2006

Ms. Kathleen C. DeMeter, Director
Office of Defects Investigation Safety Assurance
National Highway Traffic Safety Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

Dear Ms. DeMeter:

Subject: EA05-015:NVS-212cag

The Ford Motor Company (Ford) response to the agency's December 15, 2005, letter concerning reports of alleged windshield leaks in 1999 through 2001 model year Expedition vehicles is attached.

While a windshield water leak is a source of dissatisfaction to owners, it does not constitute an unreasonable risk to the safe operation of vehicles. Unlike many other conditions the agency has investigated, windshields are a frequently replaced component and the fact that customers report windshield leaks is not enough to demonstrate a safety defect. Given the number of years in service of the subject vehicle population, it is estimated, based upon published automotive glass industry trade data, that at least 180,000 windshields have been replaced in the subject vehicles. Ford has demonstrated to the agency that vehicles experiencing a windshield leak may not have a factory windshield. Further, it is nearly impossible in many cases to determine if a windshield is factory installed. It was clearly demonstrated to the agency in one instance that a customer who stated that the windshield had not been replaced was surprised to find a non-OEM windshield (when pointed out by Ford and agency personnel) in the vehicle; the windshield had been replaced prior to his purchase of the vehicle. Because, as indicated in the response to PE05-033, many windshield replacements are performed by independent third party facilities, Ford would have no record of the repair. Further, windshield repairs that are performed by Ford dealerships are often paid for by insurance carriers and do not become part of Ford's repair tracking system so that Ford would not be able to identify if a vehicle had in fact had a windshield replacement. Leaks that occur after windshield replacement are not evidence of a defect under the Safety Act.

To the extent that windshield leaks have occurred on original equipment windshields installed by Ford, the symptoms do not pose an unreasonable safety risk. Most electrical

anomalies described in the reports that mention electrical effects are quite overt and benign in nature (including uncommanded defroster motor operation, uncommanded headlamps illumination, erratic radio operation, and illumination of some instrument panel warning indicators, e.g. low washer fluid). While these conditions are a source of customer dissatisfaction they do not rise to the level of a safety defect.

The numbers of reports alleging an actual loss of wiper function during vehicle operation is 0.5 repairs/100,000 vehicle years of service. As previously noted, most of the reports related to windshield wiper concerns pertain to requests for financial assistance and do not express any safety related concern. Further, even those few that express a concern for safety also concurrently request financial assistance for the repair.

Ford continues to believe that these allegations do not rise to the level of a defect trend or risk to the safe operation of motor vehicles. This is supported by the vast majority of reports provided that in no way pertain to loss of wiper function while driving, by the period of time that customers appear to be willing to wait to seek repair, despite continuing electrical concerns, and by the number of contacts requesting financial assistance compared to those few that indicate any type of concern for safety. A decline in the number of reports is apparent when evaluating both the VOQ information and the data provided in Appendix B. Ford's position that this issue does not rise to the level of a safety defect is further supported by the fact that none of the reports located by Ford and none of the VOQs identified by the agency indicate a single accident or loss of control in an average of nearly 68 months in service for these vehicles that have traveled over 45 million vehicle miles.

If you have any questions concerning this response, please feel free to contact me.

Sincerely,

James P. Vondale

Attachment

ATTACHMENT
February 17, 2006

FORD MOTOR COMPANY (FORD) RESPONSE TO EA05-015

Ford's response to this Engineering Analysis information request was prepared pursuant to a diligent search for the information requested. While we have employed our best efforts to provide responsive information, the breadth of the agency's request and the requirement that information be provided on an expedited basis make this a difficult task. We nevertheless have made substantial effort to provide thorough and accurate information, and we would be pleased to meet with agency personnel to discuss any aspect of this Engineering Analysis.

The scope of Ford's investigation conducted to locate responsive information focused on Ford employees most likely to be knowledgeable about the subject matter of this inquiry and on review of Ford files in which responsive information ordinarily would be expected to be found and to which Ford ordinarily would refer. Ford notes that although electronic information was included within the scope of its search, Ford has not attempted to retrieve from computer storage electronic files that were overwritten or deleted. As the agency is aware, such files generally are unavailable to the computer user even if they still exist and are retrievable through expert means. To the extent that the agency's definition of Ford includes suppliers, contractors and affiliated enterprises for which Ford does not exercise day-to-day operational control, we note that information belonging to such entities ordinarily is not in Ford's possession, custody or control.

Ford has construed this request as pertaining to vehicles manufactured for sale in the United States, its protectorates and territories.

Answers to your specific questions are set forth below. As requested, after each numeric designation, we have set forth verbatim the request for information, followed by our response. Unless otherwise stated, Ford has undertaken to provide responsive documents dated up to and including December 15, 2005, the date of your inquiry. Ford has searched within the following offices for responsive documents: Environmental and Safety Engineering, Ford Customer Service Division, Marketing and Sales Operations, Quality, Global Core Engineering, Office of the General Counsel, Vehicle Operations, and North American Truck Product Development.

Request 1

State, by model and model year, the number of subject vehicles Ford has manufactured for sale or lease in the United States. Separately, for each subject vehicle manufactured to date by Ford, state the following:

a. Vehicle identification number (VIN);
b. Make;
c. Model;
d. Model Year (MY);
e. Date of manufacture;
f. Date warranty coverage commenced; and
g. The 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."

Answer

Ford previously provided the requested information in our August 19, 2005 response to PE05-033. Ford has not manufactured any subject vehicles since that response and accordingly, information provided in that response remains appropriate.

Request 2

State the number of each of the following, received by Ford, or of which Ford is otherwise aware, which relate to, or may relate to, 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 Ford is or was a party to the arbitration; and
f. Lawsuits, both pending and closed, in which Ford 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 Ford'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. Provide a status update of the lawsuits identified in the PEIR letter.

Answer

For purposes of identifying reports of incidents that may be related to the alleged defect and any related documents, Ford has gathered "owner reports" and "field reports" maintained by Ford Customer Service Division (FCSD), fleet reports maintained in a Fleet Test Database, and claim and lawsuit information maintained by Ford's Office of the General Counsel (OGC). The agency will note that we are not referencing searches of the Intensified Customer Concern Definition (ICCD) files as the ICCD records are now maintained in Ford owner report files. Therefore, our searches of the owner report files include ICCD records.

Descriptions of the FCSD owner and field report systems and the Fleet Test Database and the criteria used to search each of these are provided electronically in Appendix A (filename: 2006-02-17 Appendix A) on the enclosed CD.

The following categorizations were used in the review of reports located in each of these searches:

Category	Allegation
A	Reports of alleged windshield leak with windshield wiper issues
B	Reports of alleged windshield leak with headlamp issues
C	Reports of alleged windshield leak with other electrical issues
D	Reports of alleged windshield leak with no or unspecified electrical issues
E	Reports that are ambiguous if water related, or source of water

We are providing electronic copies of reports Categorized as "E" as "non-specific allegations" for your review because of the broad scope of the request. Based on our engineering judgment, the information in these reports is insufficient to support a determination that they pertain to the alleged defect. These reports may contain reports of electrical issues with an indeterminate cause, or may contain reports of water intrusion with the source of the water indeterminate. For instance a report may indicate that "the windshield wiper was coming on by itself" with no additional information or "windshield wiper is not working because water got inside." In the first example it is unclear if the issue is related to water intrusion. In the second example it is unclear if the water is entering into the GEM/PDB or if the water is instead entering the wiper motor (under hood), or what the source of the water is. These are examples of the types of reports that are contained in "category E".

Owner Reports: Records identified in a search of the Master Owner Relations Systems (MORS) database, as described in Appendix A, were reviewed for relevance and categorized in accordance with the categories described above. The number and copies of relevant owner reports identified in this search that may relate to the agency's investigation are provided in the MORS III portion of the electronic database contained in Appendix B (filename: 2006-02-17 Appendix B) on the enclosed CD. The categorization of each report is identified in the "Category" field. Note that Ford is only providing those reports received since the response to PE05-033.

When we were able to identify that responsive (i.e., not ambiguous) duplicate owner reports for an alleged incident were received, each of these duplicate reports was marked accordingly, and the group counted as one report. In other cases, certain vehicles may have experienced more than one incident and have more than one report associated with their VINs. These reports have been counted separately.

Legal Contacts: Ford is providing, in Appendix A, a description of Legal Contacts and the activity that is responsible for this information, Litigation Prevention. No responsive (i.e., not ambiguous) owner reports indicate that they are Legal Contacts.

Fleet Reports: In addition to fleet reports that may be contained in the owner reports or field reports identified in this response, Ford conducted a search of its Fleet Test Database, as described in Appendix A, for reports that may relate to the alleged defect in the subject vehicles. No fleet reports were identified that may relate to the alleged defect.

Field Reports: Records identified in a search of the Common Quality Indicator System (CQIS) database, as described in Appendix A, were reviewed for relevance and categorized in accordance with the categories described above. The number and copies of relevant field reports identified in this search that may relate to the agency's investigation are provided in the CQIS portion of the electronic database contained in Appendix B on the enclosed CD. The categorization of each report is identified in the "Category" field. Note that Ford is only providing those reports received since the response to PE05-033.

When we were able to identify that responsive duplicate field reports for an alleged incident were received, each of these duplicate reports was marked accordingly, and the group counted as one report.

Unified Database: The Unified Database (UDB) was created to facilitate parts availability by tracking part sales and is not intended as a problem reporting system. However, because a small percentage of the records may contain verbatim comments that could potentially relate to the agency's inquiry, we searched UDB for reports responsive to Request 2 as described in Appendix A. The number of reports identified in this review, that may relate to the agency's investigation based on these verbatim comments is provided in Appendix B. Note that Ford is only providing those reports received since the response to PE05-033.

When we were able to identify that responsive (i.e., not ambiguous) duplicate UDB reports for an alleged incident were received, each of these duplicate reports was marked accordingly, and the group counted as one report. In other cases, certain vehicles may have experienced more than one incident and have more than one report associated with their VINs; these reports have been counted separately. UDB records that are duplicative of owner or field reports or warranty claims are provided in Appendix B but are not included in the report count.

VOQ Data: This information request had an attachment that included four Vehicle Owner's Questionnaires (VOQs) that were not previously provided with PE05-033. Two additional VOQs received by the agency subsequent to the date of this inquiry were also provided. Ford made inquiries of its MORS database for customer contacts, and its CQIS database for field reports regarding the vehicles identified on the six VOQs received since its response to PE05-033. Any reports located on a vehicle identified in the VOQs related to the alleged defect are included in the MORS and CQIS portions of the electronic database provided in Appendix B and have been identified by a "Y" in the "VOQ Dup" field.

Crash/Injury Incident Claims: For purposes of identifying allegations of accidents or injuries that may have resulted from the alleged defect, Ford has reviewed responsive owner and field reports, and lawsuits and claims. No reports that allege any type of crash or injury related to this subject were located.

Claims, Lawsuits, and Arbitrations: For purposes of identifying incidents that may relate to the alleged defect, Ford has gathered claim and lawsuit information maintained by Ford's OGC. Ford's OGC is responsible for handling product liability lawsuits, claims, and consumer breach of warranty lawsuits and arbitrations against the Company.

Lawsuits and claims gathered in this manner were reviewed for relevance and categorized in accordance with the categories described above. Ford has also located other lawsuits, claims or consumer breach of warranty lawsuits each of which is ambiguous as to whether it meets the alleged defect criteria. We have included these lawsuits and claims as "non-specific

allegations" for your review because of the broad scope of the request. Based on our engineering judgment, the information in these lawsuits and claims is insufficient to support a determination that they pertain to the alleged defect. Ford notes that each of the lawsuits and claims provided in response to both PE05-033 and this inquiry are "consumer" (Lemon Law) and "breach of warranty" issues and none of the lawsuits or claims are specifically and directly related to the alleged defect. Based on conversation with agency personnel it appears that the agency may have misunderstood the information provided in Ford's August 19, 2005 response to PE05-033 and may have interpreted that the lawsuit and claim information provided in that response were all directly related to the alleged defect, which is not the case. Examples of information that may be found in such files include: "Rainwater leak at left front, spot in paint, back moulding cracked, repair courtesy lamps not working, speedometer & short in windows"; and "[S]ealing water leaks, oil leak, rattle on driver's side, lighting problems, rear wiper works intermittently & popping noise under vehicle."

We are providing the requested detailed information, where available, on the responsive and ambiguous lawsuits and claims in our Log of Lawsuits and Claims, as Appendix C1 (filename: 2006-02-17 Appendix C1) on the enclosed CD. The number of relevant lawsuits and claims identified is also provided in this log. A column titled "Open/Closed Status Change since PE05-033" indicates if the status of the lawsuit or claim has changed since Ford's August 19, 2005 response to PE05-033. Matters that were received by Ford subsequent to the PE05-033 response contain the word "EA" and the current status of that issue. To the extent available, electronic copies of complaints, first notices, or MORS reports relating to matters shown on the log are provided on the enclosed CD in Appendix C2 (filename: 2006-02-17 Appendix C2). With regard to these lawsuits and claims, Ford has not undertaken to contact outside law firms to obtain additional documentation. Ford notes that it was unable to locate the file related to one claim identified during its search. The information available related to the David Soard case indicates the matter was closed, but no further information was located concerning the allegations in the matter. The available information does not provide a VIN for the vehicle involved in that matter so no further search could be conducted.

Request 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. Ford'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. Vehicle owner or fleet name (and fleet contact person), address, and telephone number;
d. Vehicle's VIN;
e. Vehicle's make, model and model year;
f. Vehicle's mileage at time of incident;
g. Incident date;
h. Report or claim date;
i. Whether property damage is alleged;
j. Number of alleged injuries, if any; and
k. Number of alleged fatalities, if any.

Provide this information in Microsoft Access 2000, or a compatible format, entitled "COMPLAINT DATA."

Answer

Ford is providing owner and field reports in the electronic database contained in Appendix B on the enclosed CD in response to Request 2. To the extent information sought in Request 3 is available for owner and field reports, it is provided in the database. To the extent information sought in Request 3 is available for lawsuits and claims, it is provided in the Log of Lawsuits and Claims in Appendix C1.

Request 4

Produce copies of all documents related to each item within the scope of Request No. 2. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method Ford used for organizing the documents.

Answer

Ford is providing owner and field reports in the electronic database contained in Appendix B on the enclosed CD in response to Request 2. Copies of complaints, first notices, or MORS reports relating to matters shown on the Log of Lawsuits and Claims (Appendix C1) are provided in Appendix C2. To the extent information sought in Request 4 is available, it is provided in the referenced appendices.

Request 5

State, by model and model year, a total count for all of the following categories of claims, collectively, that have been paid by Ford to date that relate to, or may relate to, the alleged defect 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. Ford's 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; and
k. Comment, if any, by dealer/technician relating to claim and/or repair.

Provide this information in Microsoft Access 2000, or a compatible format, entitled "WARRANTY DATA."

Answer

Records identified in a search of the AWS database, as described in Appendix A, were reviewed for relevance and categorized in accordance with the categories described in the response to Request 2. The number and copies of relevant warranty claims identified in this search that may relate to the agency's investigation are proved in the AWS portion of the electronic database contained in Appendix B on the enclosed CD. The categorization of each report is identified in the "Category" field.

When we were able to identify that duplicate claims for an alleged incident were received, each of these duplicate claims is marked accordingly and the group is counted as one report. In other cases, certain vehicles may have experienced more than one incident and have more than one claim associated with their VINs. These claims have been counted separately. Warranty claims that are duplicative of owner and field reports are provided in Appendix B but are not indicated in the report count above.

Requests for "goodwill, field or zone adjustments" received by Ford to date that relate to the alleged defect that were not honored, if any, would be included in the MORS reports identified above in response to Request 2. Such claims that were honored are included in the warranty data provided.

Ford assumes that provkling the warranty claims in the electronic database format meets the requirements of this request because the agency can review or order the claims as desired.

Request 6

Describe in detail the search criteria used by Ford to identify the claims identified in response to Request No. 5, including the labor operations, problem codes, part numbers and any other pertinent parameters used. Provide a list of all labor operations, labor operation descriptions, problem codes, and problem code descriptions applicable to the alleged defect in the subject vehicles. State, by make and model year, the terms of the new vehicle warranty coverage offered by Ford on the subject vehicles (i.e., the number of months and mileage for which coverage is provided and the vehicle systems that are covered). Describe any extended warranty coverage option(s) that Ford offered for the subject vehicles and state by option, model, and model year, the number of vehicles that are covered under each such extended warranty. Provide this information in Microsoft Excel or compatible format.

Answer

Detailed descriptions of the search criteria, including all pertinent parameters, used to identify the claims provided in response to Request 5 are described in Appendix A.

The warranty coverage information provided in Ford's August 19, 2005 response to PE05-033 remains unchanged, and accordingly Ford refers the agency to the information provided in that response.

Request 7

Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject vehicles, that Ford 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 Ford is planning to issue within the next 120 days. Organize the documents or communications chronologically by actions.

Answer

For purpose of identifying communications to dealers, zone offices, or field offices pertaining, at least in part, to windshield water leaks, Ford has reviewed the following FCSD databases and files: The On-Line Automotive Service Information System (OASIS) containing Technical Service Bulletins (TSBs) and Special Service Messages (SSMs); Internal Service Messages (ISMs) contained in CQIS; and Field Review Committee (FRC) files. We assume this request does not seek information related to electronic communications between Ford and its dealers regarding the order, delivery, or payment for replacement parts, so we have not included these kinds of information in our answer.

A description of Ford's OASIS messages, Internal Service Messages, and the Field Review Committee files and the search criteria used are provided in Appendix B.

OASIS Messages: Ford has identified no SSMs and no TSBs that pertain to windshield water leaks in the subject vehicles that were not previously provided in Ford's August 19, 2005 response to PE05-033.

Internal Service Messages: Ford has identified no ISMs that may relate to this request.

Field Review Committee: Ford has identified no field service action communications that may relate to this request.

Request 8

Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions"), including but not limited to any "14-D" and/or "8-D" analysis, that relate to, or may relate to, the alleged defect, the windshield, the GEM and the fuse box in the subject vehicles that have been conducted, are being conducted, are planned, or are being planned by, or for, Ford. 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. Engineering group(s)/supplier(s) responsible for designing and for conducting the action; and
f. 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.

Answer

Ford is construing this request broadly and searched for not only studies, surveys, and investigations related to the alleged defect, but also notes, correspondence, and other communications that were located pursuant to a diligent search for the requested information.

Ford is submitting responsive documentation as Appendix D (filename:2006-02-17 Appendix D) with a request for confidentially under separate cover to the agency's Office of the Chief Counsel pursuant to 49 CFR, Part 512.

To the extent that the information requested is available, it is included in the documents provided. If the agency should have questions concerning any of the documents, please advise.

Request 9

Provide the following analysis and documentation for the GEM in the subject vehicles:

a. Any actions related to Highly Accelerated Life Testing or any similar test or any other reliability testing that was performed;
b. System Software Hazards Analysis (or similarly titled and/or purposed document);
c. System Failure Modes and Effects Analysis (or similarly titled and/or purposed document);
d. System Fault Tree Analysis (or similarly titled and/or purposed document). Indicate which top-level faults were evaluated and the results of that evaluation;
e. System Software Test Specifications for the GEM hardware, software and system; and,
f. Copies of any predictive statistical analysis performed, relating to the alleged defect, for the windshield, fuse box and GEM, including but not limited to Weibul analysis.

Answer

Ford is submitting responsive documentation as Appendix E (filename: 2006-02-17 Appendix E) with a request for confidentially under separate cover to the agency's Office of the Chief Counsel pursuant to 49 CFR, Part 512. Additional information that may be responsive to this request may also be found in the information provided in response to requests 8, 13, and 14. Ford notes that the GEM is supplied to Ford by a full service supplier (FSS) who is responsible for developing and validating the GEM to performance requirements provided by Ford. Documents being provided include Ford's specifications given to the supplier. Documents relating to the validation to those requirements are maintained by the supplier and are not generally retained by Ford.

Request 10

Provide the following information for the Fuse box in the subject vehicles:

a. A detailed list and analysis of all potential shorts or circuit breaks both when the car is powered off and on. State the effects of these potential shorts or circuit

breaks on other devices in the car, on the GEM outputs and the direct effect on the GEM operation.

b. List the logic state and the input/output commands of the Fuse Box. Include information regarding, but not limited to: the logic state and the output commands with the low, high and variation in input to cause a change in state.

Answer

Ford interprets this request to be related to water intrusion into the vehicle in the vicinity of the windshield. In its August 19, 2005 response to PE05-033 Ford provided copies of the Electrical Vacuum Troubleshooting Manual (EVTM) diagrams (filename: 2005-08-19 Appendix J) that provided identification of circuits and pin locations within the GEM. Ford also provided copies of owner manuals (filename: 2005-08-19 Appendix K) that identify the circuits that pass through the fuse box, the fuse and circuit locations within the fuse box, and identify electrical relays within the fuse box. Any of the circuits within the fuse box could be affected by a potential short or circuit break. A circuit by circuit analysis of all of the possible conditions can be completed utilizing the information provided if it is desired.

The fuse box does not contain any logic type electronic components. It is simply a current/voltage pass through device with circuit protection features and relays (switches). The potential effects on the circuits by water intrusion are highly dependent upon a variety of factors including the amount of water, the path that the water travels through the fuse box, and the conductivity of the water. The observations contained within the reports provided in Appendix B indicate the nature and wide variety of effects, combination of effects, and sequence of effects that can potentially result from water entry. The reports from vehicles that have experienced these conditions indicate that some conditions are much more likely to occur than others.

Request 11

In a conversation with Ford Engineering, it was indicated that the quality control data and process documentation for the windshield system are no longer available. It is ODI's understanding that in order to provide traceability and evidence of completion of corrective actions, it is essential that quality control measures and process audits are recorded, documented and retained. Therefore, ODI has included the previously unanswered portion of Request No. 10 of the PEIR letter dated June 23, 2005, in an attempt to further analyze the subject defect. "Provide the process quality control data for the front and rear windshield, including the windshield molding and sealer". Additionally, provide documentation and data of the quality control measurements of the side margins after windshield installation. If this documentation is not available, explain why it is not available.

Answer

Ford fully responded to Request No. 10 of the PE IR letter dated June 23, 2005 in providing all available information in response to the referenced request and strongly disagrees with the agency's assertion to the contrary. As the agency is aware from a telephone conversation between Ford and agency personnel on November 3, 2005, prior to the agency issuing the EA IR letter, the specific quality control data requested is not available because the request was issued substantially after the date the record management policies require that data be retained. A copy of the record retention policy that governs such information is provided in Appendix F (filename: 2006-02-17 Appendix F) on the enclosed CD for reference.

Ford employs extensive and thorough quality control processes throughout its vehicle manufacturing process, including but not limited to processes relating to windshield installation. These processes are used to maintain and improve manufacturing process integrity within the assembly plant. Data is gathered at many stages of the assembly process and are used to monitor process capability and identify any areas that require corrective action. Any out of specification issues identified through these quality control processes are addressed immediately before the vehicles complete further stages in the assembly process, and before the vehicles are released from the assembly plant. Because the purpose of gathering the requested information is to assess assembly process integrity and vehicle quality prior to leaving the assembly plant, once those assessments are complete the data does not serve any business purpose. The retention period for this data reflects the limited business purposes that it serves.

Request 12

> ODI has conducted water tests on Expedition windshields, GEMs and fuse boxes to assess the path of the water leak, with the intention of comparing the results with Ford's findings. Unfortunately, Ford did not fully respond to Request No. 11 of the PEIR letter. Therefore, ODI has included the previously unanswered portion of Request No. 11, in an attempt to further analyze the subject defect. "Describe the path of the alleged water leakage." Additionally, describe the failure modes and effects of the components affected by the water leakage.

Answer

Ford fully responded to Request No. 11 of the PEIR letter dated June 23, 2005 in providing all available information in response to the referenced request and strongly disagrees with the agency's assertion to the contrary. Ford stated in its August 19, 2005 response to PE05-033 that a single leak path and entry point had not been identified and the reports provided to the agency in the PE response do not identify a single entry point or path of travel for the water leak. Ford notes that it had limited time to respond to the agency's request and based on its review of comments recorded by hundreds of Ford's trained technicians there is no clear indication of a single leak path. It is Ford's understanding that the agency has conducted extensive testing on a single vehicle whose prior history is unclear. Ford has no detailed information regarding any of the agency's testing or events leading up to the agency having possession of the vehicle. The agency did provide the VIN of the vehicle. Ford was able to determine that the vehicle had front-end collision damage repaired earlier in its history, but it is unclear if any windshield leak issues may be related. Given that the available data indicates that no single leak path is common in the reports identified, no conclusions about the subject vehicle population could be reasonably drawn from evaluating a leak in one vehicle that was previously involved in a front end collision.

If the agency has conducted further testing or has additional information, Ford cannot comment on it, as it has not been made available to us. Our responses continue to be complete and accurate based on the information available to Ford.

An inspection of a complaint is illustrative of the difficulty in drawing conclusions from the inspection of a single vehicle. In November, 2005 the agency was made aware of a vehicle that Ford identified as having recently been repaired at a private repair facility. An inspection of the vehicle by agency personnel and supported by Ford found that the windshield in the vehicle was

not a Ford factory installed windshield despite the current owner reporting that he had never had the windshield replaced. Based on the changed condition of the vehicle from its original build condition, this report is irrelevant to the agency's investigation. Not only must the condition of any report vehicle be thoroughly evaluated, the description of the vehicle symptoms is often questionable. In this instance, the owner reported observing different electrical anomalies for approximately 11 months prior to taking the vehicle for repairs. The initial observations reported by the owner included a "warning chime" being activated and "odometer lights" not illuminating. The owner did not mention any wiper function issues. It is noteworthy that the owner only recalled any effect on windshield wiper function after being prompted by agency personnel with a question specifically related to windshield wipers. It was also noted that the owner had declined to have the windshield leak repaired despite being informed of the leak by the technician at the repair facility.

The circumstances relating to this vehicle further support Ford's position as stated in its response to PE05-033 that: 1) owners may not know or realize that the windshield in their vehicle may have been previously repaired or replaced; 2) the electrical issues initially observed are benign and only become more severe when the symptoms are ignored; and, 3) customer contacts are primarily related to financial concerns. In fact, this particular owner specifically asked if the agency was going to assist in the repair cost as a result of his willingness to allow the agency to inspect his vehicle.

Request 13

Provide a complete and detailed schematic of the GEM with component labels, including but not limited to:

a. All Capacitors, Resistors, and all other active and passive devices;
b. Computer hardware and software; and,
c. Input and output signals.

Answer

Ford specifies the desired basic parameters and functionality of a component or subsystem and then allows a full service supplier to completely design the components and systems to provide the functional requirements. Accordingly, the specific design parameters and subcomponents remain the intellectual property of the full service supplier and in accordance with the information provided in the preamble to this response Ford would not customarily have such information in its files. Nonetheless, a search was conducted within Ford for any documents that may relate to this information request and any documents located as a result of that search are provided in Appendix G, which is being submitted with a request for confidentiality under separate cover to the agency's Office of the Chief Counsel pursuant to 49 CFR, Part 512. It should be noted that Ford provided in its August 19, 2005 response to PE05-033 the EVTM information for the subject vehicles which provided information requested in item c.

Request 14

Provide details on the environmental specifications within which the GEM device is designed to operate. Provide the requirements for time at level data, the predictive life as a function of the environment and the results of tests to validate the GEM in the following environments:

a. The temperature environment;
b. The vibration environment;
c. The EMI environment (conductive and radiation);
d. The humidity environment; and,
e. All other environments of merit.

Answer

Ford purchases the GEM from a full service supplier who is responsible for all design and validation testing. The GEM is largely a "black box" to Ford and as such Ford may not have detailed component information regarding components internal to the module. Additionally, the supplier may be required to complete all of the development and validation testing for the components and Ford may only have record that the testing was completed. Ford is submitting responsive documentation as Appendix H with a request for confidentiality under separate cover to the agency's Office of Chief Counsel pursuant to 49 CFR, Part 512. Additional information that may be responsive to this request may also be found in the information provided in response to requests 8, 9 and 13.

Request 15

Technical Service Bulletin (TSB) Article #15773 states that there may be "various electrical conditions resulting from water intrusion into the GEM," and explains that the water intrusion is "resulting from a windshield water leak." This TSB was issued on April 5, 2002 for MY 1997-2002 Expedition vehicles. Identify the expected expiration date of this TSB. Explain in detail the rationale for issuing this TSB for these model years. Explain the effectiveness of conducting a TSB program. Identify all individuals and/or groups involved in the decision-making process. Provide a full account of the decision-making process leading to the issuance of the TSB, including but not limited to field actions.

Answer

The article referenced in this information request is not a Technical Service Bulletin (TSB); rather, it is a Special Service Message (SSM). An accurate recounting of the information provided in the SSM is that the vehicles "may exhibit various unusual electrical conditions" and that the conditions described "[m]ay be due to GEM/CJB water intrusion resulting from a windshield water leak." In accordance with the requirements set forth in 49CFR Part 579.5, Ford submits to the agency monthly reports of such communications. A copy of this communication was provided to the agency in Ford's May, 2002 monthly report.

As the agency is aware, service and repair of vehicles is accomplished by thousands of dealerships and private repair facilities. Part of the relationship between dealers and manufacturers includes providing information to dealership technicians to assist in efficient diagnosis, troubleshooting, and repair of vehicles. One attribute of the manufacturer/dealership relationship is issuing technical communications for various conditions and situations. For instance, SSM's and TSB's may be issued to provide awareness to technicians of new technologies or new tool availability, to alert them to feature, component, or calibration changes, or to assist in diagnosis of difficult symptoms. An SSM is limited in the number of characters that can be provided, and is incapable of providing illustrations or pictures due to the nature of the system. SSM's are intended for rapid, non-permanent types of electronic communications and are made obsolete after 10 years, or sooner if superseded or no longer necessary. SSM

15773 was issued to assist technicians in diagnosing some electrical system anomalies that did not follow a specific pattern or relate to a specific system or component in every instance. The SSM was intended to help technicians diagnose and repair the electrical anomalies quickly and completely. The referenced SSM is currently planned to become obsolete ten years from the date of issue (April 5, 2012) unless superseded or extended.

TSB's are intended for similar purposes but are intended to be a permanent document and do not become obsolete. A TSB can contain much more information than an SSM, including sketches, illustrations, drawings and very detailed procedures. TSB's do not have a size limit.

Service bulletins of either type may result from Ford's receipt of repeat calls of similar questions to the FCSD technical hotline (helpdesk) by technicians requesting assistance with diagnosis, from an issue identified by either design or manufacturing engineering, or from items identified by production personnel or Plant Vehicle Team (PVT) members among others. Those involved with developing a technical communication vary depending on the component or system involved and the nature of the topic (i.e. new technology, service, diagnosis, or repair assistance, etc.), but typically involve general groups of personnel. Those may include FCSD's Technical Communications group, the Automotive Safety Office, Vehicle Environmental Engineering, FCSD's Parts Supply and Logistics (PS&L) team, Powertrain Calibration, FCSD's Service Engineering team and the PVT. These types of communications are published by FCSD.

Ford interprets the agency's request as a desire to understand the specific event(s), action(s), and observation(s) that may have led to issuance of this particular service message. A search of the information available identified no specific information regarding the background of this particular service message. Personnel who were located and had some involvement in the development of this service message believed that the message was issued as a result of calls to the service hotline requesting assistance in troubleshooting various, inconsistent electrical anomalies that technicians were having difficulty resolving.

The technical communications are a valuable communication tool between Ford and the technician in providing quick and effective information, but we cannot further define the "effectiveness of conducting a TSB program" as the agency requests. Ford has no method of tracking how often the SSM was referenced by technicians or how helpful they found the SSM to be.

Request 16

> In response to Request No. 2 of the PEIR letter, Ford defined the categories used to review the reports provided in the response. Category D is defined as "Reports of alleged windshield leak with no electrical issues." ODI's analysis of the CQIS, MORS and UDB reports revealed 143 reports of electrical failures that were grouped under Category D, including 19 wiper failures and 32 lighting failures. Explain in detail, Ford's rationale for including reports of wiper and lighting failures in a category labeled "no electrical issues."

Answer

Upon receipt of the agency's IR letter Ford performed a thorough review of the reports provided to the agency in Ford's August 19, 2005, response to PE05-033, and Ford believes the agency's assertion that Ford miscategorized "19 wiper failures and 32 lighting failures" is in error. Ford

performed multiple independent reviews of all of the reports identified in "Category D" in Ford's PE05-033 response. Ford identified only one MORS report that mentioned a "wiper" issue. It reported "wiper module replaced 2 -3 weeks ago, then didn't work." Further review of that single report found that the alleged leak was actually in the rear of the vehicle ("water leak above the right rear window, which is ... through the roof rack attachments") and not related to a windshield wiper issue at all. This report was mistakenly provided as responsive to the agency's request, when in fact it was not responsive. Ford was unable to locate any other reports indicating any type of wiper or headlamp failure in category D reports.

In a February 9, 2006 telephone conversation between agency and Ford personnel it was learned that the agency had made their determination based on an "incident count" of words using a database query. Ford strongly disagrees with any assertion that a report simply containing the word "wiper" relates to a "wiper failure." Rather, Ford believes that the only way to accurately categorize reports is to read the content of the report and make an assessment based on review of the full text, as was done in our review. Ford requests identification of the actual word(s) or character combinations used for the agency's searches. Ford would also welcome a full accounting of the actual reports from Category D that the agency believes are reports of wiper and lighting failures.

The agency has further communicated in phone conversations that "unexpected illumination" of interior lighting or instrument panel warning lights (e.g. low washer fluid, check engine, etc.) could be considered a driver distraction and a potential risk to safe vehicle operation. This position is difficult to reconcile with the essential purpose of the warning lights to illuminate in the event of an unexpected vehicle condition. By definition the lights illuminate unexpectedly. Further, this position is difficult to reconcile with many of the lights being required safety features by various Federal Motor Vehicle Safety Standards. Accordingly, Ford does not understand the agency's comment that instrument panel warning lights could pose any potential risk to safe vehicle operation.

Request 17

> In the second paragraph of the cover letter of the PEIR response, Ford states: "The National Glass Association has estimated that 5.1 percent of windshields are damaged and require replacement annually." Explain and include the related documentation and data that substantiate this statement.

Answer

The agency informed Ford on November 30, 2005 that it was unable to locate the website containing the information cited in Ford's August 19, 2005, response to PE05-033. On November 30, 2005, Ford provided to the agency an electronic copy of the article referenced which included the information cited in Ford's response. Because Ford did not make the statement but simply communicated information provided by the referenced resources, it cannot "substantiate" the statement beyond providing a copy of the referenced article.

As a courtesy, Ford is providing additional supporting information that it has since located in Appendix I (filename: 2006-02-17 Appendix I) on the enclosed CD. Ford is providing this information as published and cannot provide any further substantiation of the information.

Request 18

> In the second paragraph of the cover letter of the PEIR response, Ford states: "Some industry experts believe that up to 70 percent of those [windshield] repairs may be completed improperly." Identify the source of this statement. Explain and include all related documentation and data that substantiate the statement. Explain in detail the actions Ford is taking to prevent improper installation of windshields by non-Ford facilities.

Answer

The information cited in this information request is from the same source as that discussed in response to Information Request 17. Again, Ford cited the information from published material that was provided to the agency and has no further background information.

While Ford makes training in a wide variety of disciplines and vehicle systems available to Ford and non-Ford technicians who can utilize it to expand or refine their technical capabilities, windshield replacement is one repair that is not part of the training that Ford provides. Dealerships that perform windshield repair or replacement typically do so in a "body shop" or "collision repair" facility and they typically rely on industry technical training provided by technical schools or some college curricula. Some third party glass repair companies provide training to their locally owned businesses. Ford did not solicit specific information from privately owned businesses. Qualifications for a technician to complete certain repairs are typically regulated by local and state governments and not by the manufacturer.

Please see additional information provided in response to request 17.

Ford does provide general guidance and material specifications for items used in preparation and installation of windshields for repair in its service (shop) manuals, copies of which Ford dealerships have. These service manuals are also made available to anyone who desires to purchase them, including non-Ford repair facilities.

Request 19

> In the last paragraph of the Report Analysis section of the PEIR response, Ford states: "Owners typically observe indications of a leaking windshield prior to observing any type of additional electrical anomalies." Identify the complaints in Ford's possession indicating owner awareness of a leaking windshield prior to any electrical failure.

Answer

Ford calls the agency's attention to the reports provided in the August 19, 2005 response to PE05-033 in Appendix C. The reports provided under category D are the reports that Ford believes supports the referenced statement. A thorough review of those reports will disclose observations of water leaking and wind noise issues that were attributed to a leaking windshield. Many reports contain no mention of any electrical components at all. Some mention that a PDB or GEM may have been replaced without any mention of observation of electrical anomalies. Further, many of the reports indicating a wiper issue also mentioned other electrical anomalies without any indication of the order of observations.

Request 20

Process sheet, FGW 00090, describes a method for re-using windshields. Identify the subject vehicles that contain re-used windshields. Include VIN, Make, Model, Model Year, Date of Build.

Answer

Windshields are not serialized or marked in any way that would enable identifying a specific windshield to a specific vehicle VIN. Accordingly, this information is not available from the production process.

Request 21

Provide an accounting of wiper failures due to any cause. Answer within the scope of Request Nos. 2 through 5 of this letter. Categorize the answer by failure mode, if known.

Answer

Ford interprets this request to be related to the subject vehicles, and only the front windshield wiper system. Ford searched the relevant databases using the search criteria provided in Appendix B and utilized the same criteria to identify a report relating to the windshield wiper system as in requests two through five. The reports relating to the windshield wiper system were then categorized by failure mode using the repair information available in the reports. The categories utilized are:

Category	Nature of Repair
A	Motor or transmission issue
B	Electrical wiring issue
C	Switch issue
D	GEM module issue
E	Other mechanical issue
F	Wiper system issue with cause indeterminate

The reports relating to this information request, along with a summary table of report counts, are provided in Appendix J (filename: 2006-02-17 Appendix J) on the enclosed CD. A log of lawsuits and claims responsive to this information request are provided in Appendix K (filename: 2006-02-17 Appendix K) on the enclosed CD. Non-privileged documents responsive to this information request are provided in Appendix C2.

Due to the broad nature of this request and the large number of reports requiring review in a limited time, Ford completed review and categorization of these reports using a combination of data searches, sampling, and individual report reviews. Reports were largely categorized by the part numbers or part names described within the reports. When large groups of reports were identified that appeared to be related to a particular part number or part name, those reports were sampled for accuracy before assigning categories to the individual reports as a group. Due to the number of reports and the limited time available to respond to this information

request Ford did not review every report individually that is provided in response to this request. Nevertheless, Ford believes the overall trends to be reasonably reliable.

Due to the broad nature of this request and the large number of reports that required review in a limited time, Ford did not solicit additional information from the Litigation Prevention activity described in response to request 2 related to responsive owner reports.

As the agency is aware, there are two Owner Notification Programs (ONP's) that relate to some of the components associated with this information request:

ONP 00B40 – (Certain 1999 and 2000 Model Year Vehicles, multi-function switch)

ONP 01S24 – (Certain 2000 and 2001 Model Year Cars and Trucks, wiper motor gear cover)

Neither of these programs relate to the subject components or alleged defect.

It is noteworthy that some of the reports provided in response to this information request are duplicative of some of the reports provided in response to requests 2 through 5. They are not completely duplicative in that the search criteria used to locate potentially responsive reports was different (identifying windshield leaks and reports with other issues resulting from windshield leaks compared to locating "windshield wiper issues") and the information for requests 2 through 5 encompassed reports received subsequent to PE05-033 while the search to locate reports requested in request 21 required reviewing all reports for the subject vehicles. The search criteria are described in detail in Appendix A.

Ford's assessment:

Although the agency did not request the customary manufacturer's assessment of the information, Ford believes the agency may benefit from our assessment based upon knowledge gained during the course of our thorough investigation into this matter.

As the agency's analysis of the single report vehicle it has examined demonstrates, it cannot be assumed that any vehicle reporting a windshield leak is in the same condition as built by Ford. The subject vehicles have been in service for between 53 and 82 months, with an average time in service of approximately 68 months. As previously reported in Ford's August 19, 2005 response to PE05-033, industry experts indicate that approximately 5.1 percent of automotive windshields are damaged and require replacement each year. The information further suggests that up to 70 percent of the approximately 12 million windshields replaced annually are done so improperly. Applying the percentage of windshields that may be replaced annually to the subject vehicle population at this time in service suggests that more than 180,000 windshield replacements may have occurred in the subject vehicles. Given this rate of windshield replacement, the agency cannot rely on a complaint as evidence of a failure in the vehicle as originally equipped by Ford. NHTSA is "obligated to demonstrate that the incidents occurred under circumstances in which, absent a defect, they would not have occurred." U.S. v. General Motors, 841 F.2d 400, 439 (D.C.1988)

Ford continues to believe that while the alleged windshield leaks may present a source of customer dissatisfaction they do not pose an unreasonable risk to motor vehicle safety on the subject vehicles. The number of reports that allege any affect of the wiper system as a result of water intrusion is low, particularly when compared to the overall number of reports relating to the wiper system as reported in response to Request 21. During the 1999 through 2001 model

years Ford built 653,471 subject vehicles. Ford has identified 2,889 reports of windshield water leaks with associated electrical anomalies, but only 468 or 12.6 repairs/100,000 vehicle years in service mention some type of effect on wiper system function. Further, the majority of reports that mention any effect on the wiper system mention such anomalies as uncommanded function or indicate that the wipers ceased to function as the vehicle was shifted out of "Park," which alerts an operator before a vehicle is driven that there is a wiper malfunction. Ford has located only 20 reports across all of the data sources which is a rate of 0.5 repairs/100,000 vehicle years in service that we believe allege that the wipers stopped while driving. Of the 20 reports five are owner contacts and customer comments in four of those five owner reports located sought financial assistance for the repair. None of those 20 reports expressed concern for safe operation of the vehicle. Examples of comments found in the reports include: "customer seeking full or partial reimbursement"; "he does not feel that he should pay for this repair – he would like Ford to take care of the repair cost"; "customer has been a loyal Ford customer and is request fin assist"; and "cust [sic] is a long time purcheser [sic] of Ford veh=if he is going to stay with Ford he is expecting Ford to assist him with a coupon for a discound [sic] on another veh." In fact, in all of the reports alleging electrical anomalies Ford only identified three reports or 0.08 repairs/100,000 vehicle years in service that express any type of safety related concern, and all three of the reports also requested financial assistance during the contact.

Vehicle Owner Questionnaire (VOQ) Review

The agency provided six VOQs related to the agency's alleged defect in the subject vehicles that have been received since PE05-033.

With respect to the six VOQs received since PE05-033 Ford located one field report, related to VIN 1FMPU16L5YL[redacted] and one owner report, related to VIN 1FMRU1565YL[redacted] Ford located no records of any contacts related to the incidents reported in the remaining four VOQs for subject vehicles. Ford notes that the owner report related to VIN 1FMRU1565YL[redacted] was received by Ford after the cut-off date used to search the databases as described in Appendix A; nevertheless we are providing a copy for the agency's review in Appendix L (filename: 2006-02-17 Appendix L) on the enclosed CD. Additionally, the information in the VOQ related to this vehicle indicates the owner had observed electrical issues for approximately nine months prior to contacting the agency. Further, the customer only contacted Ford concerning the issue after contacting the agency, and a review of the contact information found that the vehicle was actually repaired approximately nine months prior to the owner contacting either the agency or Ford. The nature of the contact with Ford is directly related to financial consideration. The customer made no mention of any safety related concerns.

As Ford noted in its August 19, 2005 response to PE05-033, the agency provided 35 VOQs related to the subject vehicles and subject defect. It is noteworthy that none of the VOQs allege an accident or loss of control as a result of any of the reported issues. Seventeen of the VOQs indicate inoperative wipers and seven of those 17 indicate that the wipers are inoperative only when shifting into Drive or Reverse. While three of the VOQs indicate the wipers became inoperative "while driving," one of the VOQs (reference number 10126169) indicates that the vehicle had been experiencing "erratic electrical behavior" for "6 – 12 months" prior to the agency contact, and the owner reports that some warranty repairs were completed during that time period. Ford's records do not indicate any warranty repairs to this vehicle related to this issue, and in fact the last warranty repair to this vehicle was 12 months prior to the "Incident date" reported in the VOQ and was unrelated. Two VOQs indicate that the owner had contacted Ford, and one reports information provided by Ford; however, Ford's records do not show any contact by one owner, and no contact related to this issue for the other. One VOQ

alleges that the vehicle "jumped out of Park and into Reverse" (while running, attended by owner's wife in the passenger seat, the vehicle was driverless while the owner "ran an errand"). The owner further reports in the VOQ that "this can be repeated." Ford was not able to identify any contacts related to this alleged incident. The mechanism that retains the shift lever in "Park" is a mechanical detent, which cannot be affected by any condition associated with the alleged defect. Two of the VOQs (reference numbers 10126661 and 10125947) appear to be related to other issues that are not related to the subject defect. Finally, 15 of the VOQs were reported within a one week period immediately following the agency's announcement of the inquiry. Apparently these individuals did not view the condition as being worthy of reporting until learning about the government investigation.

Rather than reporting a concern primarily related to safety, it appears that most owners are reporting a concern regarding the cost of repair for the windshield leak. In fact, several (10 of the VOQs related to PE05-033 and three of five VOQs related to EA05-033) specifically mention the cost factor. It is noteworthy that slightly more than half of the reports indicate a leaking windshield only, with no mention of electrical issues. If a windshield leak is not addressed, over time, erratic electrical behavior may eventually occur, and as many reports indicate, the erratic behavior stops when the vehicle is no longer operated in wet conditions. An example of this can be seen in the owner report related to VIN 1FMRU1669Y[redacted] If a windshield leak continues to be ignored, over time, more permanent damage may be sustained by electrical components and the issue can become chronic and require more costly repair.

Consistent with the information contained in the reports provided in Appendix B as well as the data reported in response to PE05-033, the VOQs display a declining repair rate.

Ford also notes that the VOQ related to VIN 1FMDU74W05U[redacted] reports a water leak into the engine compartment (under hood) and the vehicle assigned to that VIN is a Ford Explorer. This VOQ appears to be neither a subject vehicle nor related to the agency's alleged defect.

Vehicle Analysis

The subject vehicles have been in service for between 53 and 82 months, with an average time in service of approximately 68 months. As previously reported in Ford's August 19, 2005 response to PE05-033, industry experts indicate that approximately 5.1 percent of automotive windshields are damaged and require replacement each year. The information further suggests that up to 70 percent of the approximately 12 million windshields replaced annually are done so improperly. Applying the percentage of windshields that may be replaced annually to the subject vehicle population at this time in service suggests that at least 180,000 windshield replacements have occurred in the subject vehicles. As the agency is aware from one vehicle inspection, the windshield in a vehicle may have been replaced with non-OEM glass and subsequent owners of the vehicle may not realize that the glass is non-OEM, or even that the windshield had been replaced prior to them purchasing the vehicle. Most windshield repairs are completed by third party specialists and Ford has no way of knowing if a windshield has been replaced, and if so, that it was properly replaced. Ford cannot assure proper sealing of a windshield that may have been improperly replaced.

Ford indicated in its response to PE05-033 that some owners indicate observing electrical anomalies for an extended time prior to having repairs attempted. Review of reports provided in this and Ford's previous response found some of the electrical anomalies to become more severe and chronic over time. The owner of the vehicle inspected by the agency reported first observing unexpected chimes and instrument panel lighting issues for approximately 11 months

prior to having the vehicle repaired. When questioned about the electrical anomalies it was only upon prompting by agency personnel that the customer recalled any effect on the wiper system. Even upon repair of the electrical anomalies this customer elected not to have the windshield leak repaired. Because owners appear to be willing to experience the anomalies for sometimes nearly a year without having the vehicle repaired, it is difficult to conclude that they believe this issue is in any way safety related.

Report Analysis

In the agency's opening resume to this Engineering Analysis the agency has chosen to characterize all of the reports provided by Ford in its owner's reports, field reports, and UDB reports in the August 19, 2005 response to PE05-033 as reports of defects specifically related to windshield water leaks. Unfortunately, this is a mischaracterization of many of the reports supplied by Ford in our PE response. Specifically, Ford identified and described many of these reports as being ambiguous as to whether they relate to windshield water leaks. It is not clear in these ambiguous reports if they are water related, the source of water (if any), or the specific system affected (front vs. rear wiper, interior lamps vs. headlamps). The agency also counted as responsive reports that do not indicate any, or do not identify any specific electrical anomalies. These reports were provided to the agency in an abundance of caution, though the information in these reports is insufficient to support a determination that they pertain to the alleged defect. Unless the agency has additional information regarding each one of the reports in this category it is inaccurate to describe them as related to related to windshield water leaks.

Consistent with the information that Ford provided in its August 19, 2005 response to PE05-033, few of the reports relating to this subject indicate any effect on the windshield wiper system. As indicated previously, only a small number of non-ambiguous reports located in response to both PE05-033 and this inquiry indicate any type of concern with the wiper system. Those reports describe a variety of conditions, including allegations of uncommanded wipe, inability to turn the wipers off, erratic operation, wipers that discontinue function when the vehicle is shifted out of park, etc. It is noteworthy that of the reports relating to wiper function, where the actual condition being reported could be determined, only 20 reports (0.3 percent of the total reports) allege a loss of wiper function while driving. Over 70 percent of the owner reports that mention issues with their wipers are contacts related to financial concerns. Further, four of the five owner reports that mention loss of wiper function while driving specifically concern financial assistance for the repairs rather than mention of any concern for safety. The remaining reports are typically characterized as "negative product feedback," or "negative dealer feedback" rather than a safety concern. Ford located three owner reports relating to wipers in which the customer specifically mentioned a safety concern. All three of the customers filing those owner reports also sought financial assistance with the repairs during the contact. Reports that relate to requests for financial consideration are identified with "Reason Codes" listed as "AWA" (After Warranty Adjustments, sometimes referred to as "good will" adjustments) or are identified as "ESP/ESC" when contacts are requesting assistance with extended warranties purchased either through Ford or third parties.

The total number of reports relating to the wiper system is low, and those indicating a loss of wiper function are a small percentage of those reports. Approximately 17 percent of the reports relating to the wiper system indicate that wiper function was specifically affected when "shifting out of Park or Neutral" or "shifting into Drive or Reverse." The connection between shifting the transmission and wiper function was not immediately apparent so Ford conducted further investigation into these reports. Through interviews with owners and feedback from the agency's VRTC, it was confirmed that the symptom did not involve a loss of wiper function after

the vehicle was in motion, but rather immediately upon shifting the transmission into gear before the driver is exposed to any risk from loss of wiper function. While a driver may choose to take the risk of driving without wipers to avoid other inconveniences, this customer choice does not equate to an unexpected loss of wiper function while a vehicle is in motion. This particular phenomenon is likely related to the "Park/Neutral sensing" function associated with four-wheel drive system. The "Park/Neutral sensing" electrical path through the GEM module is adjacent to the windshield wiper speed and on/off control signal electrical path. Should a path of electrical conductivity become available between the two paths, a reduced wipe speed or "off" signal to the wiper system could result. The actual effect is determined by the conductivity and the amount of the water creating the electrical path. While such a condition could theoretically develop while the vehicle is being driven for an extended period of time in the rain, such a potential is extremely remote. Both the technical analysis and years of real world experience demonstrate that it develops while the vehicle has been parked in the rain, for example, and is apparent to a driver when shifting the vehicle out of park or neutral.

Another approximately 18 percent of the reports describe uncommanded function or indicate that the wipers "will not stop." These reports clearly do not relate to a loss of function while driving. Ford believes that while these incidents are a source of dissatisfaction to customers, they do not present a risk to safe operation of the vehicles.

In its response to PE05-033 Ford noted a declining trend of reports after approximately 60,000 miles, and the reports located for response to this inquiry continue to follow that trend. The trend is noted in the owner reports that reliably identify trends in the post-warranty mileage period. Further, it can be expected that the vast majority of the subject vehicles that are still in service are past this mileage.

Summary

Unlike many other conditions the agency has investigated, windshields are a frequently replaced component and the fact that customers report windshield leaks is not enough to demonstrate a defect. The single incident vehicle the agency investigated proves that point. Given the number of years in service of the subject vehicle population, it is estimated that at least 180,000 windshields have been replaced in the subject vehicles. Leaks that occur after windshield replacement are not evidence of a defect under the Safety Act.

To the extent that windshield leaks have occurred on original equipment windshields installed by Ford, the symptoms do not pose an unreasonable safety risk. Most electrical anomalies described in the reports that mention electrical effects are quite overt and benign in nature (including uncommanded defroster motor operation, uncommanded headlamps illumination, erratic radio operation, and illumination of some instrument panel warning indicators such as low washer fluid, for example). While these conditions are a source of customer dissatisfaction they do not rise to the level of a safety defect.

The numbers of reports alleging an actual loss of wiper function during vehicle operation is 0.5 R/100,000 vehicle years of service. As previously noted, most of the reports related to windshield wiper concerns pertain to requests for financial assistance and do not express any safety related concern. Further, even those few that express a concern for safety also concurrently request financial assistance for the repair.

Ford continues to believe that these allegations do not rise to the level of a defect trend or risk to the safe operation of motor vehicles. This is supported by the vast majority of reports

provided that in no way pertain to loss of wiper function while driving, by the period of time that customers appear to be willing to wait to seek repair, despite continuing electrical concerns, and by the number of contacts requesting financial assistance compared to those few that indicate any type of concern for safety. A decline in the number of reports is apparent when evaluating both the VOQ information and the data provided in Appendix B. Ford has demonstrated to the agency that vehicles experiencing a windshield leak may not have a factory windshield. Further, it is nearly impossible in many cases to determine if a windshield is factory installed. It was clearly demonstrated to the agency in one instance that a customer who stated that the windshield had not been replaced was surprised to find a non-OEM glass (when pointed out by Ford and agency personnel) in the vehicle because the windshield had been replaced prior to his purchase. Because, as indicated in the response to PE05-033, many windshield replacements are performed by independent third party facilities, Ford would have no record of the repair. Further, windshield repairs that are performed by Ford dealerships are often paid for by insurance carriers and do not become part of Ford's repair tracking system so that Ford would not be able to identify if a vehicle had in fact had windshield replacement. Ford's position that this issue does not rise to the level of a safety defect is further supported by the fact that none of the reports located by Ford and none of the VOQs identified by the agency indicate a single accident or loss of control in an average of nearly 68 months in service and that have traveled over 45 million vehicle miles.

Ford remains ready to assist the agency should any further discussion or clarification be necessary.